Disclosure Document
Dated March 24, 2023

IRB INFRASTRUCTURE TRUST

(An irrevocable trust set up under the Indian Trusts Act, 1882 and registered as an infrastructure investment trust with the Securities and Exchange Board of India)

Principal place of business: Off No-11th Floor/1101, Hiranandani Knowledge Park, Technology Street, Hill Side Avenue, Powai, Mumbai 400 076, Maharashtra, India
SEBI Registration Number: IN/InvIT/19-20/0012; **Tel**: +91 22 6733 6400
Website: www.irbinfratrust.co.in
Compliance Officer: Mr. Kaustubh Shevade; **E-mail**: kaustubh.shevade@irb.co.in

Sponsor	Investment Manager	Trustee
IRB Infrastructure Developers Limited	**MMK Toll Road Private Limited**	**IDBI Trusteeship Services Limited**

Listing of 879,293,265 units representing an undivided beneficial interest (the "**Units**") in IRB Infrastructure Trust (the "**Trust**", and such listing, the "**Listing**"). The Units are proposed to be listed on the equity segment of the National Stock Exchange of India Limited (the "**NSE**").

This Disclosure Document relates to the Listing of the outstanding Units of the Trust under the Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014 and the circulars, notifications, guidelines and clarifications issued thereunder, each as amended ("**InvIT Regulations**") and pursuant to a letter dated February 28, 2023 issued by the Securities and Exchange Board of India (the "**SEBI**").

The Investment Manager, having made all reasonable inquiries, accepts responsibility for and confirms that this Disclosure Document contains all information with regard to the Trust, the Units and the Listing, which is material in the context of the Listing, that the information contained in this Disclosure Document is true and correct in all material aspects and is not misleading in any material respect, that the opinions and intentions expressed herein are honestly held and that there are no other facts, the omission of which makes this Disclosure Document as a whole or any of such information or the expression of any such opinions or intentions misleading in any material respect.

This Disclosure Document does not constitute a prospectus, placement document, placement memorandum, offering circular or offering memorandum and is not an offer or invitation or recommendation or solicitation or inducement to buy or sell any Units or other securities of the Trust. This Disclosure Document has not been, and will not be, registered as a prospectus, will not be circulated or distributed to the public at large in India or any other jurisdiction, and the Listing will not constitute a public offer or private placement in India or any other jurisdiction.

THIS DISCLOSURE DOCUMENT HAS BEEN PREPARED BY THE INVESTMENT MANAGER SOLELY FOR PROVIDING INFORMATION IN CONNECTION WITH THE LISTING.

THE UNITS HAVE NOT BEEN RECOMMENDED OR APPROVED BY THE SEBI OR THE NSE NOR DOES THE SEBI OR THE NSE GUARANTEE THE ACCURACY OR ADEQUACY OF THE CONTENTS OF THIS DISCLOSURE DOCUMENT.

The distribution of this Disclosure Document or the disclosure of its contents without the Investment Manager's prior consent to any person is unauthorized and prohibited. Each recipient agrees to observe the foregoing restrictions and to make no copies of this Disclosure Document or any documents referred to in this Disclosure Document.

TABLE OF CONTENTS

SECTION I – GENERAL

DEFINITIONS AND ABBREVIATIONS

This Disclosure Document uses certain definitions and abbreviations which, unless otherwise specified or the context otherwise indicates, requires or implies, shall have the meanings as provided below. References to any legislation, act, regulation, rule, guideline, policy, circular, notification or clarification shall be deemed to include all amendments, supplements, re-enactments and modifications thereto from time to time, and any reference to a statutory provision shall include any subordinate legislation made from time to time thereunder.

General Terms

Term	Description
Trust	IRB Infrastructure Trust, an irrevocable trust set up under the Trusts Act and registered as an infrastructure investment trust under the InvIT Regulations
We / us / our	Unless the context otherwise requires or implies, the Trust and the Project SPVs

Trust Related Terms

Term	Description
Associate	"Associate" shall have the meaning given to such term under Regulation 2(1)(b) of the InvIT Regulations
Auditor / Trust's Auditor	Gokhale & Sathe, Chartered Accountants
Capital Contribution	The total subscription amounts by way of cash or share swap or otherwise (including transfer of interest in the Trust Assets by the Sponsor) received by the Trust from Unitholders (including the Sponsor) in connection with any placement, offering or issue of Units
Croxley	Croxley Investment Pte. Ltd.
Debt Novation Agreements	The debt novation agreements dated February 19, 2020 entered into by the Trust (acting through the Trustee), the Investment Manager and the Sponsor, with each of the Project SPVs (except PDTPL) and the Sponsor's affiliates (as applicable), in relation to the novation of subordinated debt and unsecured loans provided by the Sponsor and its associates to the Project SPVs (except PDTPL), as amended
Designated Stock Exchange	NSE
Disclosure Document	This disclosure document dated March 24, 2023 to be filed with the NSE
Financial Investors	Bricklayers Investment Pte. Ltd., Chiswick Investment Pte. Ltd., Dagenham Investment Pte. Ltd., Anahera Investment Pte. Ltd. and Stretford End Investment Pte. Ltd.
Formation Transactions	The transactions pursuant to which the Trust acquired the shareholding of the Sponsor in the Project SPVs (except PDTPL) and the subordinated debt and unsecured loans provided by the Sponsor and its associates to the Project SPV stood novated in favor of the Trust in consideration for Units issued to the Sponsor
Framework Agreement	The framework agreement dated August 6, 2019 among the Sponsor, the Investment Manager, the Financial Investors and Croxley, as amended
Indenture of Trust	The indenture of trust dated August 27, 2019 between the Sponsor and the Trustee to settle the Trust
Investment Management Agreement	The investment management agreement dated August 27, 2019 between the Trustee (on behalf of the Trust) and the Investment Manager for managing and administration of the Trust, in accordance with the InvIT Regulations, as amended
Investment Manager	MMK Toll Road Private Limited
Listing	The listing of the outstanding Units of the Trust on the NSE
Listing Agreement	The agreement to be executed between the Investment Manager (acting on behalf of the Trust) and the NSE for the Listing
Listing Date	The date on which the Units of the Trust will be listed on the NSE after the receipt of listing approval from the NSE
Manager Group or Manager Group Members	The Investment Manager, the Project SPVs, the Trust and the entities controlled by the Investment Manager/ the Trust, including any other SPVs
Parties to the Trust	The Sponsor, the Investment Manager, the Trustee and the Project Manager
Policies	The policies in relation to the Manager Group as specified in "*Corporate Governance*" on page 111
Portfolio	The toll road assets owned, operated and maintained by the Project SPVs
Portfolio Valuation Report	Valuation report dated March 23, 2023 issued by the Valuer in relation to the valuation of the Portfolio as of December 31, 2022

Term	Description
Project Entities	The entities through which the Sponsor operates its various road infrastructure projects
Project Implementation Agreements	The project implementation agreements dated February 3, 2020, as amended, entered into by the Trustee (on behalf of the Trust), the Investment Manager and the Project Manager, with each of the Project SPVs (except PDTPL) and the project implementation agreement dated May 19, 2022 entered into by the Trustee (on behalf of the Trust), the Investment Manager and the Project Manager with PDTPL, which set out the obligations of the Project Manager with respect to the execution, operation and maintenance of the project undertaken by such Project SPV in accordance with the InvIT Regulations
Project Manager	IRB Infrastructure Developers Limited
Project SPVs	The entities that form part of the Portfolio of the Trust, namely the following: i) AE Tollway Limited; ii) CG Tollway Limited; iii) IRB Hapur Moradabad Tollway Limited; iv) IRB Westcoast Tollway Limited; v) Kaithal Tollway Limited; vi) Kishangarh Gulabpura Tollway Limited; vii) Solapur Yedeshi Tollway Limited; viii) Udaipur Tollway Limited; ix) Yedeshi Aurangabad Tollway Limited; and x) Palsit Dankuni Tollway Private Limited.
Shareholder Loan Agreements	The shareholder loan agreements dated February 19, 2020 entered into by the Trust (acting through the Trustee) and the Investment Manager with each of the Project SPVs (except PDTPL) and the shareholder loan agreement dated April 7, 2022 entered into by the Trust (acting through the Trustee) and the Investment Manager with PDTPL to provide unsecured loans to each of the Project SPVs
Special Purpose Consolidated / Combined Financial Information	Special purpose consolidated / combined financial information for the Trust and the Project SPVs, prepared in accordance with the requirements of the InvIT Regulations and Ind AS, and the related notes, schedules and annexures thereto, as at and for the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years 2022, 2021 and 2020. The Project SPVs (except PDTPL) were transferred to the Trust on February 25, 2020 by the Sponsor pursuant to the Formation Transactions undertaken as part of the initial offer through private placement of Units. PDTPL was acquired by the Trust on April 2, 2022. The effective date for consolidation of the Project SPVs (except PDTPL) was March 1, 2020 and for PDTPL was April 2, 2022. Consolidated financial information has been included for the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years 2022 and 2021. The financial information for Financial Year 2020 includes consolidated financial information for the one-month period ended March 31, 2020 and combined financial information for the 11 month period from April 1, 2019 to February 29, 2020
Sponsor	IRB Infrastructure Developers Limited
SPVs or Identified SPVs	The SPVs held by the Trust in accordance with the InvIT Regulations
Stock Exchanges	BSE Limited and National Stock Exchange of India Limited
Traffic Consultant	GMD Consultants
Traffic Reports	The reports dated January 2023 prepared by the Traffic Consultant for the underlying road projects operated by the Project SPVs
Trust Assets	The assets owned by the Trust, whether directly or through an SPV or a Holding Company, and shall include all rights, interests and benefits arising from and incidental to ownership of such assets
Trust Documents	The Indenture of Trust, the charter documents of the Investment Manager, the Investment Management Agreement, the Trust Contribution Agreement (if any), the Project Implementation Agreements, any agreements among the Trustee, the Investment Manager and the Unitholders, in relation to the Trust, the Units, any debt securities or instruments or obligations issued by the Trust, any offering document in connection with a capital or debt issuance by the Trust, including any preliminary placement memorandum, final placement memorandum, information memorandum, draft offer document, offer document and final offer document, Policies, the Investment Manager and/or the SPVs/Holdcos, Business Plans and Annual Budget adopted by the Investment Manager and such other documents in connection herewith, as executed, issued, adopted and amended, modified, supplemented or restated from time to time
Trust Group or Trust Group Members	The Sponsor and the Manager Group Members
Trustee	IDBI Trusteeship Services Limited
Unitholder	An investor which holds Units of the Trust from time to time

Term	Description
Units	Undivided beneficial interest in the Trust and the Units together represent the entire beneficial interest in the Trust
Valuer	Mr. Sunit Khandelwal
Working Day	Any day which is not (a) a Saturday or Sunday; or (b) a day on which commercial banks in Mumbai, Delhi or Singapore are closed for ordinary banking business

Project SPVs

Term	Description
AETL	AE Tollway Limited
CGTL	CG Tollway Limited
IRB HMTL	IRB Hapur Moradabad Tollway Limited
IRB WTL	IRB Westcoast Tollway Limited
KGTL	Kishangarh Gulabpura Tollway Limited
KTL	Kaithal Tollway Limited
PDTPL	Palsit Dankuni Tollway Private Limited
SYTL	Solapur Yedeshi Tollway Limited
UTL	Udaipur Tollway Limited
YATL	Yedeshi Aurangabad Tollway Limited

Technical/Industry Related Terms/Abbreviations

Term	Description
BOT	Build-Operate-Transfer
CCEA	Cabinet Committee on Economic Affairs
DBFOT	Design-Build-Finance-Operate-Transfer
EPC	Engineering Procurement and Construction
ETC	Electronic Toll Collection
MoRTH	Ministry of Road Transport and Highways
NH	National Highway
NHAI	National Highways Authority of India
NHDP	National Highways Development Project
O&M	Operation and Maintenance
PPP	Public Private Partnership

Conventional Terms/Abbreviations

Term	Description
Alternative Investment Funds or AIFs	Alternative investment funds as defined in, and registered under, the SEBI AIF Regulations
CAGR	Compounded Annual Growth Rate
Category I FPIs	FPIs registered as “Category I foreign portfolio investors” under the SEBI FPI Regulations
Category II FPIs	FPIs registered as “Category II foreign portfolio investors” under the SEBI FPI Regulations
CDSL	Central Depository Services (India) Limited
CIN	Corporate Identity Number
Companies Act, 2013	Companies Act, 2013 read with the rules, regulations, clarifications and notifications thereunder
Contract Labour Act	Contract Labour (Regulation and Abolition) Act, 1970
COVID-19	Coronavirus disease 2019
DIN	Director Identification Number
DPIIT	Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, Government of India (formerly known as Department of Industrial Policy and Promotion)
DP ID	Depository participant identification
DP/ Depository Participant	A depository participant as defined under the Depositories Act

Term	Description
Debenture Trustees Regulations	Securities and Exchange Board of India (Debenture Trustees) Regulations, 1993
Depositories	NSDL and CDSL
Depositories Act	Depositories Act, 1996
FCNR Account	Foreign Currency Non-Resident Account, and has the meaning ascribed to the term "FCNR(B) account" under the Foreign Exchange Management (Deposit) Regulations, 2016
FDI	Foreign Direct Investment
FDI Policy	The 'Consolidated FDI Policy Circular of 2020' (No. 5(2)/2020-FDI Policy) issued by the DPIIT (FDI Division), which has been effective since October 15, 2020
FEMA	Foreign Exchange Management Act, 1999, read with rules and regulations thereunder
FEMA Rules	The Foreign Exchange Management (Non-debt Instruments) Rules, 2019
Financial Year / Fiscal / FY	Unless stated otherwise, the period of 12 months ending March 31 of that particular year
FPI(s)	Foreign portfolio investors, as defined in and registered under the SEBI FPI Regulations
GoI / Government	Government of India
HUF	Hindu Undivided Family
ICAI	The Institute of Chartered Accountants of India
IFRS	International Financial Reporting Standards
Income Tax Act/ I.T. Act	The Income Tax Act, 1961
Ind AS	Indian Accounting Standards
InvIT Regulations	Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014 and the circulars, notifications, guidelines and clarifications issued thereunder, each as amended
IST	Indian Standard Time
km	Kilometres
LLP Act	The Limited Liability Partnership Act, 2008
Mutual Fund(s)	Mutual fund(s) as defined in and registered under the Securities and Exchange Board of India (Mutual Funds) Regulations, 1996
NACH	National Automated Clearing House
NAV	Net asset value
NEFT	National Electronic Fund Transfer
NRE Account	Non-Resident External Account, as defined under the Foreign Exchange Management (Deposit) Regulations, 2016
NRI	An individual resident outside India who is a citizen of India
NRO	Non-Resident Ordinary Account, as defined under the Foreign Exchange Management (Deposit) Regulations, 2016
NSDL	National Securities Depository Limited
NSE	National Stock Exchange of India Limited
p.a.	Per annum
PAN	Permanent Account Number
PAT	Profit after tax
Pension Fund	Pension fund, as defined in and registered under the Pension Fund Regulatory and Development Authority Act, 2013
PFRDA	Pension Fund Regulatory and Development Authority
RBI	Reserve Bank of India
Registration Act	Registration Act, 1908
RTGS	Real Time Gross Settlement
SCRA	Securities Contracts (Regulation) Act, 1956
SCRR	Securities Contracts (Regulation) Rules, 1957
SEBI	The Securities and Exchange Board of India constituted under the SEBI Act
SEBI Act	Securities and Exchange Board of India Act, 1992
SEBI AIF Regulations	Securities and Exchange Board of India (Alternative Investment Funds) Regulations, 2012
SEBI Depository Regulations	Securities and Exchange Board of India (Depositories and Participants) Regulations, 2018
SEBI FPI Regulations	Securities and Exchange Board of India (Foreign Portfolio Investors) Regulations, 2019
SEBI FVCI Regulations	Securities and Exchange Board of India (Foreign Venture Capital Investors) Regulations, 2000
SEBI Intermediaries Regulations	Securities and Exchange Board of India (Intermediaries) Regulations, 2008
SEBI Master Circular	Master Circular for Infrastructure Investment Trusts (InvITs) dated April 26, 2022 issued by the SEBI

Term	Description
SEBI VCF Regulations	Securities and Exchange Board of India (Venture Capital Funds) Regulations, 1996
Trusts Act	Indian Trusts Act, 1882
VCFs	Venture capital funds as defined in and registered with the SEBI under the SEBI VCF Regulations

The words and expressions used but not defined herein shall have the meanings assigned to such terms under the SEBI Act, the SCRA, the InvIT Regulations and the rules, regulations, circulars and guidelines made thereunder.

Notwithstanding the foregoing, terms in "*Statement of Tax Benefits*", "*Regulations and Policies*", "*Summary of the Concession Agreements*", "*Financial Statements*", and "*Material Litigation and Regulatory Action*" on pages 55, 197, 117, 243 and 311, respectively, shall have the meanings given to such terms in these respective sections.

PRESENTATION OF FINANCIAL, INDUSTRY AND MARKET DATA

Certain Conventions

All references to "India" contained in this Disclosure Document are to the Republic of India and all references to the "U.S.", "USA" or the "United States" are to the United States of America.

Unless stated otherwise, all references to page numbers in this Disclosure Document are to the page numbers of this Disclosure Document.

Financial Data

Unless stated otherwise, the financial data included in this Disclosure Document in relation to the Trust and the Project SPVs is derived from the Special Purpose Consolidated / Combined Financial Information which has been prepared in accordance with the requirements of the InvIT Regulations and Ind AS. This Disclosure Document includes Special Purpose Consolidated / Combined Financial Information for the Trust and the Project SPVs as at and for the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years 2022, 2021 and 2020. The Project SPVs (except PDTPL) were transferred to the Trust on February 25, 2020 by the Sponsor pursuant to the Formation Transactions undertaken as part of the initial offer through private placement of Units. PDTPL was acquired by the Trust on April 2, 2022. The effective date for consolidation of the Project SPVs (except PDTPL) was March 1, 2020 and for PDTPL was April 2, 2022. Consolidated financial information has been included for the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years 2022 and 2021. The financial information for Financial Year 2020 includes consolidated financial information for the one-month period ended March 31, 2020 and combined financial information for the 11 month period from April 1, 2019 to February 29, 2020. For further information, see "*Financial Statements*" on page 243.

This Disclosure Document also includes summary financial statements of (i) the Sponsor as of and for the Financial Years 2022, 2021 and 2020 from the audited consolidated financial statements of the Sponsor which have been prepared in accordance with the Companies Act and Ind AS; and (ii) the Investment Manager for the Financial Years 2022, 2021 and 2020 from the audited standalone financial statements of the Investment Manager which have been prepared in accordance with the Companies Act and Ind AS. For further information, see "*Summary Financial Information*" on page 35.

The financial year for the Trust, the Sponsor, the Investment Manager and the Project SPVs commences on April 1 and ends on March 31 of the next year. Accordingly, all references to a particular Financial Year or fiscal, unless stated otherwise, are to the 12-month period ended on March 31 of that year.

The degree to which the financial information included in this Disclosure Document will provide meaningful information is entirely dependent on the reader's level of familiarity with Indian accounting policies and practices, the Companies Act, Ind AS and the InvIT Regulations. The Investment Manager has not attempted to explain these differences or quantify their impact on the financial data included in this Disclosure Document, and it is urged that you consult your own advisors regarding such differences and their impact on our financial data. Any reliance by persons not familiar with the accounting policies and practices on the financial disclosures presented in this Disclosure Document should accordingly be limited.

In this Disclosure Document, all figures and percentage figures in decimals have been rounded off to two decimals. However, where any figures may have been sourced from third-party industry sources, such figures may be rounded-off to such number of decimal points as provided in such respective sources. In this Disclosure Document, (i) the sum or percentage change of certain numbers may not conform exactly to the total figure given; and (ii) the sum of the numbers in a column or row in certain tables may not conform exactly to the total figure given for that column or row. Any such discrepancies are due to rounding off.

Unless stated or the context requires otherwise, any percentage amounts, as disclosed in "*Risk Factors*", "*Business*" and "*Management's Discussion and Analysis of Financial Condition and Results of Operations*" on pages 10, 84 and 287, respectively, and elsewhere in this Disclosure Document have been calculated on the basis of the Special Purpose Consolidated / Combined Financial Information.

Currency and Units of Presentation

All references to:

i) "Rupees" or "Rs." or "INR" or "₹" are to Indian Rupees, the official currency of the Republic of India; and
ii) "US$" or "USD" are to United States Dollars, the official currency of the United States of America.

Certain numerical information in this Disclosure Document has been presented in "million" and "billion" units. One million represents 1,000,000 and one billion represents 1,000,000,000.

Exchange Rates

This Disclosure Document contains conversions of certain other currency amounts into Indian Rupees. These conversions should not be construed as a representation that these currency amounts could have been, or can be converted into Indian Rupees, at any particular rate or at all.

The following table sets forth, for the periods indicated, information with respect to the exchange rate between the Rupee and the U.S. Dollar (in Rupees per U.S. Dollar):

As at	Reference rate (₹ per US$)
December 30, 2022*	82.79
March 31, 2022^	75.81
December 31, 2021^	74.30
March 31, 2021^	73.50
March 31, 2020^	75.39

** Source: Financial Benchmarks India Private Limited reference rate. Exchange rate as at December 30, 2022, as Financial Benchmarks India Private Limited reference rate is not available for December 31, 2022, being a Saturday.*
^ Source: Financial Benchmarks India Private Limited reference rate.

Industry and Market Data

Unless stated otherwise, industry and market data used in this Disclosure Document has been obtained or derived from the Traffic Reports prepared by the Traffic Consultant with respect to the toll revenues for the underlying road projects operated by the Project SPVs, which are commissioned reports, and publicly available information as well as other Government and industry publications and sources. The Investment Manager has commissioned the Traffic Reports, included in this Disclosure Document as "*Annexure B: Traffic Reports*", to provide an independent estimation of the projected traffic volumes with respect to the underlying road projects operated by the Project SPVs, which is based on historical data and certain assumptions.

Industry as well as Government publications generally state that information contained in those publications has been obtained from sources believed to be reliable but that their accuracy and completeness are not guaranteed and their reliability cannot be assured. Such data involves risks, uncertainties and numerous assumptions and is subject to change based on various factors, including those discussed in the section "*Risk Factors*" on page 10. Accordingly, investment decisions should not be based solely on such information.

The extent to which market and industry data used in this Disclosure Document is meaningful depends on the reader's familiarity with and understanding of methodologies used in compiling such data. There are no standard data gathering methodologies in the industry in which business of the Project SPVs/Trust is conducted, and methodologies and assumptions may vary widely among different industry sources.

Websites

The information contained on the websites of the Trust, the Trustee, the Sponsor or the other websites referenced in this Disclosure Document or that can be accessed through such websites, neither constitutes part of this Disclosure Document, nor is it incorporated by reference therein and should not form the basis of any investment decision. For details of the websites of the Trust, the Trustee and the Sponsor, see "*General Information*" on page 52.

FORWARD-LOOKING STATEMENTS

This Disclosure Document contains certain "forward-looking statements". These forward-looking statements generally can be identified by words or phrases such as "aim", "anticipate", "believe", "expect", "estimate", "intend", "objective", "plan", "goal", "project", "propose", "seek to", "likely", "will", "will continue", "will pursue", or other words or phrases of similar import. Similarly, statements that describe strategies, objectives, plans or goals are also forward-looking statements. All forward-looking statements are subject to risks, uncertainties and assumptions about the Trust and the Project SPVs that could cause actual results to differ materially from those contemplated by the forward-looking statements.

The Valuation Report is based on certain projections and accordingly, should be read together with the assumptions and notes thereto. The Traffic Reports include projections/estimates in relation to traffic growth, and accordingly, should be read in conjunction with the notes and assumptions thereto. See "*Annexure A: Portfolio Valuation Report*" and "*Annexure B: Traffic Reports*" on pages A-1 and B-1, respectively.

Actual results may differ materially from those suggested by forward-looking statements due to risks or uncertainties associated without expectations with respect to, but not limited to, regulatory changes pertaining to the infrastructure sector in India and our ability to respond to them, our ability to successfully implement our strategy, our growth and expansion plans, technological changes, our exposure to market risks, general economic and political conditions in India which have an impact on our business activities or investments, the monetary and fiscal policies of India, inflation, deflation, unanticipated turbulence in interest rates, foreign exchange rates, equity prices or other rates or prices, the performance of the financial markets in India and globally, changes in domestic laws, regulations and taxes and changes in competition in the infrastructure sector. Certain important factors that could cause actual results to differ materially from our expectations include, but are not limited to, the following:

- the outbreak and continuing spread of COVID-19 has had, and could further have, a material adverse effect on our business, financial condition and results of operations;
- the debt financing provided by the Trust to each of the Project SPVs is comprised of unsecured, interest-free loans which will become interest-bearing at a future date in accordance with the respective Shareholder Loan Agreements. The payment obligations of the respective Project SPVs in relation to such debt financing will be subordinated to all existing and future obligations of the Project SPVs towards any senior lenders;
- any payment by the Project SPVs, including in an event of termination of the relevant concession agreement, is subject to a mandatory escrow arrangement which restricts their flexibility to utilize the available funds;
- the regulatory framework governing infrastructure investment trusts in India is still evolving and the interpretation and enforcement thereof involve uncertainties, which may have a material, adverse effect on the ability of certain categories of investors to invest in the Units, our business, financial condition and results of operations and our ability to make distributions to Unitholders;
- we may not be able to make distributions to Unitholders or the level of distributions may fall;
- any default under the existing financing arrangements by any of the Project SPVs could adversely impact the Trust's ability to continue to own a majority of each of the Project SPVs, its cash flows and its ability to make distributions to Unitholders;
- we have a limited operating history and may not be able to operate our business successfully or generate sufficient cash flows to make or sustain distributions. The Special Purpose Consolidated / Combined Financial Information in this Disclosure Document has been prepared for purposes of the Listing and may not be indicative of the Trust's future financial condition and results of operations;
- the Valuation Reports, and any underlying reports, are not opinions on the commercial merits or financial condition of the Trust or the Project SPVs and the valuation contained in such Valuation Reports may not be indicative of the true value of the Project SPVs' assets; and
- we have referred to the data derived from Traffic Reports commissioned from the Traffic Consultant, which are based on certain bases, estimates and assumptions that are subjective in nature and may not be accurate.

For further discussion on factors that could cause actual results to differ from expectations, see the sections "*Risk Factors*", "*Industry Overview*", "*Business*" and "*Management's Discussion and Analysis of Financial Condition and Results of Operations*" on pages 10, 80, 84, and 287, respectively. By their nature, certain market risk disclosures are only estimates and could be materially different from what actually occurs in the future. As a result, actual gains or losses could materially differ from those that have been estimated.

Forward-looking statements reflect current views as of the date of this Disclosure Document and are not a guarantee of future performance or returns to investors. These statements are based on certain beliefs and assumptions, which in turn are based on currently available information.

Although the Investment Manager believes the assumptions upon which these forward-looking statements are based are reasonable, any of these assumptions could prove to be inaccurate, and the forward-looking statements based on these assumptions could be incorrect. The Investment Manager, the Trustee, the Sponsor or any of their affiliates/advisors do not have any obligation to update or otherwise revise any statements reflecting circumstances arising after the date hereof or to reflect the occurrence of underlying events, even if the underlying assumptions do not come to fruition.

There can be no assurance that the expectations reflected in the forward-looking statements and financial information will prove to be correct. Given these uncertainties, Unitholders and prospective investors are cautioned not to place undue reliance on such forward-looking statements and not to regard such statements to be a guarantee or assurance of our future performance or returns to investors.

SECTION II – RISK FACTORS

Readers should carefully consider all the information in this Disclosure Document, including the risks and uncertainties described below. To obtain a complete understanding, readers should read this section together with the sections "Business", "Financial Statements", "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Rights of Unitholders" on pages 84, 243, 287 and 220, respectively, as well as the other information contained in this Disclosure Document. The risks and uncertainties described in this section may not be the only risks and uncertainties the Trust and the Project SPVs currently face. Additional risks and uncertainties not presently known to the Trustee or the Investment Manager, or that the Trustee or the Investment Manager do not currently consider material, may arise or may adversely affect our business, financial condition, cash flows and results of operations. If any of the following risks, or other risks that are not currently known or are currently considered immaterial, actually occur, our business prospects, results of operations, cash flows and financial condition could suffer, the price of the Units could decline and investors may lose all or part of their investment. Unless otherwise specified in the relevant risk factors, the Trustee and the Investment Manager are not in a position to specify or quantify the financial or other risks mentioned herein.

This Disclosure Document also contains forward-looking statements that involve risks, uncertainties and assumptions. The actual results of the Trust and the Project SPVs could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the considerations described below and elsewhere in this Disclosure Document.

This Disclosure Document includes Special Purpose Consolidated / Combined Financial Information for the Trust and the Project SPVs as at and for the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years 2022, 2021 and 2020. The Project SPVs (except PDTPL) were transferred to the Trust on February 25, 2020 by the Sponsor pursuant to the Formation Transactions undertaken as part of the initial offer through private placement of Units. PDTPL was acquired by the Trust on April 2, 2022. The effective date for consolidation of the Project SPVs (except PDTPL) was March 1, 2020 and for PDTPL was April 2, 2022. Consolidated financial information has been included for the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years 2022 and 2021. The financial information for Financial Year 2020 includes consolidated financial information for the one-month period ended March 31, 2020 and combined financial information for the 11 month period from April 1, 2019 to February 29, 2020.

Readers should be aware that the price of the Units, and the income from them, may be subject to volatility. If any of the risks described below occurs, our business and prospects could be materially and adversely affected and investors could lose all or part of their original investment.

In this section, unless the context otherwise requires, a reference to "we", "us" and "our" refers collectively to the Trust and the Project SPVs.

Risks Related to the Structure of the Trust

1. *The outbreak and continuing spread of COVID-19 has had, and could further have, a material adverse effect on our business, financial condition and results of operations.*

The World Health Organisation has declared the outbreak of COVID-19 as a "pandemic" on March 12, 2020. There have been border controls and travel restrictions imposed by various countries as a result of the COVID-19 outbreak. Such outbreak of an infectious disease together with any resulting restrictions on travel and/or imposition of quarantine measures may result in protracted volatility in international markets and/or result in a global recession as a consequence of disruptions to travel and retail segments, tourism, and supply chains and may adversely impact the operations, revenues, cashflows and profitability of the Trust and the Project SPVs. There can be no assurance that any precautionary or other measures taken against infectious diseases would be effective. In particular, the COVID-19 outbreak has caused markets and economies worldwide to lose significant value and impacted economic activity worldwide. An economic slowdown has been caused by the spread of COVID-19, and it is possible that the outbreak of COVID-19 will cause a prolonged global economic crisis or recession.

The NHAI had temporarily suspended toll collection at toll plazas across India from March 26, 2020. Toll collection subsequently resumed on April 20, 2020. In addition, during the months of April 2021 and May 2021, due to the measures implemented in the states where our projects are under construction, by the respective State Governments, our project sites were required to occasionally close down for short periods of time. Further, from the second fortnight of April 2021, various State Governments have imposed restrictions on travel, which has led to a decline in our toll collections. For details of the gross monthly toll revenues of the Project SPVs, see "*Business – Details of the Project SPVs and the Portfolio*" on page 89. There was a second wave of COVID-19 in India during 2021 and caused widespread mortality, severely strained healthcare resources across the country.

We have implemented additional measures to increase hygiene standards at all locations and enforce strict social distancing norms for employees and other stakeholders who have to attend to essential activity at workplace. These are unprecedented times and the situation on the ground is evolving very rapidly. However, there is no assurance that our supply chains for fuel, raw materials and other commodities, including without limitation, fuel, equipment and spares will not be affected as a result of any restriction of movement of people and goods imposed by any government and any such restriction may affect our operations. In addition, the traffic and toll revenue on the Portfolio has been and may continue to be impacted as a result of such restrictions or economic slowdown caused by COVID-19 which may adversely affect our cash flows. The above factors may have an adverse effect on the Trust's operating results, businesses, assets, financial condition, performance, ability to access the equity and debt markets, cost of capital and liquidity and prospects.

There is uncertainty relating to the long term adverse impact of the COVID-19 pandemic, including the detection of new strains and subsequent waves of COVID-19 infections in India as well as various other parts of the world, on the global economy, global financial markets and the Indian economy. The ultimate extent of COVID-19 on our business, financial condition and results of operations will depend on these uncertain future developments. We remain subject to a risk that that COVID-19 could continue to have a material adverse impact on our business, financial condition, results of operations and prospects.

2. ***The debt financing provided by the Trust to each of the Project SPVs is comprised of unsecured, interest-free loans which will become interest-bearing at a future date in accordance with the respective Shareholder Loan Agreements. The payment obligations of the respective Project SPVs in relation to such debt financing will be subordinated to all existing and future obligations of the Project SPVs towards any senior lenders.***

The debt financing provided by the Trust to each of the Project SPVs comprises certain unsecured, interest-free loans (the "**Shareholder Loans**"), which is subordinated to the debt owed to the senior lenders of the respective Project SPVs at all times. The Shareholder Loans for the Project SPVs (except PDTPL) will become interest-bearing upon the earlier of (i) the completion of construction of the project of the relevant Project SPV and (ii) the listing of the Units. The Shareholder Loans for PDTPL will become interest-bearing upon the completion of construction of the project of PDTPL. Also see "*Background and Structure of the Trust – Certain Agreements in relation to the Trust – Framework Agreement*" and "*Background and Structure of the Trust – Certain Agreements in relation to the Trust — Shareholder Loan Agreements*" on page 71 and 75, respectively.

All payment obligations of the Project SPVs to the Trust under the Shareholder Loan Agreements are proposed to be serviced from the balance amounts remaining in the escrow accounts maintained by each Project SPV as mandated under the relevant concession agreements, after the payment of, among other things, all taxes due, all expenses in connection with the construction of the project, operations and maintenance expenses, including expenses for repair works, payment of concession fees, debt service payments to senior lenders (as defined under the relevant concession agreements), negative grants payable to the NHAI, reimbursement of expenditure incurred by the NHAI, any payments and damages due and payable and any reserve requirements set forth in the financing agreements, as defined in the relevant concession agreements (the "**Surplus Cash Flows**"). Accordingly, any reduction in the cash flows of the Project SPVs or any unanticipated increase in any of the payments to be made by the Project SPVs from the escrow accounts may result in a decrease in the Surplus Cash Flows, which may materially and adversely impact the ability of the Project SPVs to meet their payment obligations to the Trust in relation to the Shareholder Loans. Further, the receivables of each Project SPV (including the Surplus Cash Flows) are secured in favor of the existing senior lenders to the extent of the amounts payable to such senior lender pursuant to the terms of their respective financing arrangements and restrictive covenants under the financing arrangements with such senior lenders and the concession agreements prevent the Project SPVs from opening new bank accounts, and accordingly, the Project SPVs are not permitted to transfer the Surplus Cash Flows (as they arise) to a separate bank account in the name of the Project SPV that can be charged in favor of the Trust. We expect such receivables to remain secured in favor of the senior lenders until all amounts outstanding under such financing arrangements are paid in their entirety to the senior lenders. If an event were to occur under such financing arrangements such that all amounts outstanding under such financing arrangements were to become immediately due and payable, all, or substantially all, of the Surplus Cash Flows may be utilized in satisfying such payment obligations, thereby materially and adversely affecting the ability of such Project SPVs to meet their payment obligations to the Trust. Any adverse impact on any receivables payable to the Trust under such debt financing will materially and adversely affect the Trust's ability to make distributions to the Unitholders.

Further, if the relevant concession agreement is terminated, the Surplus Cash Flows together with the termination payments deposited in the relevant escrow account will be applied towards the payment of the amounts outstanding to the senior lenders prior to the payment of the amounts outstanding under the Shareholder Loans. Accordingly, such amounts may be insufficient to repay all amounts outstanding under the Shareholder Loans.

3. *Any payment by the Project SPVs, including in an event of termination of the relevant concession agreement, is subject to a mandatory escrow arrangement which restricts their flexibility to utilize the available funds.*

The escrow arrangements mandated under the concession agreements require all monies that are received by each Project SPV, including funds constituting the financing package, the fees collected from the operation of the Portfolio and any termination payments received from the NHAI, to be deposited in an escrow account and utilized only in accordance with the order prescribed under the escrow agreement. The consent of the NHAI is required to amend the order of outflow of payments from such escrow account. The escrow arrangements typically prioritize the payment of all taxes due, followed by payment of expenses in connection with the construction of the project, operation and maintenance expenses including expenses for repair works, payment of concession fees, debt service payments, negative grant/premium payable to the NHAI, reimbursement of expenditure incurred by the NHAI, any payments and damages due and payable and any reserve requirements set forth in any financing agreements. For details of the escrow arrangements, see "*Summary of the Concession Agreements*" on page 117.

With respect to withdrawals on termination, the escrow arrangements typically prioritize the payment of all taxes due, followed by the payment of 90% of debt due to senior lenders (excluding subordinated debt), the payment of any outstanding concession fee, the payment of damages in relation to the concession, retentions and payments arising out of liability for any defects, the remainder of debt due, subordinated debt, operation and maintenance expenses and any other payments under the concession agreement, after which the balance may be withdrawn by the Project SPVs for their own purposes. The Shareholder Loans will be classified as subordinated debt and equity under the concession agreements (other than to the extent of refinancing of the debt availed from existing senior lenders). Accordingly, the ability of the Trust to access such termination payments in relation to the Shareholder Loans will be subordinated to the discharge of all obligations towards the senior lenders and the payment of, among other things, any outstanding concession fees and damages. Any shortfall in the termination payments received from the NHAI may prevent us from recovering our investments or returns in the relevant Project SPVs adequately or at all.

4. *The regulatory framework governing infrastructure investment trusts in India is still evolving and the interpretation and enforcement thereof involve uncertainties, which may have a material, adverse effect on the ability of certain categories of investors to invest in the Units, our business, financial condition and results of operations and our ability to make distributions to Unitholders.*

The SEBI issued the InvIT Regulations with effect from September 26, 2014. The regulations have been amended and supplemented with additional guidelines, including on May 11, 2016 (as amended) and circulars dated October 20, 2016, November 29, 2016, April 13, 2018, November 27, 2019 (as amended), January 17, 2020 (as amended) and February 9, 2022.

Pursuant to amendments dated February 14, 2023 to the InvIT Regulations, the Investment Manager is required to comply with certain additional requirements in relation to corporate governance, including, *inter-alia*, composition of the board of directors of the Investment Managers, constitution of certain committees, appointment of independent directors in compliance with a prescribed independence criteria and the submission of certain periodic reports to the stock exchanges, with effect from April 1, 2023. The Investment Manager has applied to the SEBI seeking an extension of time for compliance with such governance norms pursuant to a letter dated March 16, 2023. Also, while the Trust was initially set up and functioning as an unlisted infrastructure investment trust under the InvIT Regulations, pursuant to decisions taken at a board meeting of the SEBI on September 30, 2022, the framework for unlisted infrastructure investment trusts was discontinued, and the SEBI issued a letter dated February 28, 2023 to the Investment Manager advising that the Units of the Trust be listed within a specified time period.

Because the regulatory framework governing infrastructure investment trusts is still evolving, interpretation and enforcement by regulators and courts involves uncertainties. Further, regulations and processes with respect to certain aspects of infrastructure investment trusts, including, but not limited to, the dissolution and delisting of infrastructure investment trusts and the liabilities of Unitholders, have not yet been issued or adopted. For example, infrastructure investment trusts are not "companies" or "bodies corporate" within the meaning of various SEBI regulations. Accordingly, the applicability of several regulations to the Trust is unclear.

Infrastructure investment trusts operate in a relatively unclear regulatory environment. Cost increases, fines, legal fees or business interruptions may result from changes to regulations, from new regulations, from new interpretations by courts or regulators of existing regulations or from stricter enforcement practices by regulatory authorities of existing regulations. In addition, new costs may arise from audit, certification and/or self-assessment standards required to maintain compliance with new and existing InvIT Regulations. Such changes in regulation, interpretation and enforcement may render it economically infeasible to continue conducting business as an infrastructure investment trust or otherwise have a material, adverse effect on our business, financial condition and results of operations.

Because we operate in an evolving and relatively untested regulatory environment, it is difficult to forecast how any new laws, regulations or standards or future amendments to the InvIT Regulations will affect infrastructure investment trusts and the infrastructure sector in India, and no assurance can be given that the regulatory system will not change in a way that will impair our ability to comply with the regulations, conduct our business, compete effectively or make distributions. Failure to comply with changes in laws, regulations and standards may have a material adverse effect on our business, financial condition, results of operations and prospects.

5. *We may not be able to make distributions to Unitholders or the level of distributions may fall.*

The Trust's distributions will be based on the NDCF available for distribution and not on whether the Trust makes an accounting profit or loss. The InvIT Regulations provide that not less than 90% of NDCF of each Project SPV are required to be distributed to the Trust in proportion of its holding in each of the Project SPVs, subject to applicable provisions of the Companies Act. Under the InvIT Regulations, not less than 90% of the NDCF of the Trust is required be distributed to the Unitholders not less than once a year in case of an infrastructure investment trust which has undertaken an initial offer through private placement. Such distributions are required to be made not later than 15 days from the date of declaration. The Investment Manager has adopted a distribution policy pursuant to which distributions are required to be made to the Unitholders on a quarterly basis. For further details, see "*Distributions*" on page 217.

The Trust primarily relies on interest payments and principal repayments in relation to the Shareholder Loans, the subordinated debt and the unsecured loans for generating its NDCF. NDCF at the Trust level may also be generated through payment of dividends by the Project SPVs or buy-back of shares of the Project SPVs. Similar to the Shareholder Loans, a portion of the subordinated debt and unsecured loans are also proposed to become interest-bearing upon the earlier of (i) the completion of construction of the project of the relevant Project SPV and (ii) the listing of the Units. See also " *– The Project SPVs are subject to restrictive covenants under their financing agreements that could limit our flexibility in managing our business or to use cash or other assets."* on page 26.

There can be no assurance or guarantee that the Trust will have sufficient distributable or realized profits or surplus in any future period to make distributions quarterly in any amount or at all. The ability of the Project SPVs to service the Shareholder Loans, unsecured loans and subordinated debt and pay dividends may be affected by a number of factors including, among other things:

- their respective businesses and financial positions;
- insufficient cash flows received from the assets;
- applicable law which may restrict the payment of dividends by the Project SPVs;
- operating losses incurred by the Project SPVs in any financial year;
- changes in accounting standards, taxation laws and regulations, laws and regulations in respect of foreign exchange repatriation of funds, corporation laws and regulations relating thereto; and
- the terms of agreements, including any concession agreements or financing agreements, to which they are, or may become, a party.

Further, the method of calculation of NDCF is subject to change. Any change in the applicable law in India or elsewhere (including, for example, tax laws and foreign exchange controls) may limit the Trust's ability to pay or maintain distributions to Unitholders. No assurance can be given that the Trust will be able to pay or maintain the levels of distributions or that the level of distributions will increase over time, or that future acquisitions will increase the Trust's distributable free cash flow to Unitholders. Any reduction in, or elimination or changes to the taxation of, payments of distributions could materially and adversely affect the distributions made by the Trust.

6. ***Any default under the existing financing arrangements by any of the Project SPVs could adversely impact the Trust's ability to continue to own a majority of each of the Project SPVs, its cash flows and its ability to make distributions to Unitholders.***

Any default under the existing financing arrangements by any of the Project SPVs could adversely impact the Trust's ability to own the Project SPVs, its cash flows and its ability to make distributions to Unitholders.

In addition, the lenders of the Project SPVs had issued consents in relation to the Formation Transactions pursuant to which the Project SPVs were transferred to the Trust. Such consents impose certain obligations on the Trust, including:

- the existing escrow agreement for the projects and all the toll collection arrangements to be continued;
- no dilution in security and rights of existing lenders;
- IRB group shall continue to hold 51% shareholding in the Trust during the currency of the loan;
- Prior to release of the pledged shares, the Sponsor, the Trust, the Project SPV, and the security trustee (acting on behalf of the lenders) shall execute an agreement setting out inter alia the mechanism of and obligations of the parties in relation to the release of the pledge by the security trustee and recreation of the pledge by the Trust to the satisfaction of the lenders;
- unsecured loans availed by the Project SPV from the Trust will be subordinated to the debt from senior lenders through the currency of loan. Any payment towards unsecured loans extended by the Trust shall be governed by the clause relating to 'restricted payment' as per the existing financing documents; and
- any new appointment/removal of the Investment Manager/Project Manager by the Trust shall be with prior approval from lenders.

7. ***We have a limited operating history and may not be able to operate our business successfully or generate sufficient cash flows to make or sustain distributions. The Special Purpose Consolidated / Combined Financial Information in this Disclosure Document has been prepared for purposes of the Listing and may not be indicative of the Trust's future financial condition and results of operations.***

This Disclosure Document includes Special Purpose Consolidated / Combined Financial Information for the Trust and the Project SPVs as at and for the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years 2022, 2021 and 2020. The Project SPVs (except PDTPL) were transferred to the Trust on February 25, 2020 by the Sponsor pursuant to the Formation Transactions undertaken as part of the initial offer through private placement of Units. PDTPL was acquired by the Trust on April 2, 2022. The effective date for consolidation of the Project SPVs (except PDTPL) was March 1, 2020 and for PDTPL was April 2, 2022. Consolidated financial information has been included for the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years 2022 and 2021. The financial information for Financial Year 2020 includes consolidated financial information for the one-month period ended March 31, 2020 and combined financial information for the 11 month period from April 1, 2019 to February 29, 2020. For further information, see "*Financial Statements*" on page 243.

The Special Purpose Consolidated / Combined Financial Information has been prepared for the sole purpose of the Listing and may not necessarily represent our financial position, results of operations and cash flows had the Trust (together with the Project SPVs) been in existence during the periods presented (in case of the combined financial information), nor do they give an indication of our financial results, cash flows and financial position in the future.

8. ***The Portfolio Valuation Report, and any underlying reports, are not opinions on the commercial merits or financial condition of the Trust or the Project SPVs and the valuation contained in such Portfolio Valuation Report may not be indicative of the true value of the Project SPVs' assets.***

Mr. Sunit Khandelwal has been appointed as the Valuer to undertake valuation of the Project SPVs. The Valuer has issued the Portfolio Valuation Report, included in *Annexure A* to this Disclosure Document, which sets out his opinion as to the fair enterprise value of the Project SPVs as on December 31, 2022.

In order to issue the Portfolio Valuation Report, the Valuer has based his assumptions regarding the traffic volume, toll rates, operation and maintenance costs, amortization, debt repayments and non-cash net working capital projections on information provided by and discussions with or on behalf of us, the Sponsor/Project Manager and the Investment Manager, and which reflects current expectations and views regarding future events and, therefore, necessarily involves known and unknown risks and uncertainties. Please see the Portfolio Valuation Report included as *Annexure A* to this Disclosure Document for a detailed description of the assumptions and methodology. The Portfolio Valuation Report contain forecasts, projections and other "forward-looking" statements that relate to future events, which are, by their nature, subject to significant risks and uncertainties. The future events referred to in these forward-looking statements involve risks, uncertainties and other factors which may cause the actual results or performance to be materially different from any future results or performance expressed or implied by the forward-looking statements.

The Portfolio Valuation Report is not an opinion on the commercial merits and structure of the Trust or the Project SPVs, nor are they an opinion, expressed or implied, as to the financial condition of the Trust upon Listing. The Portfolio Valuation Report does not purport to contain all the information that may be necessary or desirable to fully evaluate the Trust or the Project SPVs. The Portfolio Valuation Report is not based on a comprehensive review of the business, operational or financial condition of the Project SPVs and accordingly, makes no representation or warranty, expressed or implied, in this regard.

The Portfolio Valuation Report does not constitute and should not be construed as any form of assurance as to the financial condition or future performance of the Trust or as to any other forward-looking statements included therein, including those relating to certain macro-economic factors, by or on behalf of the Sponsor/Project Manager, the Investment Manager, the Trustee or their respective affiliates. Further, we cannot assure you that the valuation prepared by the Valuer reflect the true value of the net future revenues of the Project SPVs or that other valuers would arrive at the same valuation. Accordingly, the valuation contained therein may not be indicative of the true value of the Project SPVs' assets. The Portfolio Valuation Report does not take into account any subsequent developments and should not be considered as a recommendation by the Sponsor, the Investment Manager, the Project Manager, the Trustee, their respective affiliates or any other party that any person should take any action based on the Portfolio Valuation Report.

9. ***We have referred to the data derived from Traffic Reports commissioned from the Traffic Consultant, which are based on certain bases, estimates and assumptions that are subjective in nature and may not be accurate.***

We have relied on Traffic Reports issued by the Traffic Consultant, and commissioned by the Investment Manager, to forecast the traffic volumes for the Project SPVs' projects and to prepare traffic reports on the Portfolio, which are set out in *Annexure B* to this Disclosure Document. The Traffic Reports are subject to various limitations and are based upon certain bases, estimates and assumptions that are subjective in nature and that are based, in part, on information provided by and discussions with or on behalf of us, the Sponsor/Project Manager and the Investment Manager. The Traffic Reports reflect current expectations and views regarding future events, and therefore, necessarily involve known and unknown risks and uncertainties. The Traffic Reports contain forecasts, projections and other "forward-looking" statements that relate to future events, which are, by their nature, subject to significant risks and uncertainties, including population growth, gross domestic product growth, vehicle ownership rates, per capita income, agricultural output and fuel consumption. The future events referred to in the Traffic Reports involve risks, uncertainties and other factors which may cause the actual traffic volumes to be materially different from any future traffic volumes expressed or implied by the Traffic Reports. There can be no assurance that the bases, estimates and assumptions adopted by the Traffic Consultant for the purposes of preparing the Traffic Reports will prove to be accurate. If any of these bases or assumptions is incorrect, future traffic volumes for the Portfolio could be materially different from those that are set out in the Traffic Reports and this Disclosure Document. Also see "*Presentation of Financial, Industry and Market Data – Industry and Market Data*" on page 6.

Risks Related to our Business and Industry

10. ***Our failure to extend applicable concession agreements or our inability to identify and acquire new road assets that generate comparable or higher revenue, profits or cash flows than the Project SPVs may have a material adverse impact on our business, financial condition and results of operations and our ability to make distributions.***

The concession agreements of the Project SPVs stipulate a limited concession period. Certain concession agreements provide that if the actual traffic volume falls short of or exceeds the target traffic volume on a defined date, the concession period may be extended or reduced, respectively, by the NHAI according to a formula specified in the agreement. The table below sets out the details of the Project SPVs' concession periods.

Project SPV	Project	Concession period	Commencement of concession period	End of concession period with no reduction or extension	Residual concession period as of December 31, 2022 with no extension or reduction (approx.)
AETL	Agra - Etawah NH-2 Project	24 years	August 1, 2016	July 31, 2040	17 years and 7 months
CGTL	Gulabpura - Chittorgarh NH-79 Project	20 years	November 4, 2017	November 3, 2037	14 years, 10 months and 3 days
IRB HMTL	Hapur - Moradabad NH-9 Project	22 years	May 28 , 2019	May 26, 2041	18 years, 4 months and 26 days
IRB WTL	Goa - Kundapur NH-17 Project	28 years	March 3, 2014	March 2, 2042	19 years, 2 months and 2 days
KGTL	Kishangarh - Gulabpura NH-79/79A Project	20 years	February 21, 2018	February 20, 2038	15 years, 1 month and 20 days
KTL	Kaithal - Rajasthan Board NH-152/65 Project	27 years	July 15, 2015	July 14, 2042	19 years, 6 months and 14 days
SYTL	Solapur - Yedeshi NH-211 Project	29 years	January 21, 2015	January 20, 2044	21 years and 19 days
UTL	Udaipur - Rajasthan NH-8 Project	21 years	September 3, 2017	September 2, 2038	15 years, 8 months and 2 days
YATL	Yedeshi - Aurangabad NH-211 Project	26 years	July 1, 2015	June 30, 2041	18 years, 5 months and 30 days
PDTPL	Palsit-Dankuni NH-19 Project	17 years	April 2, 2022	April 1, 2039	16 years, 3 months

As at December 31, 2022, the residual periods for the concessions of the Project SPVs ranged from approximately 14 years, 10 months and three days to 21 years and 19 days. For further details on the residual concession period of each of the Portfolio assets, see "*Business*" on page 84.

There can also be no assurance that we will be able to acquire new toll-road assets upon the expiry of the Project SPVs' existing concession agreements or at any time thereafter. Accordingly, the number of assets forming part of our portfolio and the revenue generated by them may vary from time to time. Further, even if new toll-road assets are added to our portfolio, there can be no assurance that such toll-road assets will be able to generate comparable or higher cash flows, revenues and profits than the Project SPVs whose concession periods have expired. If the Project SPVs are unable to extend their concession agreements, or if we are unable to acquire new toll-road assets that generate comparable or higher cash flows, revenue or profits than the Project SPVs, our business, financial condition and results of operations and our ability to make distributions to Unitholders may be materially and adversely affected. For further details on the terms of each of the concession agreements, see "*Summary of the Concession Agreements*" on page 117.

11. ***The Project SPVs' toll-road concessions may be terminated prematurely under certain circumstances.***

The Portfolio comprises our principal assets. We will be unable to continue the operation of a particular road concession without a continuing concession right from the NHAI. A concession may be revoked by the NHAI for certain reasons set forth in the relevant concession agreement, including, but not limited to, one or more of the following:

- any failure by the relevant Project SPV to comply with prescribed minimum shareholding requirements;
- any failure by the relevant Project SPV to participate in, or match the bid of, the successful bidder in the event of any proposed augmentation of capacity of the relevant road asset;
- any failure by the relevant Project SPV to augment the capacity of the project if the average daily traffic exceeds the traffic capacity for which the project;
- any failure by the relevant Project SPV to make any payments, including negative grants, to the NHAI in a timely manner;
- any failure by the relevant Project SPV to comply with operational or maintenance standards;
- any temporary or permanent halt of operations at the relevant Project SPV;
- any occurrence of an event of default under any financing document where the lender has recalled any part of the loan;
- any continuation of a force majeure event, such as an act of God, act of war, expropriation or compulsory acquisition of any project assets by the government, industrial strikes, and civil commotions, boycotts and political agitations, beyond a specified time; and
- any failure by the relevant Project SPV to comply with any other material terms of the relevant concession agreement.

The concession agreements also provide that, if the actual traffic volume exceeds the target traffic volume on a defined date, the NHAI may reduce the concession period according to a formula specified in the concession agreement or require the concessionaire to undertake additional capacity augmentation in lieu of a reduction in the concession period.

For each of the Project SPVs, we have assumed that we will continue to operate the relevant project until the last date of the concession period as per the relevant concession agreement and have not made provisions for any reduction in the concession periods.

As at the date of this Disclosure Document, completion certificates have not been issued in relation to certain of our four-laning-to-six-laning projects, i.e., IRB WTL and PDTPL. If we are unable to complete the six-laning of these projects within the timelines under the concession agreements or to the satisfaction of the NHAI, our concession agreements may be terminated by the NHAI.

AETL, IRB HMTL, KGTL, KTL, SYTL, UTL, CGTL and YATL have received their final completion certificates. IRB HMTL has received a completion certificate dated July 1, 2022. KGTL has received a completion certificate dated July 20, 2022. IRB WTL has received a provisional completion certificate. The receipt of the final completion certificate is subject to the completion of all conditions specified in the provisional completion certificate, such as quadrant pitching, avenue plantation and completion of rest areas. Certain of these activities are subject to the receipt of certain approvals and/or resources from the NHAI. If IRB WTL is unable to complete the pending items listed in the provisional certificate, the respective concession agreements may be terminated. For more information, see "*Government and Other Approvals – Approvals in Relation to the Project SPVs*" on page 330.

In addition, AETL, CGTL, IRB HMTL, KGTL, UTL and PDTPL are required to pay annual premiums in consideration for being granted the right to build and operate their respective projects. Failure to make such payments could result in the termination of the relevant concession agreement by the NHAI.

In accordance with the terms and conditions of the concession agreements, should threshold levels of traffic set out in the concession agreements be exceeded, the Project SPVs may be required to undertake certain development of the Portfolio assets during an extended concession period by way of augmenting the capacity of the relevant Portfolio assets. While the Project SPVs are currently in various stages of development, construction and completion, none of the Project SPVs have exceeded the levels of traffic set out in the respective concession agreements and as such, have not been required to undertake certain development of the Portfolio, any future requirement to undertake such development may present additional risks to us. Certain concession agreements may impose penalties or provide for termination of such agreement for late or non-completion of the certain development of the Portfolio assets.

Our business, financial condition, reputation and results of operations may be materially and adversely affected if the completion of the construction of the Portfolio and/or the conditions specified in the relevant provisional completion certificate is delayed or not achieved in the specified manner. There can be no assurance that these will be completed in the time expected, or at all. Further, there is no assurance that all potential liabilities that may arise from delays or shortfall in performance of contractors will be accurately estimated as part of the planned costs of the construction of the Portfolio or conditions specified in the relevant provisional completion certificate, or that the damages that may be claimed from such contractors will be adequate to compensate any loss of revenues or profits resulting from such delays, shortfalls or disruptions. Such risks may increase if completion is delayed for an extended period. If we fail to manage any of the aforesaid risks or any unforeseen risks effectively, our revenues, profitability and results of operations could be materially and adversely affected. For further details on the events that may require the Project SPVs to undertake certain development of the Portfolio assets as contemplated under the relevant concession agreements, see "*Business*" and "*Summary of the Concession Agreements*" on pages 84 and 117, respectively.

If a concession agreement is terminated by the NHAI due to a default by a Project SPV, or by the Project SPV due to a default by the NHAI, such Project SPV is entitled to termination payments or otherwise from the NHAI in accordance with the terms of the relevant concession agreement. The Shareholder Loans may be for a maturity term that exceeds the maturity term of the original facilities obtained from the senior lenders. There can be no assurance that the NHAI will recognize such amounts as outstanding after the term of the original facilities obtained by the Project SPVs from their respective senior lenders. There can also be no assurance that the NHAI will pay the termination payments promptly or at all or that any termination payments will be adequate to enable us to recover our investments or returns in the relevant Project SPVs.

If any of the concession agreements are reduced or terminated prematurely, our business, financial condition and results of operations may be materially and adversely affected. For further details on the termination of the concession agreements, the termination payments, and the definition of "default" as contemplated under the relevant concession agreements, see "*Business*" and "*Summary of the Concession Agreements*" on pages 84 and 117, respectively.

12. *A decline in traffic volumes would materially and adversely affect our business prospects, financial condition and results of operations and our ability to make distributions to Unitholders.*

The Project SPVs currently operate the Portfolio assets. Toll revenues depend on toll receipts, which in turn depend on toll fees and traffic volumes on the toll roads. Traffic volumes are directly or indirectly affected by many external factors, including:

- toll fees;
- fuel prices in India;
- the frequency of traveller use;
- the number and affordability of automobiles;
- the quality, convenience and travel efficiency of alternative routes outside of our network of toll roads;
- the convenience and extent of a toll road's connections with other parts of the local, state and national highway networks;
- the availability and cost of alternative means of transportation, including rail networks and air transport;
- the level of commercial, industrial and residential development in areas served by the Project SPVs' projects;
- adverse weather conditions; and
- seasonal holidays.

In addition, under the terms of the concession agreements entered into by each of the Project SPVs and the NHAI, the Government and State Governments have the right to construct and open additional roads which may serve as alternate routes to the relevant Portfolio assets after the expiry of between eight and 15 years, depending on terms of the concession. The construction of such alternative roads and highways may result in a diversion of vehicular traffic from the relevant Portfolio assets and a reduction of revenue from toll receipts. Further, local roads and state highways may be improved so as to serve as alternate routes to the relevant Portfolio assets, and tolls may or may not be charged on such local roads and state highways. The existence or improvement of such alternative roads and highways may also result in a diversion of vehicular traffic from the relevant Portfolio assets and a reduction of revenue from toll receipts. For additional information on alternate routes, please see the Traffic Reports set out in *Annexure B* to this Disclosure Document. Also see "*Summary of the Concession Agreements*" on page 117.

While most of the Project SPVs' concession agreements provide for an extension in the concession period if the actual traffic volumes are significantly lower than the target traffic volumes set forth in the respective concession agreements, there can be no assurances that the concession period will be actually extended by the NHAI. In the event that the actual traffic volumes are significantly less than the projected traffic volumes, the revenue generated from toll receipts may be lower than anticipated and our business prospects, financial condition and results of operations and our ability to make distributions to Unitholders may be materially and adversely affected.

13. *We may face limitations and risks associated with debt financing, refinancing and restrictions on investment.*

We are subject to regulatory restrictions in relation to our debt financing and refinancing. We may from time to time require debt financing and refinancing to carry out the Investment Manager's investment strategy. In the event that we undertake debt financing or refinancing, we may be limited by Indian law as to the form of financing or refinancing that we may undertake. For instance, while the RBI has permitted scheduled commercial banks and certain financial institutions to lend to InvITs, such lending is subject to the conditions specified in the circular which include, *inter-alia*, banks putting in place a board-approved policy for exposure to InvITs and the determination of SPVs not being in "financial difficulty" and lending subject to such policies.

As a listed infrastructure investment trust, we will be subject to the leverage limits specified under the InvIT Regulations, i.e., up to 70% of the value of the Trust Assets. Pursuant to a letter dated February 28, 2023, the SEBI has granted us an exemption from the requirement to have a mandatory 'AAA' credit rating and a track record of six distributions to raise debt above 49% of the value of the Trust Assets and up to 70% of the value of the Trust Assets, subject to obtaining a credit rating and disclosing it to the Designated Stock Exchange and the Trustee in accordance with the timelines prescribed by the SEBI, and obtaining the approval of the unitholders of the Trust.

In the event that we undertake debt financing or refinancing, we may also be subject to risks associated with debt financing and refinancing, including the risk that our cash flow may be insufficient to meet required payments of principal and interest under such financing and to make distributions to Unitholders. Our ability to generate sufficient cash to satisfy our debt obligations will depend on our future operating performance, which may be affected by prevailing economic conditions and financial, business and other factors beyond our control. There is no assurance that we will be able to generate sufficient cash flow to meet all of our debt obligations. If we are unable to make payments due under our debt facilities, the lenders may be able to declare an event of default and initiate enforcement proceedings relating to any security provided in respect of the loan facilities, and/or call upon any guarantees, and this may materially and adversely affect our ability to make distributions to Unitholders. In case of default, lenders could initiate proceedings against the Trust Assets and the Trust Assets which remain after recovery of the defaulted amount would be remitted to the Unitholders on a proportionate basis. Such default may also result in the termination of certain concession agreements by the concessioning authority.

We may also be subject to certain covenants in connection with any future borrowings that may limit or otherwise materially and adversely affect our operations and our ability to make distributions to Unitholders, such as covenants restricting our ability to acquire assets or undertake other capital expenditure, requirements to set aside funds for maintenance or repayment of security deposits or requirements to maintain certain financial ratios. For further details, see "*Financial Indebtedness*" on page 307.

Further, if prevailing interest rates or other factors at the time of financing or refinancing (including changes in market conditions and maturity term imposed by any lenders) result in higher interest rates, the interest expense may be significant and may have a material and adverse effect on our cash flow and the amount of distributions available to Unitholders.

Additionally, as a privately placed infrastructure investment trust, the Trust is permitted to invest only in "eligible infrastructure projects" as defined under the InvIT Regulations, which excludes infrastructure projects that do not meeting certain thresholds. This may restrict the scope of potential acquisitions of assets in the future.

14. ***Certain Project SPVs have experienced negative cash flows during the last three financial years.***

The Project SPVs set out below have experienced negative cash flows during the last three financial years.

Project SPV	Net cash flow used in operating activities (₹ in million)		
	Financial Year 2022	Financial Year 2021	Financial Year 2020
IRB WTL	2,171.10	854.66	(2,197.89)
YATL	1,128.77	936.08	(3,464.85)
IRB HMTL	4,618.98	2,258.45	(446.20)
AETL	(98.32)	527.16	406.13

Negative cash flows over extended periods, or significant negative cash flows in the short term, could materially impact our ability to operate our business and implement our construction and growth plans. As a result, our cash flows, business, financial condition and results of operations could be adversely affected.

15. ***Leakage of the toll fees on the Project SPVs' roads may materially and adversely affect our revenues and financial condition.***

The Project SPVs' toll receipts are primarily dependent on the integrity of toll-collection systems and the willingness of road users to pay toll fees. While each of the Project SPVs has an integrated toll-collection system in place, the level of revenues derived from collection of tolls may be reduced by leakage through toll evasion, theft, fraud or technical defaults in the Project SPVs' toll systems or forced violations by users of the relevant Portfolio assets. Further, Project SPVs may also, at times, need to allow users of the relevant Portfolio assets to pass through without paying applicable tolls due to heavy traffic build-up, or may be unable to collect tolls due to political protests or other agitations relating to tolling. For instance, due to a protest against certain agricultural laws in India, tolling for the Kaithal – Rajasthan project operated by KTL was halted from December 25, 2020. The protest was called off on December 15, 2021 and toll collection resumed from December 16, 2021. Pursuant to a circular dated July 2, 2021 issued by the NHAI, the impact of such protest has been considered an indirect political force majeure event for purposes of the concession agreement and concessionaires would accordingly be entitled to appropriate relief with respect to the period of concession, cost of force majeure, interest payment on debt and O&M expenses. For details, see "*Management's Discussion and Analysis of our Financial Condition and Results of Operations – Factors affecting Results of Operations*" and "*Regulations and Policies*" on pages 287 and 197, respectively.

In addition, in certain circumstances, the governmental authorities or Indian courts could seek to suspend toll-collection for or during certain periods, in full or in part, on the Portfolio assets, which suspension would result in a reduction in our revenues. Further, toll-collection errors may amount to a loss of revenue as there is an inherent risk of under-collection of toll fees given that most users of toll roads pay in cash. Any significant failure by us to monitor and control leakage in toll-collection systems could have a material, adverse effect on our business, prospects, financial condition and results of operations and our ability to make distributions. See "*Summary of the Concession Agreements*" on page 117.

16. ***Our business will be subject to seasonal fluctuations that may affect our cash flows.***

Our cash flows will be affected by seasonal factors, which may materially and adversely affect traffic volumes. Traffic volumes tend to decrease during the monsoon season and conversely tend to increase during holiday seasons. The monsoon season may also restrict our ability to carry on activities related to our operation and maintenance of the Portfolio. This may result in delays in periodic maintenance and reduce productivity, thereby materially and adversely affecting our business, financial condition and results of operations.

17. ***Changes in the policies adopted by governmental entities or in the relationships of any of the Trust and the Project SPVs with the Government of India or state governments could materially and adversely affect our business, financial performance and results of operations.***

The Project SPVs derive almost all of their revenue from their respective concession agreements with the NHAI and must maintain good relationships with the NHAI, the Government of India and the various state governments. We expect that we will continue to depend on, and benefit from, policies relating to the terms of the concessions and other incentives that we will receive from governmental entities in respect of the Project SPVs' existing projects and any future projects. In addition, we benefit from, and depend on, the NHAI and various Government of India and state government entities in terms of policies, incentives, budgetary allocations and other resources provided by these entities for the roads industry in general. Any adverse change in any existing governmental policies, incentives, allocations or resources, or any change in our relationships with governmental entities, could materially and adversely affect our business, financial condition and results of operations. Also see "*Regulations and Policies*" on page 197. There can be no assurance that the Government of India will continue to focus on and promote toll-road projects on a build-operate-transfer basis.

Additionally, toll roads which involve public-private partnerships may be subject to delays, extensive internal processes, policy changes, changes due to local, national and internal political pressures and changes in governmental or external budgetary allocation and insufficiency of funds. Since governmental entities are responsible for awarding concessions and are a party to the development and operation of the awarded projects, our business will be directly and significantly dependent on their support. Any withdrawal of support or adverse changes in their policies, even if not quantifiable monetarily, may lead to the Project SPVs' concession agreements being restructured or renegotiated or the concession period being decreased, which could materially and adversely affect the Project SPVs' financing, capital expenditure, revenues, development or operations.

18. *Certain provisions of the standard form of concession agreement may be non-negotiable or untested, and the concession agreements may contain certain restrictive terms and conditions which may be subject to varying interpretations.*

Our concession agreements were entered into with the NHAI and we have limited ability to negotiate the terms of these contracts. The concession agreements that we have entered into are based on a model concession agreement prescribed by the NHAI. For example, the toll fees under the concession agreements are fixed, subject to annual adjustments to account for inflation as specified in the concession agreements and the applicable rules issued by the NHAI. In addition, the operation and maintenance standards and specifications require the Project SPVs to incur operation and maintenance costs on a regular and periodic basis. The model concession agreement prescribed by the NHAI also provides for a fixed term concession and, although all concession agreements provide for an extension or reduction of the concession period based on certain factors, including actual traffic volumes on the target date, the concession agreements do not provide for renewal of the concession agreement after the expiry of the term.

The form of the concession agreement has evolved within the last decade and there is limited guidance available on the interpretation of a number of provisions and conditions of such concession agreements. In addition, certain terms of the concession agreements, such as those related to an augmentation in the capacity of the toll roads, substitution of the NHAI in any or all of the project agreements, termination payments by the NHAI, construction of additional competing roads by the NHAI, the Government of India or state governments and payment of compensation by the NHAI for changes in law are untested. Accordingly, courts or regulators may consider a different interpretation of certain provisions and conditions in the concession agreements of the Project SPVs, which may be adverse to us.

The concession agreements of the Project SPVs also contain certain restrictive covenants. For instance, the concession agreements contain provisions that mandate substitution clauses in the project agreements. Such substitution clauses allow the NHAI to step into project agreements in place of a Project SPV in the event of suspension or termination of the concession agreements due to a breach or default by such Project SPV. The concession agreements also provide that the lenders to a Project SPV may substitute the Project SPV with new concessionaires approved by the NHAI in the event of a default by the Project SPV under the relevant concession agreement, financing agreements or other project agreements. Additionally, pursuant to a circular dated January 29, 2014 issued by the NHAI, the NHAI or lenders may substitute the Project SPV in the event of a "financial default" by such Project SPV, which includes situations in which the NHAI or lenders have reason to believe that the Project SPV is likely to face financial distress and is likely to default in its compliance with the terms of the relevant concession agreement.

The terms of the Project SPVs' concession agreements require the Project SPVs to indemnify the NHAI for losses arising out of the design, engineering, construction, procurement, operation and maintenance of the toll road or arising out of breach of the obligations of the Project SPVs under the concession agreements.

In the event the NHAI or a lender invokes any restrictive provision in the concession agreements or interprets any term or condition in an adverse manner, such invocation or interpretation may materially and adversely affect our business, financial condition and results of operations. For further details on the terms of the concession agreements, see "*Summary of the Concession Agreements*" on page 117.

19. *Certain actions of the Project SPVs require the prior approval of the NHAI, and no assurance can be given that the NHAI will approve such actions in a timely manner or at all.*

Certain terms and conditions in the Project SPVs' concession agreements, financing agreements, and our other approvals require the NHAI's prior written approval to be obtained for one or more of the following actions, among others:

- amendment, modification or replacement by the Project SPV of any project agreements (including financing agreements) relating to the operation of the Portfolio assets to which the Project SPV is a party if the amendment, modification or replacement of such agreement increases or imposes any financial liability or obligation on the NHAI;
- the creation of any encumbrance or security interest over, or transfer of rights and benefits of the Project SPVs under, the concession agreements or any project agreements; and
- the selection or replacement of any engineering, procurement and construction contract, operation and maintenance contractor and execution of the engineering, procurement and construction agreements and the operation and maintenance agreements.

Pursuant to a letter dated January 3, 2020, the NHAI has approved the establishment of the Trust and the transfer of the Project SPVs to the Trust subject to certain conditions, including, (i) submission of no-objection certificates from the lenders of all the Project SPVs; (ii) the concessionaire/developer complying with all the provisions of the concession agreements including holding 51% in the Trust until two years after the completion / provisional COD of the projects; (iii) the incoming investor complying with all relevant contractual obligations of the concession agreements; (iv) the proposal not having the effect of increasing any financial liability or obligation on the NHAI and not jeopardizing the interests of NHAI in any manner; and (v) an undertaking that all statutory compliances as required by SEBI guidelines will be adhered to.

The concession agreements of the Project SPVs also require the submission to the NHAI, for its review and comments, all project agreements to which a Project SPV is a party prior to entry, amendment or replacement of such agreements, even if such agreements do not affect the financial liability or obligations of the NHAI.

The restrictions described above may impose constraints on our flexibility to conduct our business. Further, if as a result of these restrictions, we are unable to pursue a favorable course of action or to respond to an unfavorable event, condition or circumstance, then our business, financial condition and results of operations may be materially and adversely affected. For details on the terms of the concession agreements, see "*Summary of the Concession Agreements*" on page 117.

20. *We depend on certain directors, executive officers and key employees of the Investment Manager and the Project Manager, and such entities may be unable to retain such personnel or to replace them with similarly qualified personnel, which could have a material, adverse effect on the business, financial condition, results of operations and prospects of the Trust and the Project SPVs.*

Our performance depends, in part, upon the continued service and performance of certain directors, executive officers and key employees of the Investment Manager and the Project Manager. The continued operations and growth of our business will be dependent upon the Investment Manager and the Project Manager being able to attract and retain personnel who have the necessary and required experience and expertise. Competition for qualified personnel with relevant industry expertise in India is intense due to the scarcity of qualified individuals in the toll roads business, and the aforesaid entities may not be able to retain their executive officers and key employees or attract and retain fresh talent in the future. Any inability by the Investment Manager or the Project Manager to retain their respective directors, executive officers and key employees, or the inability to replace such individuals with similarly qualified personnel, could have a material, adverse effect on the business, financial condition, results of operations and prospects of the Trust and the Project SPVs.

21. *There can be no assurance that we will be able to successfully undertake future acquisitions of road assets or efficiently manage the infrastructure road assets we have acquired or may acquire in the future.*

Our growth strategy in the future may involve strategic acquisitions of toll roads and other road assets, including pursuant to the Framework Agreement. Pursuant to the Framework Agreement, the Sponsor has agreed to certain arrangements in relation to submission of bids for (i) any new concession by the Sponsor and/or its affiliates involving the development or operation of roads and highways; or (ii) over any extensions of the concession period of road projects held by the Sponsor and/or its affiliates (other than the Project SPVs) with the Financial Investors. For details, see "*Related Party Transactions – Details of Related Party Transactions proposed to be undertaken*" and " *– The Sponsor, whose interests may be different from the other Unitholders, will be able to exercise significant influence over the Trust.*" on pages 211 and 27, respectively. We may not be able to conclude appropriate or viable acquisitions in a timely manner. The success of our past acquisitions and any future acquisitions will depend upon several factors, including:

- our ability to finance and acquire operational toll roads and other road assets on a cost-effective basis;
- our ability to integrate acquired personnel, operations, products and technologies into our organization effectively;
- unanticipated problems or legal liabilities of the acquired businesses; and
- tax or accounting issues relating to the acquired businesses.

There can be no assurance that we will be able to achieve the strategic purpose of such acquisitions or operational integration or an acceptable return on such investments, which may materially and adversely affect our profits, financial condition and distributions.

Further, concession agreements for future road projects may also contain terms and conditions that are more restrictive than those under the current Project SPVs' concession agreements for the Portfolio. These restrictions may restrict our flexibility in managing our business or projects and could in turn materially and adversely affect our business prospects, financial condition and results of operations.

22. *The Project SPVs' concessions are illiquid in nature, which may make it difficult for us to realize, sell or dispose of our shareholding in the Project SPVs.*

The Project SPVs' concessions are illiquid in nature, among other reasons, on account of market conditions, the residual periods of the concession agreements, various approvals, consents and confirmations required by the NHAI as per the concession agreements, and a scarcity of disposal options and/or potential acquirers. As a result, it may be difficult for us to realize, sell or dispose of our shareholding in the Project SPVs at an attractive price, or at the appropriate time, or at all, and such illiquidity may have a material, adverse effect on our market value, business, prospects, financial condition and results of operations. Further, in addition to the restrictions on minimum holding period and divestment under the InvIT Regulations, we are required to comply with the provisions of the concession agreement including holding at least 51% of each of the Project SPVs until two years after the completion of construction / provisional COD with respect to each of the Portfolio assets.

23. *Our insurance policies may not provide adequate protection against all possible risks associated with our operations.*

The Project SPVs' principal types of insurance coverage include standard fire and special perils insurance, contractor all-risk insurance and money insurance. However, there can be no assurance that all possible risks are adequately insured against or that we will be able to procure adequate insurance coverage at commercially reasonable rates in the future.

Further, the Portfolio is subject to various risks that we may not be insured against, adequately or at all, including:

- changes in governmental and regulatory policies;
- shortages of, or adverse price movement for, construction materials;
- design and engineering defects;
- breakdown, failure or substandard performance of the road assets and other equipment;
- improper installation or operation of the road assets and other equipment;
- labor disturbances;
- terrorism and acts of war;
- inclement weather and natural disasters;
- environmental hazards, including earthquakes, flooding, tsunamis and landslides; and
- adverse developments in the overall economic environment in India.

Further, we are subject to various risks in the operation of the Portfolio, including on account of accidents on the

Portfolio assets. For further details, see "*Material Litigation and Regulatory Action*" on page 312. Our insurance may not provide adequate coverage in certain circumstances and is subject to certain deductibles, exclusions and limits on coverage. To the extent we suffer damage or loss which is not covered by insurance, or exceed our insurance coverage, such damage or loss would have to be borne by us. We can make no assurance that material losses in excess of insurance proceeds (if any at all) will not occur in the future, which could materially and adversely affect our financial condition, business and results of operations.

24. *The Project SPVs, the Sponsor/Project Manager, the Investment Manager and the Trustee are involved in certain legal and other proceedings, which may not be decided in their favor.*

The Project SPVs, the Sponsor/Project Manager, the Investment Manager and the Trustee are involved in legal proceedings or claims which are pending at different levels of adjudication before various courts, tribunals and regulatory authorities. For details of certain material outstanding legal proceedings, see "*Material Litigation and Regulatory Action*" on page 312. There is no assurance that these legal proceedings and regulatory matters will be decided in favor of the respective entities. Decisions in any of the aforesaid proceedings adverse to our interests may have a material, adverse effect on our or their business, future financial performance and results of operations. If the courts, tribunals or regulatory authorities decide against the Project SPVs, the Sponsor/Project Manager, the Investment Manager or the Trustee, we or such entities may face monetary and/or reputational losses and may have to make provisions in our financial statements, which could increase expenses and liabilities. While the Sponsor will provide certain indemnities under the relevant share purchase agreement/share subscription agreement in relation to the Project SPVs, there can be no assurance that the relevant Project SPV or the Trust will be able to successfully bring a claim against the Sponsor under the relevant share purchase agreements/share subscription agreement or that such indemnities will be adequate to satisfy all the losses, damages, costs and expenses suffered by the Trust and the Project SPVs arising from such proceedings or the consequences thereof.

25. *We do not own the "IRB" trademark and logo. Our license to use the "IRB" trademark and logo may be terminated under certain circumstances and our ability to use the trademark and logo may be impaired.*

We do not own the "IRB" trademark and "IRB" logo, which are registered in the name of, and owned by, the Sponsor. However, pursuant to a separate name licensing agreement, as amended, the Sponsor has granted to the Trust, each of the Project SPVs and the Investment Manager, the non-transferable and non-assignable right to use the IRB trademark as part of their respective corporate names, if applicable, as well as the IRB logo in connection with their respective businesses, on a non-exclusive basis. The license may be terminated under certain circumstances, including (i) if the Sponsor or any of its subsidiaries ceases to be the sponsor of the Trust for any reason whatsoever; or (ii) if the Sponsor or any of its subsidiaries ceases to hold at least 51% of the equity share capital of the Investment Manager, or an entity which is not a subsidiary of the Sponsor is appointed as the investment manager of the Trust. Upon the termination of any license, the Trust and the Project SPVs will be required to cease the use of the IRB trademark and change its name to remove IRB from its name within three months from the date of termination, which may have a material, adverse effect on the operations of the Trust and the Project SPVs and require management's time and attention.

26. *The Portfolio is concentrated in the infrastructure sector and toll-road industry in India, and our business could be adversely affected by an economic downturn in that sector or industry. The Project SPVs' projects are geographically concentrated in Rajasthan and Maharashtra.*

The Portfolio comprises 10 toll roads in India. This concentration may expose us to the risk of economic downturns in the infrastructure sector and the toll-road industry to a greater extent than if our assets were more diversified across other industries in the infrastructure sector or other sectors of the economy.

As at the date of this Disclosure Document, four Portfolio assets are located in or pass through Rajasthan. Additionally, two Portfolio assets each are located in or pass through Maharashtra and Uttar Pradesh. Our business therefore will be significantly dependent on the general economic conditions, market conditions and natural disasters in the states in which we operate, in particular Rajasthan and Maharashtra. Any regional slowdown in economic activity in these areas resulting in a reduction in traffic on the Portfolio assets could materially and adversely affect our business, financial condition and results of operations.

27. *Political and other agitations against the collection of tolls may affect our ability to collect tolls over prolonged periods, which could have a material, adverse effect on our business, results of operation and financial condition.*

Over the past few years, there have been agitations by political parties and local community members against the collection of tolls on local road and state highway projects across various states, including Maharashtra. These agitations have often turned violent and resulted in the destruction of toll-collection booths and other related property. If such events spread to the Project SPVs' projects, which are located on the national highways, it may limit our ability to collect tolls over a prolonged period and may have a material, adverse effect on our business, financial condition and results of operations. Further, the Project SPVs' concession agreements provide that in the event that the Project SPVs' ability to collect tolls is disrupted as a result of political and other agitations over a specified period, either party to the concession agreement may terminate the agreement. While the concession agreements provide for a specified payment mechanism in the case of such termination, there can be no assurance that the Project SPVs will receive such payments from the NHAI in a timely manner or at all, or that such payments will be adequate to recover our investment or return, which may materially and adversely affect our business, financial condition and results of operations.

28. *We may be unable to renew or maintain the statutory and regulatory permits and approvals required to operate the Portfolio.*

The Project SPVs are required to obtain and maintain certain permits, approvals, licenses, registrations and permissions under various regulations, guidelines, circulars and statutes regulated by various regulatory and governmental authorities for operating the Portfolio assets. Certain approvals may lapse in the normal course and the respective Project SPVs make applications to the appropriate authorities for renewal of such licenses and/or approvals. For further details, see "*Government and Other Approvals*" on page 330. Under the Project Implementation Agreements, the Project Manager is responsible for the maintenance of such approvals. In relation to the obligations of the Project Manager under the Project Implementation Agreements, see *"The Sponsor and Project Manager – Functions, Duties and Responsibilities of the Project Manager*" on page 227. If the Project Manager, the Project SPVs and/or the third-party contractor(s) fail to obtain or maintain them, or if there is any delay in obtaining or renewing them, our business, financial condition and results of operations could be materially and adversely affected. Further, these permits, approvals, licenses, registrations and permissions could be subject to several conditions, and we can make no assurance that we would be able to continuously meet such conditions or be able to prove compliance with such conditions to the statutory authorities. This could lead to the cancellation, revocation or suspension of relevant permits, licenses or approvals, which may result in the interruption of our operations and may materially and adversely affect our business, financial condition and results of operations.

29. *Compliance with, and changes in, safety, health and environmental laws and regulations in India may materially and adversely affect our business.*

Our business will be subject to environmental, health and safety laws and regulations and various labor, workplace and related laws and regulations in India and requirements under the concession agreements. For further details, see "*Regulations and Policies*" on page 197. Any changes in, or amendments to, these standards or laws and regulations could further regulate our business and could require us to incur additional, unanticipated expenses in order to comply with these changed standards. Under the Project Implementation Agreements, the Project Manager is responsible for the maintenance of such requirements and standards. In relation to the obligations of the Project Manager under the Project Implementation Agreements, see *"The Sponsor and Project Manager – Functions, Duties and Responsibilities of the Project Manager*" on page 227. If we fail to meet safety, health and environmental requirements, we may also be subject to administrative, civil and criminal proceedings by governmental authorities, as well as civil proceedings by environmental groups and other individuals, which could result in substantial fines and penalties against us. Penalties imposed by regulatory authorities on us or third parties upon whom we depend may also disrupt our business and operations.

There can be no assurance that we will not become involved in future litigation or other proceedings or be held responsible in any such future litigation or proceedings relating to safety, health and environmental matters in the future. Clean-up and remediation costs, as well as damages, payment of fines or other penalties, other liabilities and related litigation, could materially and adversely affect our business, prospects, financial condition and results of operations.

30. *The Project SPVs' financing agreements entail interest at variable rates, and any increases in interest rates may adversely affect our results of operations, financial condition and cash flows.*

The Project SPVs are susceptible to changes in interest rates and the risks arising therefrom. For details, see "*Financial Indebtedness*" on page 307. These financing agreements entail interest at variable rates with a provision for the periodic reset of interest rates. Currently, certain of the Project SPVs' borrowings are at floating rates of interest. Further, under the Project SPVs' financing agreements, the lenders are entitled to change the applicable rate of interest depending upon the policies of the RBI and in the event of an adverse change in the Project SPVs' credit risk rating. Any increase in interest rates may have an adverse effect on our results of operations, financial condition and cash flows.

31. *The Project SPVs are subject to restrictive covenants under their financing agreements that could limit our flexibility in managing our business or to use cash or other assets.*

Various financing agreements that the Project SPVs have entered into with certain banks and financial institutions contain certain restrictive covenants, including, but not limited to, requirements that they obtain consent from the lenders prior to:

- effecting any change in the nature or scope of the project or any change in the financing plan;
- effecting any change in capital structure (including shareholding pattern);
- raising any equity or preference share capital;
- making any capital expenditure other than permitted investments;
- making any dividend payments to the Trust or making any other restricted payments (including redemption of any shares of any class, prepayment in relation to any indebtedness, payment of interest on unsecured loans, investment in any entity) except as permitted under the financing agreements;
- creating of any security interest in any of the secured property;
- incurring any other indebtedness, including the issuance of debentures, other than permitted indebtedness;
- entering into any partnership, profit-sharing or royalty agreement;
- removing any person exercising substantial powers of management over the affairs of the Project SPVs in case of an event of default;
- amending the constitutional documents of the Project SPVs;
- undertaking of any new project or making of any investment or taking any assets on lease;
- providing guarantees, indemnities or similar assurances in respect of indebtedness of any other person, (other than in the ordinary course of business);
- repaying or prepaying any subordinated loan or loans brought in as equity taken by the Project SPVs from the Sponsor;
- creating any subsidiary or permit the Project SPV to become a subsidiary;
- undertaking or permitting any scheme of arrangement or compromise with its creditors or shareholders; and
- changing the management/management control or the composition of the board of directors of any Project SPV.

For details, see "*Financial Indebtedness*" on page 307. In addition, these restrictive covenants may also affect some of the Trust's rights as the shareholder of the Project SPV and the Project SPV's ability to pay dividends if it is in breach of its obligations under the applicable financing agreement.

In case of any shortfall in project receivables, the relevant Project SPV may need to make good the shortfall from its own sources and/or arrange for the loan to be repaid through revenue shortfall loans from the relevant concession authority. Such financing agreements also require us to maintain certain financial ratios. In the event of any breach of any covenant contained in these financing agreements, we may be required to immediately repay our borrowings either in whole or in part, together with any related costs. There can be no assurance that we will be able to secure consents from, and/or negotiate revised terms with, the lenders on terms favorable to the Trust or at all.

Further, the financing agreements also contain cross default provisions which could automatically trigger defaults under other financing agreements. Certain lenders are also entitled to accelerate the repayment of the loans at any time based on the lenders' assessment of the cash flows, subject to any approval required from the concessioning authority.

If the Project SPV is suspended under the concession in relation to any default by such Project SPV, at any time during such suspension, the senior lenders of each Project SPV have the right to request the NHAI to substitute the concessionaire in accordance with the substitution agreement.

Any downgrading of the credit rating of the Project SPVs by a credit rating agency or any adverse comment from the statutory auditors of such Project SPV or the Trust may qualify as an event of default under the relevant financing agreements of the Project SPVs. Certain financing agreements also provide the banks and financial institutions with the right to convert amounts due into equity in the event of default, with the approval of the relevant concessioning authority. Certain of these banks and financial institutions also have a right to appoint nominee directors under these financing agreements in the event of default. Pursuant to the provisions of certain loan facilities availed by us, the lenders are entitled to recall the loan at any time on demand or call notice, requiring the borrower to repay (either in full or in part) the amount outstanding on any particular day.

Any or all of the above restrictive covenants may restrict our ability to conduct business and any breach thereof may adversely affect our results of operations and financial condition.

32. *Shares of the Project SPVs are pledged in favor of lenders, who may exercise their rights under the respective share pledge agreements in the event of default under relevant financing agreements.*

Shares of the Project SPVs are pledged in favor of the lenders to such Project SPVs to secure loan facilities obtained by the Project SPVs. 51% of the equity share capital of each of the Project SPVs has been pledged in favor of their respective lenders in accordance with the relevant financing documents.

If there are any defaults in payment or any breach under the relevant financing agreements, the lenders may exercise their right to enforce the security interest under the financing agreements, including by taking ownership of the pledged shares, selling the pledged shares to any third-party purchaser, and exercising voting rights in respect of the pledged shares on any matter at any meeting of the members of the relevant Project SPVs. If any such event occurs, we may not be able to fully recognize revenue attributable to these Project SPVs, if at all. In addition, if we lose ownership or control of any of our Project SPVs, our business, results of operations and financial condition, and our ability to make distributions, would be adversely affected.

33. *We will enter into related-party transactions. There can be no assurance that we could not have achieved more favorable terms if such transactions had been entered into with third parties.*

We will continue to enter into transactions with related parties, subject to and in accordance with the terms of the Framework Agreement. The procedure with respect to such related party transactions is subject to modification by law, which may have a material, adverse effect on the Trust. Further, there can be no assurance that we could not achieve more favorable terms had such transactions been entered into with unrelated parties. The transactions that we will enter into may involve conflicts of interest which may be detrimental to us. See "*Related Party Transactions*" on page 210. There can be no assurance that such transactions, individually or in the aggregate, will not have a material, adverse effect on our business, financial condition and results of operations, including because of potential conflicts of interest or otherwise.

Risks Related to the Trust's Relationships with the Sponsor and the Investment Manager

34. *The Sponsor, whose interests may be different from the other Unitholders, will be able to exercise significant influence over the Trust.*

After the completion of the Listing, the Sponsor will continue to own an aggregate of 51% of the issued and outstanding Units and will be entitled to vote as a Unitholder on all matters other than matters where it is a related party and not permitted to vote under the InvIT Regulations. Although the Investment Manager has a distinct board of directors, the Sponsor is nonetheless in a position to exercise significant influence in matters which require the approval of Unitholders by virtue of its ownership of Units in the Trust. The interests of the Sponsor may conflict with the interests of our other Unitholders and the Sponsor may, for business considerations or otherwise, seek to benefit itself instead of the Trust or the interests of the other Unitholders. The Sponsor also exercises significant influence over the Investment Manager.

We also rely on the Sponsor to comply with its obligations under the various transaction agreements to which it is a party, including the Framework Agreement. Pursuant to the Framework Agreement, the Sponsor has agreed that prior to the submission of a Bid (as defined under the Framework Agreement) for any Potential Project (as defined under the Framework Agreement), it will consult the Financial Investors in good faith and make best efforts to bid for the Potential Project on behalf of the Trust on such terms as agreed between Sponsor and the Financial Investors. If the Sponsor and the Financial Investors are unable to reach an agreement in relation to the terms of the Bid within a reasonable period, the Sponsor will be free to submit a Bid as it deems fit for the Potential Project provided such Bid is not on terms and conditions less favorable than the terms and conditions proposed by the Financial Investors.

The Sponsor is required to make an irrevocable invitation to offer to the Trust for equity shares held by the Sponsor and its nominees in PDTPL ("**PDTPL IRB Shares**") within a period of six months from the completion of a period of two years after the completion of the construction period (as defined under the PDTPL's concession agreement) such period, the "**PDTPL IRB Shares Offer Period**"). The Trust also has the right to require the Sponsor to make an invitation to offer for the PDTPL IRB Shares at any time after the completion of a period of two years after the completion of the construction period. If the Sponsor does not make an invitation to offer to the Trust within the PDTPL IRB Shares Offer Period, upon the expiry of such period, the requirement for the Sponsor to make such offer will be automatically triggered.

In addition, as our Project Manager, we rely on the Sponsor to provide construction works for the Project SPVs which are not yet completed and operation and maintenance services for the completed Project SPVs. Pursuant to the Project Implementation Agreements, the Project SPVs (other than AETL, CGTL, KTL, SYTL, UTL, KGTL and YATL) will continue to make payments to the Project Manager for the remaining engineering, procurement and construction works in relation to the relevant project on a monthly basis, or as otherwise agreed among the parties to the Project Implementation Agreements based on invoices raised by the Project Manager. Any such payment of fees will be in the nature of a related party transaction and the relevant approvals would be required under the InvIT Regulations. For further information about the fees payable to the Project Manager, please see "*Background and Structure of the Trust – Fees and Expenses*" on page 78.

We also rely on the Sponsor's expertise in executing build-operate-transfer projects in case of any additional work which we may be required to carry out for any of the Project SPVs or other assets. In the event that the Sponsor does not continue to focus on the infrastructure development sector or the toll-road industry, our business strategy, financial condition and results of operations may be materially and adversely impacted.

35. ***The Sponsor is a listed company, operates other road assets and has sponsored another infrastructure investment trust ("Public InvIT"), and anything that impacts the business, results of operations and trading price of the Sponsor's equity shares or the units of the Public InvIT may have a material adverse effect on the Trust.***

The Sponsor has been listed on the Stock Exchanges since 2008. The Sponsor has also previously sponsored the Public InvIT, which has been listed on the Stock Exchanges since 2017 and is also engaged in the toll-roads sector. As of December 31, 2022, the Sponsor had six road projects of which two were operational and four were under-construction or awaiting appointed date. The Public InvIT currently has a portfolio of six toll-road projects. Because of our relationship with the Sponsor and its future toll-road assets, anything that impacts the business, results of operations and trading price of the Sponsor's equity shares or the Public InvIT's units may have a material, adverse effect on the Trust.

36. ***The Investment Manager may not be able to implement its capital and risk management strategies.***

There is no assurance that the Investment Manager will be able to implement these strategies successfully or that it will be able to expand our portfolio at any specified rate or to any specified size or to maintain distributions at projected levels. The Investment Manager may not be able to make acquisitions or investments on favorable terms or within a desired time frame, and it may not be able to manage the operations of its underlying assets in a profitable manner. Factors that may affect this risk may include, but are not limited to, changes in the regulatory framework in India, competition for assets, partial award of concessions or licenses favoring local or other competitors of the Trust, changes in the Indian regulatory or legal environment or macro-economic conditions. If the Investment Manager is unable to implement these strategies successfully or expand our portfolio, we will nonetheless be required to pay the Investment Manager an annual management fee, which may be revised with the approval of the Unitholders such that the votes cast in favor of the resolution are not less than one-and-a-half times the votes against such resolution, in accordance with the terms of appointment of the Investment Manager.

Even if the Investment Manager is able to successfully grow the operating business of the underlying assets and to acquire toll roads and other eligible infrastructure projects in India, there can be no assurance that the Investment Manager will achieve any returns on such acquisitions or capital investments.

37. ***Parties to the Trust are required to maintain the eligibility conditions specified under Regulation 4 of the InvIT Regulations on an ongoing basis. The Trust may not be able to ensure such ongoing compliance by the Sponsor/Project Manager, the Investment Manager and the Trustee, which could result in the cancellation of the registration of the Trust.***

Parties to the Trust are required to maintain the eligibility conditions specified under Regulation 4 of the InvIT Regulations on an ongoing basis. These eligibility conditions include, among other things, that (a) the Sponsor, Investment Manager and Trustee are separate entities, (b) the Sponsor has a net worth of not less than ₹1,000 million and has a sound track record in the development of infrastructure or fund management in the infrastructure sector, (c) the Investment Manager has a net worth of not less than ₹100 million and has not less than five years' experience in fund management or advisory services or development in the infrastructure sector or the combined experience of the directors/partners/employees of the investment manager in fund management or advisory services or development in the infrastructure sector is not less than 30 years (provided that for computing the combined experience, only the experience of the directors/partners/employees with more than five years of experience in fund management or advisory services or development in the infrastructure sector shall be considered), (d) the Trustee is registered with the SEBI under Securities and Exchange Board of India (Debenture Trustees) Regulations, 1993 and is not an associate of the Sponsor or Investment Manager and (e) each of the Sponsor/Project Manager, the Investment Manager and the Trustee are "fit and proper persons" as defined under Schedule II of the Intermediaries Regulations on an ongoing basis. The Trust may not be able to ensure such ongoing compliance by the Sponsor/Project Manager, the Investment Manager and the Trustee, which could result in the cancellation of the registration of the Trust.

38. ***The Investment Manager is required to comply with certain ongoing reporting and management obligations in relation to the Trust. There can be no assurance that the Investment Manager will be able to comply with such requirements.***

The Investment Manager is required to comply with certain ongoing reporting and management obligations in relation to the Trust in accordance with the InvIT Regulations. These requirements include, among other things, (a) making investment decisions with respect to the underlying assets or projects of the Trust, (b) overseeing the activities of the Project Manager, (c) investing and declaring distributions in accordance with the InvIT Regulations, (d) submitting reports to the Trustee and (e) ensuring the audit of the Trust's accounts. There can be no assurance that the Investment Manager will be able to comply with such requirements in a timely manner or at all, which could subject the Investment Manager, the other parties to the Trust, the Trust or any person involved in the activity of the Trust to applicable penalties under the InvIT Regulations, the Intermediaries Regulations and/or the SEBI Act. Any such failure to comply or the imposition of any penalty could have a material adverse effect on our business, financial condition and results of operations. Under the InvIT Regulations, the SEBI also has the right to inspect documents, accounts and records relating to the activity of the Trust, the SPVs or Parties to the InvIT and may issue directions in the nature of, *inter-alia*, (i) requiring the Trust to surrender its certificate of registration; (ii) requiring the Trust to wind-up; (iii) requiring the Trust to sell its assets; (iv) requiring the Trust or Parties to the Trust to take such action as may be in the interest of investors; or (v) prohibiting the Trust or Parties to the Trust from operating in the capital markets or from accessing the capital markets for a specified period.

Risks Related to India

39. ***Changing laws, rules and regulations, including changes in legislation or the rules relating to tax regimes, legal uncertainties and the political situation in India may materially and adversely affect our business, financial condition and results of operations.***

Our business, financial condition and results of operations could be materially and adversely affected by any change in laws or interpretations of existing, or the promulgation of new, laws, rules and regulations applicable to us and our business. There can be no assurance that the Government of India or the state governments will not implement new regulations and policies which will require the Trust or the Project SPVs to obtain additional approvals and licenses from governmental and other regulatory bodies or impose onerous requirements and conditions on our operations.

Tax laws and regulations are subject to differing interpretations by tax authorities. Differing interpretations of tax and other fiscal laws and regulations may exist within governmental ministries, including tax administrations and appellate authorities, thus creating uncertainty and potential unexpected results. The degree of uncertainty in tax laws and regulations, combined with significant penalties for default and a risk of aggressive action, including by retrospective legislation, by the governmental or tax authorities, may result in tax risks in the jurisdictions in which we operate being significantly higher than expected. These events may result in a material, adverse effect on our business, financial condition, results of operations and prospects. Tax authorities in India may also introduce additional or new regulations applicable to our business which could adversely affect our business and profitability. For instance, the proposals under the Union Budget 2023-2024 include the introduction of taxation of distributions made by a business trust to its unitholders on account of repayment of debt under the head of "income from other sources" in the hands of such unitholders under section 56(2)(xii) of the Income-tax Act, 1961, with effect from the financial year 2024. This may have a material adverse on distributions in the future by the Trust.

The Government of India has implemented two major reforms in Indian tax laws, namely the goods and services tax and provisions relating to General Anti-Avoidance Rules. Given the relatively recent implementation of these laws, the manner of implementation of these tax regimes could create uncertainty.

The right to own property in India is subject to restrictions that may be imposed by the Government of India. In particular, the Government of India under the provisions of the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 ("**Land Acquisition Act**") has the right to compulsorily acquire any land if such acquisition is for a "public purpose," after providing compensation to the owner. However, the compensation paid pursuant to such acquisition may not be adequate to compensate the owner for the loss of such property. The likelihood of such acquisitions may increase as central and state governments seek to acquire land for the development of infrastructure projects such as roads, railways, airports and townships. While the NHAI or the relevant concessioning authority is responsible for the acquisition of the land underlying the toll-road infrastructure projects, any delays or disputes relating to such acquisition could lead to delays and disruptions in the execution of our projects, which would have a material adverse effect on our business, financial condition and results of operations.

The Competition Act, 2002, as amended (the "**Competition Act**"), regulates practices having an appreciable adverse effect on competition in the relevant market in India. The Competition Act aims to, among other things, prohibit all agreements and transactions which may have an appreciable adverse effect on competition in India. Further, the CCI has extra-territorial powers and can investigate any agreements, abusive conduct or combination occurring outside India if such agreement, conduct or combination has an appreciable adverse effect on competition in India. In the event that that any of the assets proposed to be acquired by us in the future cross the prescribed thresholds, we cannot assure you that we will receive the necessary approvals from the CCI to consummate such transactions. Any prohibition or substantial penalties levied under the Competition Act could materially and adversely affect our financial condition and results of operations. Any adverse impact on our financial condition or operations due to the Competition Act may have a material adverse impact on our business, financial condition, results of operations and prospects and our ability to make distributions to the Unitholders.

40. ***Significant increases in the price or shortages in the supply of crude oil and products derived therefrom, including petrol and diesel fuel, could materially and adversely affect the volume of traffic at the projects operated by the Project SPVs and the Indian economy in general, including the infrastructure sector.***

India imports a significant majority of its requirements of crude oil. Crude oil prices are volatile and are subject to a number of factors, including the level of global production and political factors, such as war and other conflicts, particularly in the Middle East, where a substantial proportion of the world's oil reserves are located. The ongoing Russia-Ukraine conflict has caused a significant increase and volatility in the price of crude oil and impacted fuel prices in India. Further increases in the price of or shortages in the supply of crude oil could materially and adversely affect the volume of traffic at the projects operated by the Project SPVs and materially and adversely affect the Indian economy in general, including the infrastructure sector, which could have a material, adverse effect on our business, financial condition and results of operations.

41. ***Our business is dependent on economic growth in India and financial stability in Indian markets, and any slowdown in the Indian economy or in Indian financial markets could have a material adverse effect on our business.***

The Trust is registered in India, and all of our assets are located in India. As a result, we are highly dependent on the prevailing economic conditions in India and our results of operations are significantly affected by factors influencing the Indian economy. Factors that may adversely affect the Indian economy, and hence our results of operations, may include:

- any increase in interest rates or inflation in India;
- any exchange rate fluctuations;
- any scarcity of credit or other financing in India;
- prevailing income, consumption and saving conditions among consumers and corporations in India;
- changes in India's tax, trade, fiscal or monetary policies;
- political instability, terrorism or military conflict in India or in countries in the region or globally, including

in India's various neighboring countries;
- the occurrence of natural or man-made disasters, pandemics or epidemics;
- prevailing regional or global economic conditions;
- the balance of trade movements, including export demand and movements in key imports, including oil and oil products; annual rainfall which affects agricultural production;
- civil unrest, riots, protests, acts of violence, terrorist attacks, regional conflicts or situations or war involving India or other countries could materially and adversely affect the financial markets, which could impact our business; and
- other significant regulatory or economic developments in or affecting India or its infrastructure sector.

Any slowdown or perceived slowdown in the Indian economy, or in specific sectors of the Indian economy, could have a material, adverse effect on our business, financial condition and results of operations and the price of the Units.

Further, the Indian economy and Indian financial market are influenced by economic and market conditions in other countries, particularly in emerging market in Asian countries. Financial turmoil in Asia, Europe, the United States and elsewhere in the world in recent years, as well as the ongoing Russia-Ukraine conflict, has affected the Indian economy. Recent bank collapses in the United States and globally have contributed to instability in the global banking system. Although economic conditions are different in each country, investors' reactions to developments in one country can have a material, adverse effect on the securities of companies in other countries, including India. A loss in investor confidence in the financial systems of other emerging markets may cause increased volatility in Indian financial markets and, indirectly, in the Indian economy in general. Any global financial instability, including any instability related to relations between the United States and China, as well as India and China, could also have a negative impact on the Indian economy. Financial disruptions may occur again and could harm our results of operations and financial condition.

42. ***Any downgrading of India's sovereign debt rating by a domestic or international rating agency could materially and adversely affect our ability to obtain financing and, in turn, our business and financial performance.***

India's sovereign debt rating could be downgraded due to various factors, including changes in tax or fiscal policy or a decline in India's foreign exchange reserves, which are outside of our control. Any adverse revisions to India's credit ratings for domestic and international debt by domestic or international rating agencies may materially and adversely impact our ability to raise additional financing, and the interest rates and other commercial terms at which any such additional financing is available. This could have a material, adverse effect on our business and financial performance, ability to obtain financing for capital expenditures and the price of the Units.

43. ***Fluctuations in the exchange rate of the Indian Rupee with respect to the U.S. Dollar or other currencies will affect the foreign currency equivalent of the value of the Units and any distributions.***

Fluctuations in the exchange rates between the Indian Rupee and other currencies will affect the foreign currency equivalent of the Indian Rupee price of the Units. Such fluctuations will also affect the amount that holders of the Units will receive in foreign currency upon conversion of any cash distributions or other distributions paid in Indian Rupees by us on the Units, and any proceeds paid in Indian Rupees from any sale of the Units.

Risks Related to Ownership of the Units

44. ***It may not be possible for Unitholders to enforce foreign judgements.***

The Trustee, the Investment Manager and the Sponsor are incorporated in India and the Trust is settled and registered in India. All of our assets are located in India and we may, from time to time, invest in toll roads in India. Where investors wish to enforce foreign judgements in India, where our assets are or will be located, they may face difficulties in enforcing such judgements. India is not a party to any international treaty in relation to the recognition or enforcement of foreign judgements. India exercises reciprocal recognition and enforcement of judgements in civil and commercial matters with a limited number of jurisdictions, including Singapore. In order to be enforceable, a judgement obtained in a jurisdiction which India recognizes as a reciprocating territory must meet certain requirements of the Code of Civil Procedure, 1908 ("**Civil Code**"). Further, the Civil Code only permits enforcement of monetary decrees not being in the nature of any amounts payable in respect of taxes, or other charges of a like nature or in respect of a fine or other penalty and does not provide for the enforcement of arbitration awards even if such awards are enforceable as a decree or judgement. Judgements or decrees from jurisdictions not recognized as a reciprocating territory by India cannot be enforced or executed in India except through a fresh suit upon judgement. Even if we or a Unitholder were to obtain a judgement in such a jurisdiction, we or it would be required to institute a fresh suit upon the judgement and would not be able to enforce such judgement by proceedings in execution. In addition, the party which has obtained such judgement must institute the new proceedings within three years of obtaining the judgement. It is unlikely that an Indian court would award damages on the same basis or to the same extent as was awarded in a judgement rendered by a foreign court if the Indian court believed that the amount of damages awarded was excessive or inconsistent with public policy in India. In addition, any person seeking to enforce a foreign judgement in India is required to obtain prior approval of the RBI to repatriate outside India any amount recovered pursuant to the execution of the judgement.

Consequently, it may not be possible to enforce in an Indian court any judgement obtained in a foreign court, or effect service of process outside of India, against Indian companies, their directors and executive officers, and any other parties resident in India. Additionally, there is no assurance that a suit brought in an Indian court in relation to a foreign judgement will be disposed of in a timely manner.

45. *The Trust may be dissolved, and the proceeds from the dissolution thereof may be less than the amount invested by the Unitholders.*

The Trust is an irrevocable trust registered under the Registration Act and it may only be extinguished, dissolved and terminated in accordance with the InvIT Regulations and other applicable law. Under the Indenture of Trust, in the event of dissolution, the net assets of the Trust, remaining after settlement of all liabilities, and the retention of any reserves which the Trustee deems to be necessary to discharge contingent or unforeseen liabilities, shall be paid to the Unitholders. Should the Trust be dissolved, depending on the circumstances and the terms upon which assets of the Trust are disposed of, there is no assurance that a Unitholder will recover all or any part of its investment. There may also be uncertainty around the interpretation and implementation of certain provisions in relation to the insolvency of a trust under the Insolvency and Bankruptcy Code, 2016.

46. *The reporting requirements and other obligations of infrastructure investment trusts are still evolving. Accordingly, the level of ongoing disclosures made to and the protection granted to Unitholders may be more limited than those made to or available to the shareholders of a company in India.*

The InvIT Regulations, along with the guidelines and circulars issued by the SEBI from time to time, govern the affairs of infrastructure investment trusts in India. However, as compared to the statutory and regulatory framework governing companies in India, the regulatory framework applicable to infrastructure investment trusts is relatively new and thus, still evolving.

Accordingly, the ongoing disclosures made to Unitholders under the InvIT Regulations may differ from those made to the shareholders of a company in accordance with the Companies Act. Further, the rights of the Unitholders may not be as extensive as the rights of the shareholders of a company and accordingly, the protection available to the Unitholders may be more limited than those available to such shareholders.

47. *The price of the Units may decline after the Listing.*

The price of the Units may decline after Listing. If the price of the Units declines significantly, Unitholders may be unable to resell their Units at or above their purchase price, if at all. There can be no assurance that the price of the Units will not fluctuate or decline significantly in the future. The price and value of the Units will depend on many factors, including, among others:

- the perceived prospects of our business and investments and the market for toll roads and other infrastructure projects;
- differences between our actual financial and operating results and those expected by investors and analysts;
- the perceived prospects of future toll roads and other infrastructure projects that may be added to our portfolio in accordance with our investment mandate;
- changes in general economic or market conditions;
- the market value of our assets;
- the perceived attractiveness of the Units against those of other business trusts, equity or debt securities;
- the balance of buyers and sellers of the Units;
- the size and liquidity of the Indian business trusts market;
- any changes to the regulatory system, including the tax system, both generally and specifically in relation to India business trusts;

- the ability of the Investment Manager to implement successfully its investment and growth strategies;
- foreign exchange rates;
- variations in our quarterly operating results;
- additions or departures of key management personnel of the Investment Manager and/or the Project SPVs;
- changes in the amounts of our distributions, if any, and changes in the distribution payment policy or failure to execute the existing distribution policy;
- actions by Unitholders;
- changes in market valuations of similar business entities or companies;
- announcements by us or our competitors of significant contracts, acquisitions, disposals, strategic partnerships, joint ventures or capital commitments;
- speculation in the press or investment community; and
- changes or proposed changes in laws or regulations affecting the road industry and infrastructure development in India or enforcement of these laws and regulations, or announcements relating to these matters.

To the extent that we retain operating cash flow for investment purposes, working capital reserves or other purposes, these retained funds, while increasing the value of our underlying assets, may not correspondingly increase the price of the Units. Our performance with regard to future earnings and distributions may materially and adversely affect the market price of the Units. In addition, Unitholders who do not, or are not able to, participate in a new issuance of Units may experience a dilution of their interest in the Trust. The Units are not capital-safe products and there is no guarantee that Unitholders can regain the amount invested, in full or in part. If the Trust is extinguished, it is possible that investors may lose a part or all of their investment in the Units.

48. ***Any future issuance of Units by us or sales of Units by the Sponsor or any of other significant Unitholders may dilute your Unitholding.***

Any future issuance of Units by us could dilute investors' holdings of Units. Any such future issuance of Units could impact our ability to raise capital through an offering of our securities. There can be no assurance that we will not issue further Units. While the Sponsor has agreed to certain *inter-se* arrangements in relation to the sale of its Unitholding with the Financial Investors and pre-emptive rights in case of any further issue of Units, if the Sponsor (pursuant to any applicable waivers), directly or indirectly, sells or is perceived as intending to sell a substantial number of its Units, the price for the Units could be materially and adversely affected. These sales may also make it more difficult for us to raise capital through the issue of new units at a time and at a price we deem appropriate. We cannot assure you that the Unitholders, including the Sponsor (subject to the terms of the Framework Agreement), and other significant Unitholders, will not dispose of, pledge or otherwise encumber their Units. For details of the *inter-se* arrangements, see "*Background and Structure of the Trust – Certain Agreements in relation to the Trust – Framework Agreement*" and "*Rights of Unitholders*" on pages 71 and 220, respectively.

49. ***Our rights and the rights of the Unitholders to recover claims against the Investment Manager or the Trustee are limited.***

Under the Investment Management Agreement, the Investment Manager is not liable for, among other things, any action for any investment decision taken in respect of the Trust, other than for fraud, gross negligence, or wilful misconduct on the part of the Investment Manager.

Pursuant to the Indenture of Trust, the Trustee is not liable for anything done or omitted to be done or suffered by the Trustee in good faith. Further, the Trustee is not liable for any action or omission that results in any depletion in the value of the trust fund and consequent losses of the Unitholder, except in situations where such depletion is a result of the gross negligence, fraud or wilful default on the part of the Trustee, or a violation of the Investment Management Agreement, as determined by a court of competent jurisdiction whose decision is final and non-appealable. Any costs and expenses incurred by the Trustee in connection with any legal proceedings, in relation to the Trust, shall be incurred by the Trustee from the Trust Assets.

The Investment Management Agreement provides that the Investment Manager is entitled to be indemnified out of the Trust Assets against all taxes and other liabilities, claims, costs, losses, damages and expenses (including reasonable attorney's fees and costs) ("**Losses**") incurred in connection with the Trust, unless arising out of fraud, gross negligence or wilful misconduct. As a result, the Trust's rights and the rights of the Unitholders to recover claims against the Investment Manager are limited. Further, recourse to the Trustee may be limited under the Indenture of Trust. The Indenture of Trust provides for the indemnification of the Trustee for all Losses, except

Losses incurred due to any fraud, gross negligence or wilful misconduct, or material breach of the provisions of the Investment Management Agreement, or the provisions of the other Trust Documents, as finally determined by a court of competent jurisdiction.

50. ***Information and the other rights of Unitholders under Indian law may differ from such rights available to equity shareholders of an Indian company or under the laws of other jurisdictions.***

The Indenture of Trust and various provisions of Indian law govern our corporate affairs. Legal principles relating to these matters and the validity of corporate procedures, fiduciary duties and liabilities, and Unitholders' rights may differ from those that would apply to a company in India or a trust in another jurisdiction. Unitholders' rights and disclosure standards under Indian law may also differ from the laws of other countries or jurisdictions. Also see "*Rights of Unitholders*" on page 220.

SECTION III – INTRODUCTION

SUMMARY FINANCIAL INFORMATION

The following tables set forth the summary financial information derived from:

a) the Special Purpose Consolidated / Combined Financial Information, prepared in accordance with the requirements of the InvIT Regulations and Ind AS, as of and for the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years ended March 31, 2022, March 31, 2021 and March 31, 2020;

b) the consolidated financial statements of the Sponsor, prepared in accordance with Ind AS and the Companies Act, as of and for the Financial Years ended March 31, 2022, March 31, 2021 and March 31, 2020; and

c) the standalone financial statements of the Investment Manager, prepared in accordance with Ind AS and the Companies Act, as of and for the Financial Years ended March 31, 2022, March 31, 2021 and March 31, 2020.

The degree to which the summary financial information included herein below will provide meaningful information is entirely dependent on the reader's level of familiarity with Indian accounting practices, Ind AS, the Companies Act and the InvIT Regulations. Accordingly, any reliance by persons not familiar with Indian accounting practices, Ind AS, the Companies Act and the InvIT Regulations on the summary financial information presented below should be limited.

The summary financial information derived from the Special Purpose Consolidated / Combined Financial Information, as presented herein below, should be read in conjunction with the Special Purpose Consolidated / Combined Financial Information, the notes thereto and the sections "*Financial Statements*" and "*Management's Discussion and Analysis of Financial Condition and Results of Operations*" on pages 243 and 287, respectively.

This Disclosure Document includes Special Purpose Consolidated / Combined Financial Information for the Trust and the Project SPVs as at and for the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years 2022, 2021 and 2020. The Project SPVs (except PDTPL) were transferred to the Trust on February 25, 2020 by the Sponsor pursuant to the Formation Transactions undertaken as part of the initial offer through private placement of Units. PDTPL was acquired by the Trust on April 2, 2022. The effective date for consolidation of the Project SPVs (except PDTPL) was March 1, 2020 and for PDTPL was April 2, 2022. Consolidated financial information has been included for the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years 2022 and 2021. The financial information for Financial Year 2020 includes consolidated financial information for the one-month period ended March 31, 2020 and combined financial information for the 11 month period from April 1, 2019 to February 29, 2020.

A. **Summary Special Purpose Consolidated / Combined Financial Information**

I. ***Special Purpose Consolidated / Combined Balance Sheet as at December 31, 2022, March 31, 2022, March 31, 2021 and March 31, 2020***

(₹ in million)

	As at December 31, 2022	As at March 31, 2022	As at March 31, 2021	As at March 31, 2020
ASSETS				
Non-current assets				
Property, Plant and Equipment	7.91	8.85	10.59	13.18
Goodwill	604.54	604.54	604.54	604.54
Other Intangible assets	2,24,460.94	2,21,859.48	2,11,717.65	1,99,478.98
Intangible assets under development	4,477.65	1,290.89	4,684.26	13,853.63
Financial assets				
i) Others	0.33	2.74	3.28	1.06
Other non-current assets	174.07	656.55	0.14	-
Deferred tax assets (net)	733.22	287.67	-	-
	2,30,458.65	**2,24,710.72**	**2,17,020.47**	**2,13,951.39**
Current assets				
Financial assets				
i) Investments	1,140.30	659.54	572.50	-
ii) Trade receivables	51.65	51.55	100.24	352.12
iii) Cash and cash equivalents	2,248.13	287.23	413.49	189.70
iv) Bank balance other than (iii) above	4,457.39	2,469.97	1,744.35	1,576.40
v) Others	1,091.34	1,604.18	635.99	400.26
Current tax assets (net)	96.59	114.22	147.11	207.90
Other current assets	1,739.67	1,677.46	2,166.40	3,399.05
	10,825.07	**6,864.15**	**5,780.08**	**6,125.43**
Total assets	**2,41,283.72**	**2,31,574.87**	**2,22,800.55**	**2,20,076.82**

	As at December 31, 2022	As at March 31, 2022	As at March 31, 2021	As at March 31, 2020
EQUITY AND LIABILITIES				
Equity				
Equity share capital	87,929.33	85,504.33	81,688.00	76,582.50
Other equity				
Other reserves	(9,559.80)	(8,108.29)	(3,669.05)	(312.75)
Total Equity	**78,369.53**	**77,396.04**	**78,018.95**	**76,269.75**
Non-controlling interests	0.68	-	-	-
	78,370.21	**77,396.04**	**78,018.95**	**76,269.75**
Non-current liabilities				
Financial liabilities				
i) Borrowings	97,700.23	92,559.82	89,161.31	77,374.13
ii) Other financial liabilities	35,485.25	35,168.79	24,720.81	35,070.78
iii) Trade payables				
a) total outstanding dues of micro enterprises and small enterprises	-	-	-	-
b) total outstanding dues of creditors other than micro enterprises and small enterprises	1,308.35	5,998.85	2,463.41	-
Provisions	2,529.68	1,350.57	357.84	64.96
Deferred tax liabilities (net)	-	-	424.33	395.71
	1,37,023.51	**1,35,078.03**	**1,17,127.70**	**1,12,905.58**
Current liabilities				
Financial liabilities				
i) Borrowings	6,098.47	4,719.18	4,784.87	326.78
ii) Trade payables				
a) total outstanding dues of micro enterprises and small enterprises	1.77	3.69	13.18	14.36
b) total outstanding dues of creditors other than micro enterprises and small enterprises	17,145.59	11,214.65	2,547.07	2,731.74
iii) Other financial liabilities	2,432.23	3,023.13	20,198.86	27,666.07
Other current liabilities	57.84	140.15	109.78	162.54
Current tax liabilities (net)	154.10	-	0.14	-
	25,890.00	**19,100.80**	**27,653.90**	**30,901.49**
Total liabilities	**1,62,913.51**	**1,54,178.83**	**1,44,781.60**	**1,43,807.07**
Total equity and liabilities	**2,41,283.72**	**2,31,574.87**	**2,22,800.55**	**2,20,076.82**

II. ***Special Purpose Consolidated / Combined Statement of Profit and Loss for the nine-month periods ended December 31, 2022 and December 30, 2021 and the Financial Years 2022, 2021 and 2020***

(₹ *in million*)

Particulars	For the period December 31, 2022	For the period December 31, 2021	For the year ended March 31, 2022	For the year ended March 31, 2021	For the year ended March 31, 2020
Income					
Revenue from operations	19,896.67	9,439.09	12,404.84	10,361.51	11,649.12
Other income	161.32	70.72	100.13	112.71	180.55
Total income	**20,057.99**	**9,509.81**	**12,504.97**	**10,474.22**	**11,829.67**
Expenses					
Cost of material consumed	-	-	-	-	46.44
Road work and site expenses	11,302.66	3,035.23	3,989.80	3,983.41	4,211.94
Employee benefits expenses	-	-	-	-	236.12
Depreciation and amortisation expenses	1,958.56	1,167.18	1,674.90	1,255.69	1,753.97
Finance costs	7,688.90	7,069.59	9,538.70	8,228.17	7,620.92
Investment Manager Fees	42.39	30.57	42.48	46.25	26.92
Other expenses	595.49	1,969.21	2,406.43	138.32	158.72
Total expenses	**21,588.00**	**13,271.78**	**17,652.31**	**13,651.84**	**14,055.03**
Profit/(loss) before tax	**(1,530.02)**	**(3,761.97)**	**(5,147.34)**	**(3,177.62)**	**(2,225.36)**
Tax expenses					
Current tax	351.25	0.38	8.87	46.20	141.61
Deferred tax	(445.56)	(511.15)	(720.23)	369.63	99.75
MAT Credit utilisation / (Entitlement)	-	-	-	(340.97)	-
Total tax expenses	**(94.30)**	**(510.77)**	**(711.36)**	**74.86**	**241.36**
Profit/(loss) after tax	**(1,435.72)**	**(3,251.20)**	**(4,435.98)**	**(3,252.48)**	**(2,466.72)**

Other comprehensive income					
Item that will not be reclassified to profit or loss:					
(a) Re-measurement (loss)/gain on defined benefit plans (net of taxes)	-	-	-	-	1.07
Other comprehensive (loss) for the year/ period, net of tax	**-**	**-**	**-**	**-**	**1.07**
Total comprehensive income for the year/period	**(1,435.72)**	**(3,251.20)**	**(4,435.98)**	**(3,252.48)**	**(2,465.65)**

III. ***Special Purpose Consolidated / Combined Cash flows Statement for the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years 2022, 2021 and 2020***

(*₹ in million*)

Particulars	**For the period ended December 31, 2022**	**For the period ended December 31, 2021**	**For the year ended March 31, 2022**	**For the Year ended March 31, 2021**	**For the Year ended March 31, 2020**
Cash flow from operating activities					
Profit/(loss) before tax	(1,530.02)	(3,761.97)	(5,147.34)	(3,177.62)	(2,225.36)
Pre-incorporation profit	-	-	-	-	604.54
Adjustment to reconcile profit before tax to net cash flows:					
Depreciation and amortisation	1,958.56	1,167.18	1,674.90	1,255.69	1,753.97
Resurfacing expenses	1,179.10	720.92	992.73	292.88	64.96
Fair value gain on mutual funds	(7.32)	0.54	(0.78)	(1.43)	0.01
Net (gain) on sale of current Investment	(42.12)	(9.15)	(13.93)	(13.08)	(34.11)
Finance costs	7,688.90	7,069.59	9,538.70	8,228.17	7,620.92
Interest income	(110.53)	(58.67)	(81.69)	(82.04)	(115.64)
Gain/(loss) on fair value measurement of other payable	356.63	1,764.21	2161.31	(2.86)	-
Unit Issue Expenses	(15.33)	-	-	-	-
Operating profit before working capital changes	**9,477.86**	**6,892.65**	**9,123.91**	**6,499.69**	**7,669.30**
Movement in working capital:					
Increase/ (decrease) in trade payables	484.04	10,908.12	12,193.54	2,277.55	(5,783.13)
Increase/ (decrease) in provisions	-	-	-	-	(9.81)
Increase/ (decrease) in other financial liabilities	(274.45)	298.76	306.46	(2,516.37)	35,726.21
(Decrease)/ increase in other liabilities	(438.94)	(42.75)	30.37	(52.75)	55.12
Decrease / (increase) in trade receivables	(0.10)	78.07	48.69	251.88	(338.10)
Decrease / (increase) in inventories	-	-	-	-	27.86
Increase in loans	-	-	-	(4.53)	4.78
(Increase) / decrease in other financial assets	496.71	(977.48)	(989.59)	(213.15)	(42.77)
(Increase) / decrease in other assets	420.27	(81.47)	(167.46)	1,232.51	3,006.76
Cash generated from operations	**10,165.39**	**17,075.89**	**20,545.91**	**7,474.83**	**40,316.21**
Taxes paid (net)	(179.49)	35.90	32.09	14.70	(222.33)
Net cash flows generated from operating activities	**9,985.90**	**17,111.79**	**20,578.00**	**7,489.54**	**40,093.88**

Cash flows from investing activities					
Purchase of property, plant and equipment including CWIP, intangible assets including intangible assets under development and capital advances	(7,745.84)	(16,912.44)	(17,617.12)	(18,933.90)	(48,328.12)
Proceeds from sale/ (purchase) of current investments (net)	(431.32)	164.74	(72.33)	(557.99)	218.48
Investments in bank deposits (having original maturity of more than three months) (net)	(1987.42)	(477.30)	(725.62)	(167.95)	(126.37)
Interest received	129.08	78.17	103.63	61.79	149.03
Net cash flows (used in) investing activities	**(10,035.50)**	**(17,146.83)**	**(18,311.44)**	**(19,598.04)**	**(48,086.99)**
Cash flows from financing activities					
Proceeds from non-current borrowings	31,668.76	3,443.19	4,066.31	9,204.86	17,032.83
Repayment of non-current borrowings	(25,772.63)	-	(775.43)	(39.62)	(30,035.08)
Proceeds/ (Repayment) of current borrowings (net)	(267.50)	(130.83)	-	4,155.57	(7,085.60)
Proceed of current borrowings	1,532.48	-	4,759.00	-	
Repayment of current borrowings	-		(4828.83)	-	
Issue of equity share capital	2,425.22	3,816.33	3,816.33	5,105.50	60,945.81
Unit issue expenses	0.00	(3.26)	(3.26)	(103.82)	-
Issue of sub-ordinate debt	-	-	-	-	(25,969.07)
Finance cost paid	(7,575.83)	(7,010.81)	(9,426.95)	(5,990.16)	(7,031.92)
Net cash flows generated from financing activities	**2,010.50**	**114.63**	**(2,392.82)**	**12,332.32**	**7,856.97**
Net increase / (decrease) in cash and cash equivalents (A+B+C)	**1,960.90**	**79.59**	**(126.26)**	**223.81**	**(136.13)**
Cash and cash equivalents at the beginning of the year / period	287.23	413.49	413.49	189.70	325.82
Cash and cash equivalents at the end of the year (refer note 12)	**2,248.13**	**493.08**	**287.23**	**413.49**	**189.70**
Components of cash and cash equivalents					
Balances with scheduled banks:					
- Trust, retention and other escrow accounts	1,833.69	143.43	161.56	113.94	74.14
- Others	279.80	172.82	118.03	288.60	105.39
- In deposit accounts with original maturity less than 3 months	124.50	169.32	-	-	-
Cash on hand	10.14	7.51	7.64	10.96	10.17
Total cash and cash equivalents	**2,248.13**	**493.08**	**287.23**	**413.49**	**189.70**

Debt reconciliation statement in accordance with Ind AS 7

Opening balances					
Long term borrowing	94,124.22	90,833.34	90,833.34	78,815.63	91,817.88
Short term borrowing	4,085.74	4155.57	4,155.57	-	7,085.60
Movements					
Cash Flows					
Long term borrowing	5896.12	590.72	3,290.88	9,165.24	(13,002.25)
Short term borrowing	1264.98	(130.83)	(69.83)	4,155.57	(7,085.60)
Non-cash changes					
Long term borrowing	-	2,852.47	-	2,852.47	-
Short term borrowing	-	-	-	-	-
Closing balances					
Long term borrowing	1,00,020.34	94,276.53	94,124.22	90,833.34	78,815.63
Short term borrowing	5,350.72	4,024.74	4,085.74	4,155.57	-

B. Summary Consolidated Financial Information of the Sponsor

Sponsor's Summary Consolidated Balance Sheet as at March 31, 2022, March 31, 2021 and March 31, 2020

(₹ in million)

		March 31, 2022	March 31, 2021	March 31, 2020
I	**ASSETS**			
-1	**Non-current assets**			
	Property, Plant and Equipment	9,458.46	1,377.31	1,535.12
	Capital work-in-progress	267.55	360.60	360.60
	Right-of-use asset	115.83	86.18	117.20
	Goodwill on consolidation	78.04	78.04	78.04
	Other Intangible assets	2,63,058.62	2,69,479.66	2,74,974.74
	Intangible assets under development	357.73	6,369.61	3,669.71
a.	Financial assets			
	i) Investments	44,407.24	44,866.61	41,330.54
	ii) Trade receivable	5,998.85	2,476.18	-
	iii) Loans	-	0.04	77.38
	iv) Other financial assets	49,322.13	31,002.45	30,936.62
b.	Deferred tax assets (net)	1,289.09	710.66	596.80
c.	Other non-current assets	38.10	29.44	28.88
		3,74,391.64	**3,56,836.78**	**3,53,705.63**
-2	**Current assets**			
a.	Inventories	3,174.59	3,216.72	3,313.55
b.	Financial assets			
	i) Investments	4,634.98	3,122.58	128.01
	ii) Trade receivables	9,935.47	3,403.08	4,407.58
	iii) Cash and cash equivalents	529.75	6,534.85	4,428.71
	iv) Bank balance other than (iii) above	16,908.71	16,854.88	18,278.34
	v) Loans	4,179.61	4,248.34	158.18
	vi) Other financial assets	2,691.10	13,127.44	10,195.12
c.	Current tax assets (net)	816.61	767.03	403.08
d.	Other current assets	8,403.74	3,624.74	3,863.38
		51,274.56	**54,899.66**	**45,175.95**
	TOTAL ASSETS	**4,25,666.20**	**4,11,736.44**	**3,98,881.58**

	March 31, 2022	March 31, 2021	March 31, 2020
EQUITY AND LIABILITIES			
Equity			
Equity share capital	6,039.00	3,514.50	3,514.50
Other equity	1,19,617.41	65,493.19	63,314.29
	1,25,656.41	**69,007.69**	**66,828.79**
Liabilities			
Non-current liabilities			

Financial liabilities			
i) Borrowings	1,54,747.17	1,70,524.14	64,580.71
ii) Lease liabilities	85.06	43.17	76.70
iii) Other financial liabilities	1,12,063.99	1,19,283.37	1,38,883.02
Provisions	520.43	421.55	393.86
Deferred tax liabilities (net)	853.71	24.06	27.01
Other non-current liabilities	2,965.63	-	-
	2,71,235.99	**2,90,296.29**	**2,03,961.30**
Current liabilities			
Financial liabilities			
i) Borrowings	12,105.50	21,572.80	20,659.87
ii) Trade payables			
a) total outstanding dues of micro enterprises and small enterprises	514.59	777.59	1,138.26
b) total outstanding dues of creditors other than micro enterprises	3,302.66	6,368.02	6,302.02
iii) Lease liabilities	34.92	45.02	49.69
iv) Other financial liabilities	10,717.31	17,427.32	89,843.08
Other current liabilities	1,824.80	5,681.09	9,248.54
Provisions	75.80	80.18	123.60
Current tax liabilities (net)	198.22	480.44	726.43
	28,773.80	**52,432.46**	**1,28,091.49**
Total liabilities	**3,00,009.79**	**3,42,728.75**	**3,32,052.79**
TOTAL EQUITY AND LIABILITIES	**4,25,666.20**	**4,11,736.44**	**3,98,881.58**

Sponsor's Summary Consolidated Statement of Profit and Loss for the Financials Years 2022, 2021 and 2020

(₹ in million)

	March 31, 2022	March 31, 2021	March 31, 2020
Income			
Revenue from operations	58,037.00	52,986.30	68,522.23
Other income	5,517.47	1,889.00	1,949.56
TOTAL INCOME	**63,554.47**	**54,875.30**	**70,471.79**
Expenses			
Cost of material consumed	4,701.25	3,990.75	4,367.72
Road work and site expenses	19,083.84	17,627.90	28,156.21
Employee benefits expense	2,873.21	2,618.57	2,873.51
Finance costs	18,906.23	16,924.43	15,643.61
Depreciation and amortisation expenses	6,827.70	5,817.04	4,683.14
Other expenses	3,403.77	3,622.46	3,410.73
TOTAL EXPENSES	**55,796.00**	**50,601.15**	**59,134.92**
Profit before share of profit/(loss) from joint venture/ exceptional item and tax	**7,758.47**	**4,274.15**	**11,336.87**
Share of loss from joint ventures (net)	(2,262.15)	(1657.96)	(158.42)
Profit before exceptional items and tax	**5,496.32**	**2,616.19**	**11,178.45**
Exceptional item	-	-	573.87
Profit before tax	**5,496.32**	**2,616.19**	**11,752.32**
Tax expenses			
Current tax	1,781.97	1,862.39	4,319.26
Deferred tax	100.38	(417.69)	224.43
TOTAL TAX EXPENSES	**1,882.35**	**1,444.70**	**4,543.69**
Profit for the year	**3,613.97**	**1,171.49**	**7,208.63**
Other comprehensive income			
Item that will not to be reclassified to profit or loss:			
a) Mark to market gain/(loss) on fair value measurement of investments (net of tax)	244.74	2,775.59	(3461.60)
b) Re-measurement loss on defined benefit plans (net of tax)	(22.31)	(10.93)	(19.59)
Other comprehensive income/(loss) for the year, net of tax	**222.43**	**2,764.66**	**(3,481.19)**
Total comprehensive income for the year, net of tax	**3,836.40**	**3,936.15**	**3,727.44**

Sponsor's Summary Consolidated Cash Flow Statement for the Financial Years 2022, 2021 and 2020

(₹ in million)

		31-Mar-22	31-Mar-21	31-Mar-20
Cash flow from operating activities				
Profit before tax		**5,496.32**	**2,616.19**	**11,752.32**
Adjustments to reconcile profit before tax net cash flows:				
Depreciation and amortisation		6,827.69	5,817.04	4,683.14
Resurfacing expenses		57.74	86.87	(311.35)
Net loss/ (gain) on sale of property, plant and equipment		(11.52)	(4.35)	(10.33)
Fair value gain on mutual funds		(84.11)	(65.09)	(2.33)
Gain on fair value measurement of other receivables		(2,161.31)	(13.62)	-
Share of loss from joint ventures		2,262.15	1,657.96	158.42
Net (gain) on sale of current Investment		(73.67)	(43.31)	(65.21)
Extinguishment of premium liability		(246.41)	(834.95)	-
Finance costs		18,906.23	16,924.43	15,643.61
Interest income		(2,940.39)	(1,590.40)	(1,811.90)
Other non operative income		(197.11)	(120.16)	(59.01)
Allowance for credit impaired		64.10	-	-
Profit on sale of investment in subsidiaries (exceptional item)			-	(573.87)
Dividend income on current investments		-	-	(0.77)
Operating profit before working capital changes		**27,899.71**	**24,430.61**	**29,402.72**
Movement in working capital:				
Increase in trade payables		(3,326.86)	(294.67)	3,441.20
Increase/ (decrease) in provisions		168.73	6.64	9.24
Increase in other financial liabilities		523.91	(3,164.78)	4,003.47
(Decrease)/ increase in other liabilities		(890.65)	(3,567.45)	13,173.41
Decrease / (increase) in trade receivables		(8,317.07)	(1,471.69)	(3,272.68)
Decrease / (increase) in inventories		42.13	96.83	1,110.81
(Increase) / decrease in loans		(1.06)	24.09	395.09
(Increase) / decrease in other financial assets		(5,744.63)	(5,458.72)	(4,371.03)
(Increase) / decrease in other assets		(4,750.14)	238.65	(2,962.95)
Cash (used for) / generated from operations		**5,604.07**	**10,839.51**	**40,929.28**
Taxes paid (net)		(1,962.94)	(2,171.47)	(3,837.02)
Net cash flows generated from / (used in) operating activities	**(A)**	**3,641.13**	**8,668.04**	**37,092.26**
Cash flows from investing activities				
Purchase of property, plant and equipment including CWIP, intangible assets including intangible assets under development and capital advances		(11,422.77)	(77,780.00)	(52,052.26)
Proceeds from sale of property, plant and equipment		152.39	25.76	39.88
Purchase of property, plant and equipment		(2,473.04)	(153.04)	-
Proceeds/ redemption from sale of non-current investments		333.69	185.37	237.10
Consideration received on transfer of subsidiaries		-	1,792.36	7,574.40
Investment in joint venture		(1,946.33)	(2,603.81)	-
Loan given to joint ventures		(4,759.00)	(4,155.57)	-
Loan repaid by Joint Ventures		4,828.83	-	-

Other recoverable/advance towards subscription of units in joint venture		-	(2,544.40)	-
Receipt of other recoverable/advance towards subscription of units		-	3,413.14	-
Proceeds from sale/ (purchase) of current investments (net)		(1,354.61)	(2,886.19)	(30.97)
Investments in bank deposits (having original maturity of more than three months) (net)		(54.38)	1,423.56	(6,877.14)
Interest received		1,160.89	1,522.15	2,055.13
Dividend received		-	-	0.77
Net cash flows generated from investing activities	**(B)**	**(15,534.33)**	**(81,760.67)**	**(49,053.09)**
Cash flow from financing activities				
Proceeds from non-current borrowings		7,934.32	70,140.73	29,141.92
Proceeds from issue of non-convertible debentures		3,500.00	41,783.35	-
Repayments of non-convertible debentures		(16,210.00)	-	-
Repayment of non-current borrowings		(16,653.93)	(15,148.86)	(9,883.97)
Proceeds/ (Repayment) of current borrowings (net)		(8,901.29)	(4,842.85)	7,544.48
Proceeds from Issue of Equity Share Capital		52,866.92	-	-
Payment of lease liabilities		(43.38)	(49.68)	(47.32)
Finance cost paid		(16,606.99)	(14,926.64)	(12,827.17)
Dividend paid on equity shares		-	(1,757.25)	-
Tax on equity dividend paid		-	-	(50.15)
Net cash flows (used in) / generated from financing activities	**(C)**	**5,885.65**	**75,198.80**	**13,877.79**
Net increase/ (decrease) in cash and cash equivalents (A+B+C)		**(6,007.55)**	**2,106.17**	**1,916.96**
Cash and cash equivalents at the beginning of the year		6,480.38	4,374.21	2,724.26
Less: Cash transferred on sale of subsidiaries		-	-	(267.01)
Cash and cash equivalents at the end of the year		**472.83**	**6,480.38**	**4,374.21**
Components of cash and cash equivalents				
Balances with scheduled banks:				
- Trust, retention and other escrow accounts		68.09	54.01	96.16
- Current accounts		246.46	5,613.11	744.70
- In deposit accounts with original maturity less than 3 months		100.78	732.97	3,435.60
Cash on hand		114.42	134.76	152.25
Less : Book overdraft		(56.92)	(54.47)	(54.50)
Total Cash and cash equivalents		**472.83**	**6,480.38**	**4,374.21**

C. **Summary Standalone Financial Information of the Investment Manager**

I. ***Investment Manager's Summary Standalone Balance Sheet as at March 31, 2022, March 31, 2021 and March 31, 2020***

(amount in million)

			March 31, 2022	March 31, 2021	March 31, 2020
I	**ASSETS**				
(1)	**Non-current assets**				
a.	Financial assets				
	i)	Investments	0.10	0.10	0.10
	ii)	Loans	-	0.07	-
			0.10	**0.17**	**0.10**
(2)	**Current assets**				
a.	Financial assets				
	i)	Investments	4.01	-	-
	ii)	Trade Receivables	81.70	96.90	-
	iii)	Cash and cash equivalents	17.18	10.84	81.34
	iv)	Loans	-	-	2.33
	v)	Other financial assets	0.12	0.11	27.02
b.	Current tax assets (net)		12.69	8.46	3.61
c.	Other current assets		0.00	0.63	0.79
			115.71	**116.94**	**115.09**
	TOTAL ASSETS		**115.81**	**117.11**	**115.19**
II	**EQUITY AND LIABILITIES**				
	Equity				
a.	Equity share capital		70.00	70.00	70.00
b.	Other equity		32.68	32.28	30.57
			102.68	**102.28**	**100.57**
	Liabilities				
(1)	**Non-current liabilities**				
	Provisions		2.71	2.37	2.18
			2.71	**2.37**	**2.18**
(2)	**Current liabilities**				
a.	Financial liabilities				
	i)	Trade payables			
		a) total outstanding dues of micro enterprises and small enterprises	-	-	-
		b) total outstanding dues of creditors other than micro enterprises	0.90	0.12	7.83
	ii)	Other financial liabilities	5.27	5.64	2.93
b.	Other current liabilities		4.12	6.58	1.35
c.	Provisions		0.13	0.12	0.33
			10.42	**12.46**	**12.44**
	Total liabilities		**13.13**	**14.83**	**14.62**
	TOTAL EQUITY AND LIABILITIES		**115.81**	**117.11**	**115.19**

II. *Investment Manager's Summary Standalone Statement of Profit and Loss for the the Financial Years 2022, 2021 and 2020*

(*amount in million*)

	March 31, 2022	March 31, 2021	March 31, 2020
Income			
Revenue from operations	36.00	35.09	29.45
Other income	0.49	2.40	2.08
TOTAL INCOME	**36.49**	**37.49**	**31.53**
Expenses			
Contract and site expenses	-	-	1.92
Employee benefits expense	28.50	29.58	15.88
Other expenses	7.42	5.61	11.04
TOTAL EXPENSES	**35.92**	**35.19**	**28.84**
Profit before tax	**0.57**	**2.30**	**2.69**
Tax expenses			
Current tax	0.20	0.70	0.52
TOTAL TAX EXPENSES	**0.20**	**0.70**	**0.52**
Profit for the year	**0.37**	**1.60**	**2.17**
Other comprehensive income			
Item that will not to be reclassified to profit or loss:			
Re-measurement gains/ (losses) on defined benefit plans (net of taxes)	0.03	0.11	-
Other comprehensive income/(loss) for the year (net of taxes)	**0.03**	**0.11**	-
Total comprehensive income for the year	**0.40**	**1.71**	**2.17**

III. ***Investment Manager's Summary Standalone Cash Flow Statement for the Financial Years 2022, 2021 and 2020***

(*amount in million*)

		March 31, 2022	March 31, 2021	March 31, 2020
Cash flow from operating activities				
Profit before tax		**0.57**	**2.30**	**2.69**
Adjustments to reconcile profit before tax net cash flows:				
Fair Value Gain on Mutual Funds		(0.01)	-	-
(Gain) / Loss on sale of fixed assets		-	-	(1.83)
(Gain) / Loss on sale of investment		(0.10)	(0.10)	(0.23)
Interest income on				
- Bank deposits		(0.35)	(1.37)	-
- Others		(0.03)	(0.05)	(0.01)
Dividend income on				
Other investments (non trade, current)		-	-	(0.01)
Operating profit before working capital changes		**0.08**	**0.77**	**0.60**
Working capital adjustments				
Decrease/(increase) in loans		0.07	2.27	(2.33)
Decrease/(increase) in trade receivables		15.20	(96.90)	-
Decrease/(increase) in others financial assets		0.01	26.93	(26.92)
Increase/(decrease) in provisions		0.38	0.10	2.50
Decrease /(Increase) in trade payables		0.78	(7.71)	7.69
Decrease/(increase) in other assets		0.63	0.16	(0.79)
Increase/(Decrease) in other financial liabilities		(0.37)	2.71	2.92
(Decrease)/Increase in other liabilities		(2.46)	5.20	1.35
Cash (used for) / generated from operations		**14.32**	**(66.46)**	**(14.98)**
Taxes paid (net)		(4.44)	(5.55)	(0.06)
Net cash flows generated from / (used in) operating activities	**(A)**	**9.88**	**(72.01)**	**(15.04)**
Cash flows from investing activities				
Intangible Assets includes Intangible Assets under Development & Capital Advance		-	-	0.06
Proceeds from sale of property, plant and equipment		-	-	1.83
Proceeds from sale/(purchase) of current investments		(3.91)	0.10	0.23
Loans repaid by related parties		-	-	401.91
Interest received		0.37	1.41	0.01
Dividend received from subsidiary companies		-	-	0.01
Net cash flows generated from investing activities	**(B)**	**(3.54)**	**1.51**	**404.05**
Cash flow from financing activities				
Equity dividend paid		-	-	(294.09)
Repayment of current borrowings		-	-	(13.67)
Net cash flows (used in) / generated from financing activities	**(C)**	**-**	**-**	**(307.76)**
Net increase/ (decrease) in cash and cash equivalents (A+B+C)		**6.34**	**(70.50)**	**81.25**
Cash and cash equivalents at the beginning of the year		10.84	81.34	0.09
Cash and cash equivalents at the end of the year		**17.18**	**10.84**	**81.34**
Components of cash and cash equivalents				
Cash on hand		0.00	0.00	0.00
Balances with scheduled banks:				
- In current accounts		2.02	0.84	81.34
- Original maturity less than 3 months		15.16	10.00	-
Total Cash and cash equivalents		**17.18**	**10.84**	**81.34**

THE LISTING

The Listing has been authorized by a resolution of the board of directors of the Investment Manager dated March 22, 2023.

The Trust has been granted an exemption from making a fresh issue or offer for sale of Units to undertake the Listing pursuant to a letter dated February 28, 2023 issued by the SEBI. Accordingly, the Units of the Trust are proposed to be listed on the NSE through a direct listing.

The following table summarizes the details of the Unit capital of the Trust:

Details of outstanding Units	
Units outstanding prior to the Listing	879,293,265 Units
Units outstanding after the Listing	879,293,265 Units
Trading Lot	
Trading Lot	₹20 million

The Units are in dematerialized form.

There shall not be multiple classes of Units of the Trust, unless permitted by applicable law.

This Disclosure Document does not, directly or indirectly, relate to any invitation, offer or sale of any securities, instruments or loans (including listed non-convertible debentures or bonds), including any securities, instruments or loans (including listed non-convertible debentures or bonds), that may be issued by the Trust after the listing of the Units. Any person or entity investing in such issue or transaction by the Trust should consult its own advisors.

GENERAL INFORMATION

The Trust has been settled by the Sponsor as an irrevocable trust under the provisions of the Trusts Act in New Delhi, India pursuant to the Indenture of Trust dated August 27, 2019. The Indenture of Trust is registered under the Registration Act. The Trust is registered with the SEBI as an infrastructure investment trust under the InvIT Regulations.

For details of the business of the Trust, see "*Business*" on page 84.

Principal place of business and correspondence address of the Trust:

IRB Infrastructure Trust
Off No-11th Floor/1101
Hiranandani Knowledge Park
Technology Street, Hill Side Avenue
Powai, Mumbai 400 076
Maharashtra, India
Tel: +91 22 6733 6400
E-mail: irbinfrastructuretrust@irb.co.in
Website: https://www.irbinfratrust.co.in/
SEBI registration number: IN/InvIT/19-20/0012
Date of registration with the SEBI: November 25, 2019

Contact Person and Compliance Officer

Mr. Kaustubh Shevade has been designated by the Investment Manager as the Compliance Officer with respect to the Trust, and is the relevant contact person with respect to the Trust. His contact details are as follows:

Mr. Kaustubh Shevade
MMK Toll Road Private Limited
Off No-11th Floor/1101
Hiranandani Knowledge Park
Technology Street, Hill Side Avenue
Powai, Mumbai 400 076
Maharashtra, India
Tel: +91 22 6733 6400
E-mail: kaustubh.shevade@irb.co.in

Sponsor/Project Manager

IRB Infrastructure Developers Limited
Off No-11th Floor/1101
Hiranandani Knowledge Park
Technology Street, Hill Side Avenue
Powai, Mumbai 400 076
Maharashtra, India
Tel: +91 22 6640 4220
Email: info@irb.co.in
Contact person: Mr. Mehul Patel

Trustee

IDBI Trusteeship Services Limited
Ground Floor, Universal Insurance Building
Sir Phirozshah Mehta Road
Fort
Mumbai 400 001
Maharashtra, India
Tel: +91 22 4080 7016
Email: itsl@idbitrustee.co.in

SEBI registration number: IND000000460
Contact person: Mr. Shivaji Gunware / Mr. Naresh Sachwani

Investment Manager

MMK Toll Road Private Limited
Off No-11th Floor/1101
Hiranandani Knowledge Park
Technology Street, Hill Side Avenue
Powai, Mumbai 400 076
Maharashtra, India
Tel: +91 22 6733 6400
Email: dhananjay.joshi@irb.co.in
Contact person: Mr. Dhananjay Joshi

Advisors to the Sponsor

Avener Capital Private Limited
ONE BKC, 1312, C Wing, 13th Floor
Plot No. C 66, G Block, Bandra-Kurla Complex
Bandra East, Mumbai 400 051
Maharashtra, India

Legal Advisors to the Sponsor and the Investment Manager as to Indian law

S&R Associates
One World Center, 1403, Tower 2 B
841 Senapati Bapat Marg, Lower Parel
Mumbai 400 013
Maharashtra, India

Auditor

Gokhale & Sathe Chartered Accountants
Unit No. 304/308/309
Udyog Mandir No. 1
7-C, Bhagoji Keer Marg, Mahim
Mumbai 400 016
Maharashtra, India
Tel: +91 22 4348 4242
E-mail: office@gokhalesathe.in
Firm registration number: 103264W
Peer Review Certificate number: 012211

Valuer

Mr. Sunit Khandelwal
Communication Address: 1006 A&B, 10th floor, Welldone TechPark, Sohna Rd., Sector 48
Gurgaon 122 018, Haryana, India
Registered Address: F 1502, GPL Eden Heights, Sector 70
Gurugram 122 001, Haryana, India
Tel: +91 124 436 2995
E-mail: sunitk@incwert.com
Contact Person: Sunit Khandelwal

Registrar and Unit Transfer Agent

KFin Technologies Limited
B, Plot No. 31 &32
Gachibowli Financial District

Nanakramguda
Hyderabad 500 032
Telangana
Tel: +91 40 3321 1000
Email: irb.infrastructure@kfintech.com
SEBI registration number: INR000000221
Contact person: Mr. M Murali Krishna
Website: https://www.kfintech.com
Investor Grievance Email: einward.rti@kfintech.com

Credit Rating

No credit rating has been obtained in relation to the Trust or the Units for the Listing. Pursuant to a letter dated March 24, 2023, the SEBI has permitted the Listing without obtaining a credit rating, provided that a credit rating is obtained within certain specified timelines and disclosed to the Trustee and the Designated Stock Exchange.

STATEMENT OF TAX BENEFITS

STATEMENT OF TAX CONSIDERATIONS / BENEFITS

Statement of possible tax consideration / benefits available to the Trust and its Unitholders under applicable laws in India

To,
IDBI TRUSTEESHIP SERVICES LIMITED,
(Trustee of IRB Infrastructure Trust) Ground Floor, Universal Insurance Building,
Sir Phirozshah Mehta Road, Fort, Mumbai 400 001,
Maharashtra, India

MMK Toll Road Private Limited
(As the Investment Manager of the IRB Infrastructure Trust) Off No-11th Floor/1101,
Hiranandani Knowledge Park, Technology Street,
Hill Side Avenue, Powai, Mumbai 400 076,

Dear Sirs/Madam,

Subject: **Statement of possible tax considerations / benefits available to the IRB Infrastructure Trust and its Unitholders under the Income Tax Act, 1961**.

We refer to the proposed listing of the units of IRB Infrastructure Trust ("the Trust") and enclose the statement showing the current position of tax considerations / benefits available to the Trust and to its Unitholders as per the provisions of the Income-tax Act, 1961 ('the IT Act') presently in force in India (i.e. applicable for the financial year ending 31 March 2023 relevant to the assessment year 2023-24) and also incorporating the proposed amendments by the Finance Bill, 2023 for inclusion in the disclosure document.

This statement is provided for general information purposes only and any prospective investor is advised to consult its own tax consultant with respect to specific income tax implications in relation to any prospective investment in the Trust and its Units.

Unless otherwise specified, sections referred below are sections of the IT Act. The benefits set out below are subject to conditions specified therein read with the Income-tax Rules, 1962 presently in force.

The benefits outlined in the enclosed statement based on the information and particulars provided by the Trust are neither exhaustive nor conclusive.

We do not express any opinion or provide any assurance as to whether:

- the Trust or its Unitholders will continue to obtain these benefits in future;
- the conditions prescribed for availing the benefits have been/would be met with; and
- the revenue authorities/courts will concur with the views expressed herein.

We hereby give our consent to include the enclosed statement regarding tax benefits available to the Trust and to its Unitholders in the disclosure document in connection with the listing of the units of the Trust which is intended to be filed with the relevant regulatory authorities as may be required under applicable law.

Limitations

No assurance is given that the revenue authorities/courts will concur with the views expressed herein. Our views are based on the existing provisions of law and its interpretation, which are subject to changes from time to time. We do not assume responsibility to update the views consequent to such changes. We shall not be liable to any claims, liabilities or expenses relating to this assignment except to the extent of fees relating to this assignment, as finally judicially determined to have resulted primarily from bad faith or intentional misconduct. We will not be liable to any other person in respect of this statement.

This statement of possible direct tax benefits enumerated above is as per the IT Act as amended by the Finance Act 2022 and as per proposals in Finance Bill, 2023. The statement of possible Direct-tax Benefits sets out the possible tax benefits available to the Trust and its Unitholders under the current tax laws presently in force in India. Several of these benefits available are dependent on the Trust or its Unitholders fulfilling the conditions prescribed under the relevant tax laws.

The information provided above sets out the possible tax benefits available to the Unitholders in a summary manner only and is not a complete analysis or listing of all potential tax consequences of the purchase, ownership and disposal of units, under the current tax laws presently in force in India. It is not exhaustive or comprehensive and is not intended to be a substitute for professional advice.

For Gokhale & Sathe, Chartered
Accountants,
ICAI Registration Number: 103264W

Kaustubh Deshpande, Partner
Membership No. 121011
UDIN: **23121011BGXXUG8889**
Place: Mumbai Date:
23.03.2023

ANNEXURE TO STATEMENT OF POSSIBLE TAX BENEFITS AVAILABLE TO IRB INFRASTRUCTURE TRUST AND ITS UNITHOLDERS UNDER APPLICABLE LAWS IN INDIA

UNDER THE INCOME-TAX ACT, 1961 (hereinafter referred to as 'the Act')

TAX BENEFITS AVAILABLE TO IRB INFRASTRUCTURE TRUST ('TRUST') UNDER THE ACT

IRB Infrastructure Trust is an Infrastructure Investment Trust under the Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014, made under the Securities and Exchange Board of India Act, 1992.

Section 2(13A) of the Income Tax Act which defines "Business Trust" has been amended by Finance Act 2020 with effect from 1st April 2021 (i.e. from AY 2021-22) to remove the requirement of listing of units of the trust on stock exchange.

The following benefits are available to a Business Trust after fulfilling conditions as per applicable provisions of the Act and the guidelines prescribed by the Securities and Exchange Board of India ('SEBI') (including the Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014, as amended) ('SEBI Regulations').

Tax benefit in the hands of the Trust in respect of interest and dividend income:

(a) Interest received or receivable by the Trust from the Special Purpose Vehicle (SPV) would be exempt from tax. [10(23FC)(a)]

(b) Dividend received or receivable by the Trust from a Special Purpose Vehicle (SPV) shall be exempt from tax. [10(23FC)(b)]

For the purpose of the above, "special purpose vehicle" would mean an Indian company in which the business trust holds controlling interest and any specific percentage of shareholding or interest, as may be required by the Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014.

Accordingly, sec. 194A(3)(xi) exempts SPV from the provisions of tax deduction at source in respect of interest paid/payable to the business trust.

Also, sec. 194 provides that the tax deduction at source is not applicable in respect of dividend credited or paid to a business trust by a special purpose vehicle.

Section 10(34A) of the Act - Income from buy back of shares:

Further, income arising from buy-back shall not be taxable as per section 10(34A) of the Act in the hands of the Trust.

Section 115UA(2) read with section 111A, section 112 and section 112A of the Act – Taxability of business income, capital gains and income from other sources in the hands of the Trust:

In terms of section 115UA(2) of the Act, the total income of the Trust shall be chargeable to tax at the maximum marginal rates in force except for the income chargeable to tax on transfer of Short-Term Capital assets under section 111A and Long Terms Capital assets under section 112 and section 112A of the Act and income referred to in Sec. 10(23FC)

If the period of holding of a security (other than a unit) listed on a recognized stock exchange in India or a unit of the Unit Trust of India or a unit of an equity-oriented fund or a zero-coupon bond is more than 12 months, it will be considered a long-term capital asset as per section 2(29AA) of the Act. With respect to shares of a company not being listed on a recognized stock exchange or immovable property, being land, building, or both, the determinative period of holding shall be more than 24 months for it to be regarded as long- term capital asset. With respect to other assets including a unit of a mutual fund other than equity oriented mutual fund or unit of a business trust, the determinative period of holding is more than 36 months for it to be regarded as long-term capital asset.

As per the provisions of section 111A of the Act, any income arising from transfer of short- term capital asset being an equity share in a company or a unit of an equity-oriented fund or a unit of an eligible business trust, transacted through a recognized stock exchange and subject to STT, will be taxable at a concessional rate of 15% (plus applicable surcharge and cess, if any).

As per the provisions of section 112(1)(d) of the Act, gains arising on the transfer of long- term capital assets shall be chargeable to tax in the hands of the Trust at the rate of 20% (plus applicable surcharge and cess). However, as per the proviso to section 112 of the Act, the tax on long term capital gains on transfer of listed securities (other than units) or Zero-Coupon Bonds shall be at the rate of 10% (plus applicable surcharge and cess) without indexation benefit.

Further, as per section 112A, with effect from FY 2018-19, gains exceeding one lakh rupees arising on the transfer of long-term capital asset, being an equity share in a company or a unit of an equity-oriented fund or a unit of a business trust, transacted through a recognized stock exchange and subject to STT, shall be chargeable to tax in the hands of the Trust at the rate of 10% (plus applicable surcharge and cess) without indexation benefit.

With a view to grandfather gains notionally earned by investors up to 31st January 2018, for securities acquired till such date, it has been provided that taxable gains will be determined considering the cost which will be higher of:

- Actual cost of acquisition; or
- Lower of sale price and Fair Market Value (as specifically defined under the Act) (Sec. 55(2)(ac))

In accordance with, and subject to the conditions, including the limit of investment of ₹ 50 lakhs, capital gains arising on transfer of a long term capital asset, being land or building or both, shall be exempt from capital gains under section 54EC if the gains are invested within 6 months from the date of transfer in purchase of specified bonds (redeemable after five years and issued on or after 1 April 2018) issued by National Highways Authority of India (NHAI) or Rural Electrification Corporation Ltd (RECL) or any other bond notified by the Central Government, if permitted to be invested by an Investment trust as per the extant governing regulations. In case the whole of the gains are not so invested, the exemption shall be allowed on a pro rata basis.

As per section 70 read with section 74 of the Act, short term capital loss arising during a year is allowed to be set-off against short term capital gains as well as long term capital gains. Balance loss, if any, shall be carried forward and set-off against any capital gains arising during subsequent eight assessment years. Also, as per section 70 of the Act r.w. section 74, long term capital loss arising during a year is allowed to be set-off only against long term capital gains. Balance loss, if any, shall be carried forward and set-off against long term capital gains arising during subsequent eight assessment years.

TAX BENEFITS AVAILABLE TO UNITHOLDERS OF THE TRUST

Special Benefits available to the Unitholders of the Trust:

Following tax benefit is specifically available to the unitholders of the Trust subject to the fulfilment of the conditions specified in the Act and SEBI Regulations:

Section 10(23FD) of the Act - Tax exemption in respect of income distributed by the Trust:

As per the provisions of section 115UA(1) of the Act, the income distributed by the Trust shall be deemed to be of the same nature and in the same proportion in the hands of the Unitholder as it had been received by or accrued to the business trust.

As per the provisions of section 10(23FD), any income referred to in section 115UA(1) of the Act and distributed by the Trust (except for that proportion of interest income referred in section 10(23FC)(a) of the Act or dividend received/receivable from an SPV referred to in section 10(23FC)(b) in a case where the SPV has exercised the option under section 115BAA; which is taxable under section 115UA(3) of the Act) shall not be included in the total income of the unit- holders.

However, distribution by the business trust to unit holders on account of repayment of debt is proposed to be made taxable in the hands of unit holders u/s 56(2)(xii) as "income from other sources". It is also proposed that where the sum received by a unit holder is for redemption of unit(s) held by him, the sum received shall be reduced by the cost of acquisition of the unit(s) to the extent such cost does not exceed the sum received.

According to sec. 47(xvii), any transfer of a capital asset, being share of a special purpose vehicle to a business trust in exchange of units allotted by that trust to the transferor shall not be regarded as transfer and accordingly not be liable to capital gains tax.

According to sec. 49(2AC) the cost of units acquired in lieu of shares in SPV shall be deemed to be cost of acquisition of shares in SPV.

As per clause (hc) of explanation 1 of sec. 2(42A), for ascertaining the period of holding of such units, the period of holding of shares in SPV shall also be included.

Notional gain arising on transfer of share of special purpose vehicle to business trust in exchange of units allotted by that trust as referred u/s 47(xvii) or notional gain arising upon change in carrying amount of the units and realised gain on transfer of these units are to be excluded in calculation of book profits for the purposes of MAT u/s 115JB. (clause (iie)) to explanation 1 to section 115JB).

GENERAL BENEFITS AVAILABLE TO ALL UNITHOLDERS OF THE TRUST:

FOR RESIDENT UNITHOLDER:

Long-term capital gains:

Income arising on transfer of units of the Trust through a recognized stock exchange, on which STT is paid, shall be chargeable to tax in the hands of the Unitholders at a rate of 10% without indexation benefit (plus applicable surcharge and cess) under section 112A of the Act if the said units are long-term capital assets. The determinative period of holding for such units to qualify as long-term capital asset is more than 36 months. Income arising on transfer of units of the Trust that are long term capital assets, which is not through a recognized stock exchange and not subject to STT, shall be chargeable to tax at 20%, with indexation benefit (plus applicable surcharge and cess) under section 112 of the Act. In case of a Unitholder being an individual or HUF, where the total taxable income as reduced by long-term capital gains is below the basic exemption limit, the long-term capital gains will be reduced to the extent of the shortfall and only the balance long-term capital gains will be subjected to such tax in accordance with the proviso to clause (a) of sub-section (1) of section 112 of the Act.

Short-term capital gains:

Short-term capital gains arising on transfer of the units of the Trust will be chargeable to tax at the rate of 15% (plus applicable surcharge and cess) as per the provisions of section 111A of the Act provided such transaction is subject to STT and through a recognized stock exchange. In case of a Unitholder being an individual or HUF, where the total taxable income as reduced by short-term capital gains is below the basic exemption limit, the short-term capital gains will be reduced to the extent of the shortfall and only the balance short- term capital gains will be subjected to such tax in accordance with the proviso to sub- section (1) of section 111A of the Act.

Set-off of losses:

Short Term Capital Loss computed for the given year is allowed to be set-off against Short Term/ Long Term Capital Gains computed for the said year under section 70 of the Act. Balance loss, if any, shall be carried forward and set-off against any capital gains arising during subsequent eight assessment years. Also, as per section 70 of the Act, long term capital loss arising during a year is allowed to be set-off only against long term capital gains. Balance loss, if any, shall be carried forward and set-off against long term capital gains arising during subsequent eight assessment years.

Deduction of Securities Transaction Tax:

Where the gains arising on the transfer of the units of the Trust are included in the business income of an assessee assessable under the head "Profits and Gains from Business or Profession" and on which securities transaction tax has been charged, such securities transaction tax shall be a deductible expense from business income as per the provisions of section 36(1)(xv) of the Act. The characterization of gains/ losses, arising from transfer of units, as capital gains or business income would depend on the nature of holding in the hands of the unitholders and various other factors.

Section 197 of the Act is proposed to be amended to include reference to section 194LBA meaning thereby that the unit holder can make application to the assessing officer for obtaining certificate for lower or nil deduction of tax.

FOR NON-RESIDENT UNITHOLDER

Long-term capital gains:

Income arising on transfer of units of the Trust, shall be chargeable to tax in the hands of the Unitholders at a rate of 10% without indexation benefit (plus applicable surcharge and cess) under section 112A of the Act if the said units are long-term capital assets and transfer is through a recognized stock exchange and subject to STT. These assets turn long term if they are held for more than 36 months. Income arising on transfer of units of the Trust that are long term capital assets, which is not through a recognized stock exchange and not subject to STT, shall be chargeable to tax at 20%, with indexation benefit (plus applicable surcharge and cess) under section 112 of the Act.

Short-term capital gains:

Short-term capital gains arising on transfer of the units of the Trust will be chargeable to tax at the rate of 15% (plus applicable surcharge and cess) as per the provisions of section 111A of the Act if such transaction is chargeable to STT.

Set-off of losses:

Short Term Capital Loss computed for the given year is allowed to be set-off against Short Term/ Long Term Capital Gains computed for the said year under section 70 of the Act. Balance loss, if any, shall be carried forward and set-off against any capital gains arising during subsequent eight assessment years. Also, as per section 70 of the Act, long term capital loss arising during a year is allowed to be set-off only against long term capital gains. Balance loss, if any, shall be carried forward and set-off against long term capital gains arising during subsequent eight assessment years.

Deduction of Securities Transaction Tax:

Where the gains arising on the transfer of units of the trust are included in the business income of an assessee assessable under the head "Profits and Gains from Business or Profession" and on which securities transaction tax has been charged, such securities transaction tax shall be a deductible expense from business income as per the provisions of section 36(1)(xv) of the Act.

Benefits under Double Taxation Avoidance Agreements:

Under the provisions of section 90(2) of the Act, a non-resident will be governed by the provisions of the Double Tax Avoidance Agreement (DTAA) between India and the country of tax residence of the non-resident and the provisions of the Act apply to the extent they are more beneficial to the assessee.

As per explanation 4 to section 115JB(2), the provisions of section 115JB shall not be applicable to a foreign company if the foreign company is a resident of a country having DTAA with India and such foreign company does not have a permanent establishment within the definition of the term in the relevant DTAA, or the foreign company is a resident of a country which does not have a DTAA with India and such foreign company is not required to seek registration under section 592 of the Companies Act 1956 or section 380 of the Companies Act 2013.

Section 194LBA – Tax Deduction on certain income from units of the Trust:

Where any distributed income referred in section 115UA, is in the nature referred to in clause (23FC) of section 10 payable by the Trust to its unit holder being a non-resident unit holder, then the same shall be subjected to the tax deduction at the rate of 5% (plus applicable surcharge and cess). However, in view of section 90(2) of the Act, a non-resident will be governed by the provisions of the Agreement for Avoidance of Double Taxation

(AADT) between India and the country of tax residence of the non-resident and the provisions of the Act apply to the extent they are more beneficial to the assessee.

Section 197 of the Act is proposed to be amended to include reference to section 194LBA meaning thereby that the unit holder can make application to the assessing officer for obtaining certificate for lower or nil deduction of tax.

FOR UNITHOLDERS WHO ARE FOREIGN PORTFOLIO INVESTORS (‘FPIs’)/ FOREIGN INSTITUTIONAL INVESTORS (‘FIIs’):

Where the gains arising on the transfer of units of the Trust are included in the business income of an assessee assessable under the head “Profits and Gains from Business or Profession” and on which securities transaction tax has been charged, such securities transaction tax shall be a deductible expense from business income as per the provisions of section 36(1)(xv) of the Act.

As per section 2(14) of the Act, any securities held by a FII which has invested in such securities in accordance with the regulations made under the Securities and Exchange Board of India Act, 1992 shall be deemed to be treated as Capital Gains.
As per section 196D, no tax is to be deducted from any income, by way of capital gains arising from the transfer of units, payable to Foreign Institutional Investor. In respect of non- residents, the tax rates and consequent taxation mentioned above will be further subject to any benefits available under the Tax Treaty, if any, between India and the country in which the FPI/FII has Fiscal domicile. As per the provisions of section 90(2) of the Act, the provisions of the Act would prevail over the provisions of the Tax Treaty to the extent they are more beneficial to the FII.

Pursuant to Central Board of Direct Tax press release dated 24 September 2015, the Government has clarified the inapplicability of Minimum Alternate Tax provisions to FIIs/FPIs.

FOR UNITHOLDERS WHO ARE MUTUAL FUNDS:

Under section 10(23D) of the Act, any income earned by a Mutual Fund registered under the Securities and Exchange Board of India Act, 1992, or a Mutual Fund set up by a public sector bank or a public financial institution, or a Mutual Fund authorized by the Reserve Bank of India would be exempt from income-tax, subject to such conditions as the Central Government may by notification in the Official Gazette specify in this behalf.

The Trust is not required to withhold tax on interest payment to Mutual Fund set up under section 10(23D) of the Act.

The above statement of possible direct tax benefits sets out the provisions of law in a summary manner only and is not a complete analysis or listing of all potential tax consequences of the purchase, ownership and disposal of shares and units.

The stated benefits will be available only to the sole/ first named holder in case the units are held by joint holders.

In respect of non-residents, the tax rates and the consequent taxation mentioned above shall be further subject to any benefits available under the applicable DTAA, if any, between India and the country in which the non-resident has fiscal domicile.

FOR UNIT HOLDERS WHO ARE SOVEREIGN WEALTH FUNDS:

Under section 10(23FE) of the Act, any income of Sovereign Wealth Fund in the nature of dividend, interest or long-term capital gains arising from an investment made by it in Business Trust in India is exempt from tax provided such investment is made before 31st March, 2024 and is held for at least three years.

However, the said exemption is not available if a sovereign wealth fund has loans or borrowings, directly or indirectly, for the purpose of making investment in India.

The exemption would be applicable to a sovereign wealth fund which satisfies stipulated conditions mentioned in Explanation 1 to section 10(23FE) and is notified by the Central Government.

SECTION IV – ABOUT THE TRUST

BACKGROUND AND STRUCTURE OF THE TRUST

Background of the Trust

The Trust has been settled by the Sponsor as an irrevocable trust under the provisions of the Trusts Act in New Delhi, India pursuant to the Indenture of Trust dated August 27, 2019. The Indenture of Trust is registered under the Registration Act. The Trust is registered with the SEBI as an infrastructure investment trust under the InvIT Regulations.

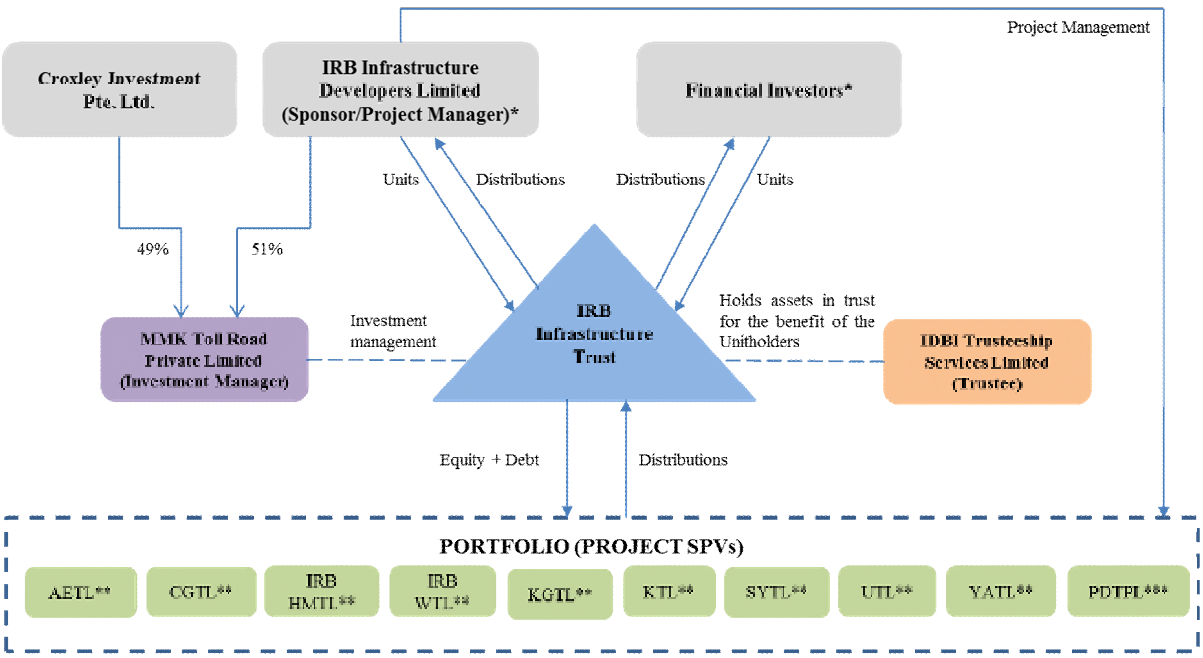
The object and purpose of the Trust, as described in the Indenture of Trust, is to carry on the activity of an infrastructure investment trust under the InvIT Regulations. Investment by the Trust shall only be in holding companies, SPVs, infrastructure projects, securities in India or other permitted investments in accordance with the InvIT Regulations, the investment strategy and the Trust Documents. The principal investment objective of the Trust is to own, operate and invest in infrastructure projects in India, directly or through holding companies or SPVs and make other investments and undertake such activities in such jurisdictions as may be permissible under the InvIT Regulations, other applicable law and the Trust Documents. For further details in relation to the business and investment strategy of the Trust, see "*Business*" on page 84.

The Trust is required to make distributions to the Unitholders in accordance with the InvIT Regulations and the Distribution Policy. For details in relation to the distribution policy of the Trust, see "*Distributions*" on page 217.

Parties to the Trust and Structure of the Trust

In accordance with the InvIT Regulations, the Parties to the Trust are (i) the Sponsor; (ii) the Investment Manager; (iii) the Trustee; and (iv) the Project Manager. For details, see "*The Sponsor and Project Manager*", "*The Investment Manager*" and "*The Trustee*" on pages 226, 229 and 235, respectively.

The following diagram illustrates the relationship among the Trust, the Project SPVs in the Portfolio, the Trustee, the Investment Manager and the Unitholders (which includes the Sponsor) as on the date of this Disclosure Document:



** Unitholders of the Trust*
***100% of each Project SPV held by the Trust, together with nominee shareholders*
****99.96% of PDTPL held by the Trust, with the Sponsor and the Sponsor's nominee shareholders holding the remaining 0.04%*

Details of the Project SPVs

1. AETL

Corporate Information

AETL was incorporated on July 21, 2015 as a private limited company under the Companies Act, 1956, having CIN U45209MH2015PTC266741. AETL was converted into a public limited company under the Companies Act and a fresh certificate of incorporation dated November 13, 2019 was issued, having CIN U45209MH2015PLC266741. Its registered office is situated at Off. No-11th Floor/1101 Hiranandani Knowledge Park, Technology Street, Hill Side Avenue, Powai, Mumbai 400 076, Maharashtra, India.

Main Object

The main object, as contained in the memorandum of association of AETL, is as follows:

"*To carry on the business of infrastructure development in respect of the work of Design, Build, Finance and Operation of Six Laning of Agra to Etawah Bypass section of NH-2 from km 199.660 to km 323.525 in the State of Uttar Pradesh under NHDP Phase V on Design, Build, Finance, Operate and Transfer (DBFOT) Toll basis, including collection and retention of the toll or fee and to carry out the ancillary activities, in relation of the foregoing, as specified in the Concession Agreement to be executed with National Highways Authority of India (NHAI).*"

Capital Structure

The capital structure of AETL is as follows:

Particulars	No. of equity shares of face value of ₹10 each
Authorized capital	436,500,000
Issued, subscribed and paid-up capital	436,500,000

Shareholding Pattern

The shareholding pattern of AETL is as follows:

S. No.	Name of the shareholder	No. of equity shares of face value of ₹10 each	Percentage of the issued, paid-up and subscribed capital (%)
1.	IDBI Trusteeship Services Limited*	436,499,994	100
2.	Mahesh Kavthekar**	1	Negligible
3.	Dhananjay K. Joshi**	1	Negligible
4.	Arati Taskar**	1	Negligible
5.	Shailesh Joshi**	1	Negligible
6.	Nikhil Maniar**	1	Negligible
7.	Anushree Joshi**	1	Negligible
Total		**436,500,000**	**100**

** On behalf of the Trust*
*** As a nominee of the Trust*

2. CGTL

Corporate Information

CGTL was incorporated on October 18, 2016 as a private limited company under the Companies Act, having CIN U45200MH2016PTC286895. CGTL was converted into a public limited company under the Companies Act, and a fresh certificate of incorporation dated November 13, 2019 was issued, having CIN U45200MH2016PLC286895. Its registered office is situated at Off. No-11th Floor/1101 Hiranandani Knowledge Park, Technology Street, Hill Side Avenue, Powai, Mumbai 400 076, Maharashtra, India.

Main Object

The main object, as contained in the memorandum of association of CGTL, is as follows:

"To carry on the business of infrastructure development in respect of the work of Design, Build, Finance, and Operation of Six Laning of Kishangarh Udaipur Ahmedabad Section from km 90.000 (near Gulabpura) to km 214.870 (end of Chittorgarh Bypass) of NH-79 in the State of Rajasthan Package-2 under NHDP Phase – V on BOT(Toll) mode, including collection and retention of the toll or fee and to carry out the ancillary activities, in relation of the foregoing, as specified in the Concession Agreement to be executed with National Highways Authority of India (NHAI)."

Capital Structure

The capital structure of CGTL is as follows:

Particulars	No. of equity shares of face value of ₹10 each
Authorized capital	203,500,000
Issued, subscribed and paid-up capital	203,500,000

Shareholding Pattern

The shareholding pattern of CGTL is as follows:

S. No.	Name of the shareholder	No. of equity shares of face value of ₹10 each	Percentage of the issued, paid-up and subscribed capital (%)
1.	IDBI Trusteeship Services Limited*	203,499,994	100
2.	Mahesh Kavthekar**	1	Negligible
3.	Dhananjay K. Joshi**	1	Negligible
4.	Arati Taskar**	1	Negligible
5.	Shailesh Joshi**	1	Negligible
6.	Nikhil Maniar**	1	Negligible
7.	Vinod Kumar Menon**	1	Negligible
Total		**203,500,000**	**100**

** On behalf of the Trust*
*** As a nominee of the Trust*

3. IRB HMTL

Corporate Information

IRB HMTL was incorporated on April 18, 2018 as a private limited company under the Companies Act, having CIN U45400MH2018PTC308187. IRB HMTL was converted into a public limited company under the Companies Act, and a fresh certificate of incorporation dated November 13, 2019 was issued, having CIN U45400MH2018PLC308187. Its registered office is situated at Off. No-11th Floor/1101 Hiranandani Knowledge Park, Technology Street, Hill Side Avenue, Powai, Mumbai 400 076, Maharashtra, India.

Main Object

The main object, as contained in the memorandum of association of IRB HMTL, is as follows:

"To carry on the business of infrastructure development in respect of Six Laning of Hapur bypass to Moradabad Section including Hapur bypass from Km 50.000 (Design Chainage 50.000) to Km 148.277 (Design Chainage 149.867) of NH-24 (New NH-9) in the State of Uttar Pradesh under NHDP Phase V (Bharatmala Pariyojna) on DBFOT (Toll) mode, including collection and retention of the toll of fee and to carry out the ancillary activities, in relation of the foregoing, as specified in the Concession Agreement to be executed with National Highways Authority of India (NHAI)."

Capital Structure

The capital structure of IRB HMTL is as follows:

Particulars	No. of equity shares of face value of ₹10 each
Authorized capital	375,000,000
Issued, subscribed and paid-up capital	371,500,000

Shareholding Pattern

The shareholding pattern of IRB HMTL is as follows:

S. No.	Name of the shareholder	No. of equity shares of face value of ₹10 each	Percentage of the issued, paid-up and subscribed capital (%)
1.	IDBI Trusteeship Services Limited*	371,499,994	100
2.	Mahesh Kavthekar**	1	Negligible
3.	Dhananjay K. Joshi**	1	Negligible
4.	Arati Taskar**	1	Negligible
5.	Shailesh Joshi**	1	Negligible
6.	Nikhil Maniar**	1	Negligible
7.	Vinod Kumar Menon**	1	Negligible
Total		**371,500,000**	**100**

** On behalf of the Trust*
*** As a nominee of the Trust*

4. IRB WTL

Corporate Information

IRB WTL was incorporated on August 22, 2012 as a private limited company under the Companies Act, 1956, having CIN U45400MH2012PTC234786. IRB WTL was converted into a public limited company under the Companies Act, and a fresh certificate of incorporation dated November 13, 2019 was issued, having CIN U45400MH2012PLC234786. Its registered office is situated at Off. No-11th Floor/1101 Hiranandani Knowledge Park, Technology Street, Hill Side Avenue, Powai, Mumbai 400 076, Maharashtra, India.

Main Object

The main object, as contained in the memorandum of association of IRB WTL, is as follows:

"*To carry on the business of infrastructure development in respect of the work of Design, Build, Finance, and Operation of Four Laning of Goa/Karnataka border to Kundapur section of NH-17 from existing km 93.700 to km 283.300 in the State of Karnataka under NHDP Phase IV on Design, Build, Finance, Operate and Transfer (DBFOT) Toll basis, inclduing collection and retention of toll or fee and to carry out the ancillary activities, in relation of the foregoing, as specified in the Concession Agreement to be executed with National Highways Authority of India (NHAI).*"

Capital Structure

The capital structure of IRB WTL is as follows:

Particulars	No. of equity shares of face value of ₹10 each
Authorized capital	174,194,303
Issued, subscribed and paid-up capital	174,194,303

Shareholding Pattern

The shareholding pattern of IRB WTL is as follows:

S No.	Name of the shareholder	No. of equity shares of face value of ₹10 each	Percentage of the issued, paid-up and subscribed capital (%)
1.	IDBI Trusteeship Services Limited*	174,194,297	100
2.	Mahesh Kavthekar**	1	Negligible
3.	Dhananjay K. Joshi**	1	Negligible
4.	Shailesh Joshi**	1	Negligible
5.	Nikhil Maniar**	1	Negligible
6.	Arati Taskar**	1	Negligible
7.	Anushree Joshi**	1	Negligible
Total		**174,194,303**	**100**

** On behalf of the Trust*
*** As a nominee of the Trust*

5. KGTL

Corporate Information

KGTL was incorporated on January 12, 2017 as a private limited company under the Companies Act, having CIN U45203MH2017PTC289501. KGTL was converted into a public limited company under the Companies Act, and a fresh certificate of incorporation dated November 14, 2019 was issued, having CIN U45203MH2017PLC289501. Its registered office is situated at Off. No-11th Floor/1101 Hiranandani Knowledge Park, Technology Street, Hill Side Avenue, Powai, Mumbai 400 076, Maharashtra, India.

Main Object

The main object, as contained in the memorandum of association of KGTL, is as follows:

"*To carry on the business of infrastructure development in respect of the work of Design, Build, Finance and Operation of Six Laning of Kishangarh to Gulabpura Section of NH 79A and NH 79 in the state of Rajasthan (length 90.000 km) under NHDP Phase V package – I on DBFOT (Toll) mode, including collection and retention of the toll or fee and to carry out the ancillary activities, in relation of the foregoing, as specified in the Concession Agreement to be executed with National Highways Authority of India (NHAI).*"

Capital Structure

The capital structure of KGTL is as follows:

Particulars	No. of equity shares of face value of ₹10 each
Authorized capital	155,500,000
Issued, subscribed and paid-up capital	155,500,000

Shareholding Pattern

The shareholding pattern of KGTL is as follows:

S. No.	Name of the shareholder	No. of equity shares of face value of ₹10 each	Percentage of the issued, paid-up and subscribed capital (%)
1.	IDBI Trusteeship Services Limited*	155,499,994	100
2.	Mahesh Kavthekar**	1	Negligible
3.	Dhananjay K. Joshi**	1	Negligible
4.	Arati Taskar **	1	Negligible
5.	Shailesh Joshi**	1	Negligible
6.	Nikhil Maniar**	1	Negligible
7.	Vinod Kumar Menon**	1	Negligible

S. No.	Name of the shareholder	No. of equity shares of face value of ₹10 each	Percentage of the issued, paid-up and subscribed capital (%)
Total		155,500,000	**100**

** On behalf of the Trust*
*** As a nominee of the Trust*

6. KTL

Corporate Information

KTL was incorporated on June 11, 2014 as a private limited company under the Companies Act, having CIN U45201MH2014PTC255454. KTL was converted into a public limited company under the Companies Act, and a fresh certificate of incorporation dated November 14, 2019 was issued, having CIN U45201MH2014PLC255454. Its registered office is situated at Off. No-11th Floor/1101 Hiranandani Knowledge Park, Technology Street, Hill Side Avenue, Powai, Mumbai 400 076, Maharashtra, India.

Main Object

The main object, as contained in the memorandum of association of KTL, is as follows:

"*To carry on the business of infrastructure development in respect of the work of Design, Build, Finance and Operation of Four Laning of Kaithal to Rajasthan Border section of NH-152/65 from km 33+250 (Design Km – 0.500) to km 241+580 (Design Km 165.759) in the State of Haryana under NHDP Phase IV on Design, Build, Finance, Operate and Transfer (DBFOT) Toll basis, including collection and retention of the toll or fee and to carry out the ancillary activities, in relation of the foregoing, as specified in the Concession Agreement to be executed with National Highways Authority of India (NHAI).*"

Capital Structure

The capital structure of KTL is as follows:

Particulars	No. of equity shares of face value of ₹10 each
Authorized capital	328,000,000
Issued, subscribed and paid-up capital	328,000,000

Shareholding Pattern

The shareholding pattern of KTL is as follows:

S. No.	Name of the shareholder	No. of equity shares of face value of ₹10 each	Percentage of the issued, paid-up and subscribed capital (%)
1.	IDBI Trusteeship Services Limited*	327,999,994	100
2.	Mahesh Kavthekar**	1	Negligible
3.	Dhananjay K. Joshi**	1	Negligible
4.	Arati Taskar**	1	Negligible
5.	Shailesh Joshi**	1	Negligible
6.	Nikhil Maniar**	1	Negligible
7.	Anushree Joshi*	1	Negligible
Total		**328,000,000**	**100**

** On behalf of the Trust*
*** As a nominee of the Trust*

7. SYTL

Corporate Information

SYTL was incorporated on January 10, 2014 as a private limited company under the Companies Act, 1956, having CIN U45400MH2014PTC251983. SYTL was converted into a public limited company under the Companies Act, and a fresh certificate of incorporation dated November 13, 2019 was issued, having CIN U45400MH2014PLC251983. Its registered office is situated at Off. No-11th Floor/1101 Hiranandani Knowledge Park, Technology Street, Hill Side Avenue, Powai, Mumbai 400 076, Maharashtra, India.

Main Object

The main object, as contained in the memorandum of association of SYTL, is as follows:

"*To carry on the business of infrastructure development in respect of the work of Design, Build, Finance and Operation of Four Laning of Solapur to Yedeshi section of NH-211 from km 0.000 to km 100.000 (Design Length 98.717 km) in the State of Maharashtra under NHDP Phase IV on Design, Build, Finance, Operate and Transfer (DBFOT) Toll basis, including collection and retention of the toll or fee and to carry out the ancillary activities, in relation of the foregoing, as specified in the Concession Agreement to be executed with National Highways Authority of India (NHAI).*"

Capital Structure

The capital structure of SYTL is as follows:

Particulars	No. of equity shares of face value of ₹10 each
Authorized capital	98,250,000
Issued, subscribed and paid-up capital	98,250,000

SYTL has also issued privately placed rupeee denominated senior, redeemable, secured, rated and listed non-convertible debentures that are listed on the wholesale debt segment of the BSE Limited.

Shareholding Pattern

The shareholding pattern of SYTL is as follows:

S. No.	Name of the shareholder	No. of equity shares of face value of ₹10 each	Percentage of the issued, paid-up and subscribed capital (%)
1.	IDBI Trusteeship Services Limited*	98,249,994	100
2.	Dhananjay K. Joshi**	1	Negligible
3.	Mahesh Kavthekar**	1	Negligible
4.	Shailesh Joshi**	1	Negligible
5.	Nikhil Maniar**	1	Negligible
6.	Arati Taskar**	1	Negligible
7.	Anushree Joshi**	1	Negligible
Total		**98,250,000**	**100**

** On behalf of the Trust*
*** As a nominee of the Trust*

8. UTL

Corporate Information

UTL was incorporated on October 6, 2016 as a private limited company under the Companies Act, having CIN U45203MH2016PTC286600. UTL was converted into a public limited company under the Companies Act, and a fresh certificate of incorporation dated November 13, 2019 was issued, having CIN U45203MH2016PLC286600. Its registered office is situated at Off. No-11th Floor/1101 Hiranandani Knowledge Park, Technology Street, Hill Side Avenue, Powai, Mumbai 400 076, Maharashtra, India.

Main Object

The main object, as contained in the memorandum of association of UTL, is as follows:

"To carry on the business of infrastructure development in respect of the work of Design, Build, Finance and Operation of Six Lanning from km 287.400 to km 401.200 section of NH-8 in the States of Rajasthan and Gujarat (approx. length 113.800 km) on Design, Build, Finance, Operate and Transfer (DBFOT) Toll basis under NHDP Phase V (package – V), including collection and retention of the toll or fee and to carry out the ancillary activities, in relation of the foregoing, as specified in the Concession Agreement to be executed with National Highways Authority of India (NHAI)."

Capital Structure

The capital structure of UTL is as follows:

Particulars	No. of equity shares of face value of ₹10 each
Authorized capital	116,800,000
Issued, subscribed and paid-up capital	116,800,000

Shareholding Pattern

The shareholding pattern of UTL is as follows:

S. No.	Name of the shareholder	No. of equity shares of face value of ₹10 each	Percentage of the issued, paid-up and subscribed capital (%)
1.	IDBI Trusteeship Services Limited*	116,799,994	100
2.	Mahesh Kavthekar**	1	Negligible
3.	Shailesh Joshi**	1	Negligible
4.	Arati Taskar**	1	Negligible
5.	Dhananjay K. Joshi**	1	Negligible
6.	Vinod Kumar Menon**	1	Negligible
7.	Nikhil Maniar**	1	Negligible
Total		**116,800,000**	**100**

** On behalf of the Trust*
*** As a nominee of the Trust*

UTL has also issued privately placed rupee denominated rated, unlisted, secured and redeemable non-convertible debentures.

9. YATL

Corporate Information

YATL was incorporated on May 17, 2014, as a private limited company under the Companies Act, 2013, having CIN U45300MH2014PTC255280. YATL was converted into a public limited company under the Companies Act, and a fresh certificate of incorporation dated November 13, 2019 was issued, having CIN U45300MH2014PLC255280. Its registered office is situated at Off. No-11th Floor/1101 Hiranandani Knowledge Park, Technology Street, Hill Side Avenue, Powai, Mumbai 400 076, Maharashtra, India.

Main Object

The main object, as contained in the memorandum of association of YATL, is as follows:

"To carry on the business of infrastructure development in respect of the work of Design, Build, Finance and Operation of Four Laning of Yedeshi to Aurangabad section of NH-211 from km 100.000 to km 290.200 in the State of Maharashtra under NHDP Phase IVB on Design, Build, Finance, Operate and Transfer (DBFOT) Toll basis, including collection and retention of the toll or free and to carry out the ancillary activities, in relation of the foregoing, as specified in the Concession Agreement to be excuted with National Highways Authority of India (NHAI)."

Capital Structure

The capital structure of YATL is as follows:

Particulars	No. of equity shares of face value of ₹10 each
Authorized capital	216,000,000
Issued, subscribed and paid-up capital	215,757,001

YATL has also issued privately placed rupeee denominated senior, redeemable, secured, rated and listed non-convertible debentures that are listed on the wholesale debt segmet of the BSE Limited.

Shareholding Pattern

The shareholding pattern of YATL is as follows:

S. No.	Name of the shareholder	No. of equity shares of face value of ₹10 each	Percentage of the issued, paid-up and subscribed capital (%)
1.	IDBI Trusteeship Services Limited*	215,756,995	100
2.	Mahesh Kavthekar**	1	Negligible
3.	Shailesh Joshi**	1	Negligible
4.	Arati Taskar**	1	Negligible
5.	Dhananjay K. Joshi**	1	Negligible
6.	Anushree Joshi**	1	Negligible
7.	Nikhil Maniar**	1	Negligible
	Total	**215,757,001**	**100**

** On behalf of the Trust*
*** As a nominee of the Trust*

10. PDTPL

Corporate Information

PDTPL was incorporated on April 15, 2021, as a private limited company under the Companies Act, 2013, having CIN U45201MH2021PTC359020. Its registered office is situated at Off. No-11th Floor/1101 Hiranandani Knowledge Park, Technology Street, Powai, Mumbai 400 076, Maharashtra, India.

Main Object

The main object, as contained in the memorandum of association of PDTPL, is as follows:

"To carry on the business of infrastructure development in respect of 6 Laning of National Corridor NH-19 from Palsit to Dankuni (up to NH-6 Connector) from km. 588.870 to km. 652.700 (total design length 63.830 km) in the State of West Bengal under Bharatmala Pariyojana to be executed on BOT (Toll) basis Project including collection and retention of the toll or fee and to carry out the ancillary activities, in relation of the foregoing, as specified in the Concession Agreement to be executed with National Highways Authority of India (NHAI)."

Capital Structure

The capital structure of PDTPL is as follows:

Particulars	No. of equity shares of face value of ₹10 each
Authorized capital	121,250,000
Issued, subscribed and paid-up capital	121,250,000

Shareholding Pattern

The shareholding pattern of PDTPL is as follows:

S. No.	Name of the shareholder	No. of equity shares of face value of ₹10 each	Percentage of the issued, paid-up and subscribed capital (%)
1.	IDBI Trusteeship Services Limited*	121,200,000	99.96
2.	IRB Infrastructure Developers Limited	49,994	0.04
3.	Rajpaul Sharma**	1	Negligible
4.	Vinod Kumar Menon**	1	Negligible
5.	Amitabh Murarka**	1	Negligible
6.	Dhananjay K. Joshi**	1	Negligible
7.	Arati Taskar**	1	Negligible
8.	Anushree Joshi**	1	Negligible
	Total	**121,250,000**	**100**

** On behalf of the Trust*
*** As a nominee of IRB Infrastructure Developers Limited*

Certain Agreements in relation to the Trust

Framework Agreement

The Sponsor, the Investment Manager, the Financial Investors and Croxley have entered into the Framework Agreement to record the terms and conditions in relation to, *inter-alia*, subsequent investment into the Trust by the Sponsor and further funding for completion of the projects of the Project SPVs. The promoter of the Sponsor has also provided undertakings in relation to his shareholding in the Sponsor and other matters.

Pursuant to the terms of the Framework Agreement and the Share Purchase Agreements, the Portfolio was acquired by the Trust. Further, Croxley and the Investment Manager entered into the IM SHA in connection with Croxley's investment in the Investment Manager. See "*Corporate Governance*" and "*The Investment Manager*" on pages 111 and 229, respectively, for details of the arrangements under these agreements.

A summary of the key provisions of the Framework Agreement is set out below.

Covenants

The Sponsor has provided covenants and undertakings to the Financial Investors in relation to certain matters under the Framework Agreement. These include, *inter-alia*:

- *Correspondence and regulatory filings:* other than routine or annual filings made by the Manager Group Member with the SEBI or the RBI, regulatory correspondence and filings between the Trustee or Manager Group Member and the SEBI or RBI as specified in the Framework Agreement require the prior written consent of the Financial Investors;

- *Project management works*: the Sponsor will act as the Project Manager in accordance with the terms of the Project Implementation Agreements and provide operation and maintenance services for a period of at least 10 years under the Project Implementation Agreements. For further details, see "*Background and Structure of the Trust – Fees and Expenses – Fees and expenses of the Project Manager*" and "*The Sponsor and Project Manager*" on pages 79 and 226, respectively;

- *Listing:* Certain arrangements have been agreed in connection with the listing of Units of the Trust;

- *Sponsor categorization*: Unless otherwise agreed by the parties, the Sponsor will continue to act as a sponsor of the Trust so long as the Sponsor and/or its affiliates hold Units and shall fulfil the obligations of a sponsor under the InvIT Regulations; and

- *Right of first offer in relation to the IRB InvIT Fund:* the Sponsor has agreed to provide the Financial Investors a right of first offer over any units of the IRB InvIT Fund held by the Sponsor and its affiliates and proposed to be transferred by them to any person (other than the entities controlled by the Sponsor or its subsidiaries) at any time after the closing date.

In addition, the Sponsor has also undertaken to comply with provisions in relation to material contracts, business plans, policies and initial tax orders and ensure certain information rights. Upon the Project SPVs achieving completion of the projects as required under the relevant concession agreements, the Sponsor has undertaken to ensure that no more than 51% of the equity shares (on a fully diluted basis) of all the Project SPVs will be encumbered in favor of the lenders and/or a debenture trustee.

Reserved Matters

For details of Reserved Matters, see "*Rights of Unitholders – Approval of Unitholders – Reserved Matters*" on page 223.

Further funding in relation to the Portfolio

The Financial Investors have agreed to contribute a portion of the total equity commitment required for completion of the project of each Project SPV (the "**Project SPV Commitment**") in accordance with the business plan and the annual budget as set out in the Framework Agreement. Such contribution is proposed to be through subscription to additional Units on a periodic basis. In the first instance, the internal accruals of the relevant Project SPVs for the relevant period will be applied towards the Project SPV Commitment in such period, and any shortfall or excess as per the forecasts in the business plan will be adjusted towards the Project SPV Commitment requirements in the subsequent period. The Sponsor and the Financial Investors will together invest the required funding into the Trust in an agreed proportion.

Potential Projects

For details in relation to Potential Projects, see "*Related Party Transactions – Details of Related Party Transactions proposed to be undertaken*" on page 211.

Further issue of Units, transfer of Units and rights in relation to Unitholding

For details of arrangements agreed in relation to further issue of Units, transfer of Units and rights in relation to Unitholding, see "*Rights of Unitholders – Arrangements between the Sponsor and the Financial Investors*" on page 221.

Event of Default

For details of events of default and consequences, see "*Rights of Unitholders – Arrangements between the Sponsor and the Financial Investors – Events of Default and Consequences*" on page 234.

Indemnification in relation to the Formation Transactions

In relation to the Formation Transactions, the Sponsor has agreed to indemnify the Indemnified Parties (i.e., (a) the Financial Investors, their respective affiliates, their respective directors, officers, employees; and (b) at the option of the Financial Investors, any Manager Group Member, provided the Sponsor agrees to indemnify the relevant Manager Group Member of the entire loss suffered/ incurred by such Manager Group Member in relation to an indemnity event) against, any losses incurred or sustained by, or imposed upon, the Indemnified Parties based upon, arising out of, with respect to or relating to: (i) breach or inaccuracy of any of the Sponsor's warranties; (ii) any non-fulfilment, non-performance or other breach of any covenant or obligation of the Sponsor, its affiliates and/or any Manager Group Member contained in the transaction documents; (iii) any matter involving fraud, gross negligence or wilful misconduct by the Sponsor or any Manager Group Member; and (iv) certain specific indemnity matters.

The Sponsor's indemnification obligations are subject to certain limitations as to time and quantum as specified in the Framework Agreement. Further, the indemnified parties will not be entitled to claim any losses with respect to a particular indemnity event unless the losses exceed a particular amount. Payments by the Sponsor in respect of any loss will be limited to the amount of any liability or damage that remains after deducting any insurance proceeds received by the indemnified party in respect of any such claim. Subject to the limitations set out in the

Framework Agreement, the Sponsor's liability for all monetary claims for breach of warranties, including claims for damages, will not exceed a specified amount agreed under the Framework Agreement.

Indemnification in relation to the acquisition of PDTPL

In relation to the acquisition of PDTPL by the Trust, the Sponsor has agreed to indemnify the Indemnified Parties against, any losses incurred or sustained by, or imposed upon, the Indemnified Parties based upon, arising out of, with respect to or relating to: (i) any claim against PDTPL that has occurred prior to the PDTPL closing date; (ii) breach or inaccuracy of any of the Sponsor's warranties in relation to PDTPL; (iii) any non-fulfilment, non-performance or other breach of any covenant or obligation of the Sponsor, its affiliates and/or any Manager Group Member contained in the PDTPL transaction documents; and (iv) any matter involving fraud, gross negligence or wilful misconduct by the Sponsor, the Investment Manager or PDTPL.

The Sponsor's indemnification obligations are subject to certain limitations as to quantum as specified in the Framework Agreement. Further, the indemnified parties will not be entitled to claim any losses with respect to a particular indemnity event unless the losses exceed a particular amount. Payments by the Sponsor in respect of any loss will be limited to the amount of any liability or damage that remains after deducting any insurance proceeds received by the indemnified party in respect of any such claim. Subject to the limitations set out in the Framework Agreement, the Sponsor's liability for all monetary claims for breach of warranties, in relation to the acquisition of PDTPL, including claims for damages, will not exceed a specified amount agreed under the Framework Agreement.

Governing Law, Dispute Resolution and Termination

The Framework Agreement is governed by the laws of India. Any dispute shall be referred to and finally resolved by arbitration administered by the Singapore International Arbitration Centre in accordance with the SIAC Rules for the time being in force. The arbitration panel will consist of three arbitrators, each of which shall be appointed by SIAC in accordance with the SIAC Rules. The seat and venue of the arbitration proceedings will be London, United Kingdom.

The Framework Agreement will stand automatically terminated without any further action (i) as against the Financial Investors, when the entire Unitholding of the Financial Investors is sold and the entire shareholding of Croxley in the Investment Manager is sold, in accordance with the terms of the transaction documents; or (ii) as against the Sponsor, when the entire Unitholding of the Sponsor is sold or transferred in accordance with the terms of the Framework Agreement.

Debt Novation Agreements

In connection with the initial offer of Units by the Trust, the Investment Manager and the Trust (acting through the Trustee) entered into Debt Novation Agreements dated February 19, 2020 for the novation of subordinated debt and unsecured loans from the Sponsor and its Associates in consideration for the issue of Units to the Sponsor and the payment of certain amounts to the Sponsor and its Associates. The Debt Novation Agreements also provide for the treatment of Sponsor Claims and Future Claims and repayment of such debt by the Project SPVs (except PDTPL) to the Trust on an ongoing basis.

Certain definitions in the Debt Novation Agreements are set out below:

"**Debt**" shall mean the Subordinated Debt and the Unsecured Loans;

"**Future Claims**" shall mean, with respect to a Project SPV, the claims (including any administrative, legal or other similar proceedings) made or intended to be made by such Project SPV against any Governmental Authority for events pertaining to the period after the Reference Date, including any claims for events pertaining to the period prior to the Closing Date (defined below) but which would likely adversely impact the toll revenue of the Project SPV during periods subsequent to the Closing Date;

"**Governmental Authority**" shall include the SEBI, the NHAI, the Ministry of Road Transport and Highways of the Government of India or any state or union territory of India, the Reserve Bank of India, and any national, state, regional or local government or governmental, regulatory, statutory, administrative, fiscal, taxation, judicial, or government-owned body, department, commission, authority, court, arbitrator, tribunal, agency or entity, in India or outside India, in each case, having jurisdiction over any of the parties, their operations, or the transactions contemplated in the Debt Novation Agreement and the transaction documents;

"**Lenders**" shall mean the Sponsor and its associates that have provided Subordinated Debt and Unsecured Loans to the Project SPV in connection with its project;

"**Reference Date**" shall mean, with respect to a Project SPV, the later of the (i) the Closing Date; and (ii) the project completion date under the Concession Agreement, provided that if a provisional completion certificate is issued under the terms of the Concession Agreement and additional construction is required to be undertaken after the date of such certificate, this date shall be the date of issue of the final completion certificate;

"**Sponsor Claims**" shall mean, with respect to a Project SPV: (a) any kind of claim made by such Project SPV for events pertaining to the period prior to the Reference Date and the impact of which also solely pertains to the period prior to the Reference Date; and/or (b) all construction related claims (including any administrative, legal or other similar proceedings in relation to utilities shifting, change of scope, construction, delays in construction, idling of resources, interest during construction or other matters) made or intended to be made by such Project SPV against any Governmental Authority for events pertaining to the period prior or after to the Reference Date;

"Subordinated Debt" shall mean, with respect to a Project SPV, the outstanding interest-free subordinated debt provided by the Lenders to such Project SPV; and

"**Unsecured Loans**" shall mean, with respect to a Project SPV, the outstanding interest-free unsecured loans provided by the Lenders to such Project SPV.

Treatment of Sponsor Claims and Future Claims

In consideration for the transfer and release of a portion of Subordinated Debt and Unsecured Loans by the Lenders, and all rights and obligations in relation to such Debt, the Trust and the Investment Manager have agreed that the Amounts (defined below) will be paid by the Trust to the Lenders to the extent that any such amounts are received by the Project SPV in a settlement or adjudication (including arbitration) of Sponsor Claims.

The payment of Amounts to the Lenders shall constitute full, final and complete discharge of the obligation of the Trust with respect to payment of consideration for such Subordinated Debt and Unsecured Loans.

Any payments received by the Project SPV in a settlement or adjudication (including arbitration) of Sponsor Claims will be transferred by the Project SPV to the Trust immediately upon receipt (the "**Amounts**"). The Trust may also pay up to specified amount, in case of IRB WTL, to the Lenders towards the Amounts, including out of its cash flows, and any such amounts paid will be reduced from the aggregate Amounts. If a bank guarantee is required to be submitted to the relevant Governmental Authority in lieu of such Amounts (or any part thereof), the Lenders will provide the bank guarantee. Upon the receipt of the Amounts by the Trust, the Amounts will forthwith be paid by the Trust to the Lenders. All taxes in relation to such payments will be solely borne by the Lenders.

If the final settlement or adjudication in relation to the relevant Sponsor Claim is unsuccessful, the Trust will promptly inform the Lenders, as applicable, and the Sponsor and the Financial Investors will mutually agree on treatment of any outstanding amounts in relation to such Sponsor Claims based on tax considerations in a manner mutually agreed between the Financial Investors and the Sponsor. Any tax impact on the Trust or the Project SPVs on account of such outstanding debt and/ or write-off such debt (whether pertaining to the period prior to the Closing Date or after) will only be to the account of the Lenders, and no Manager Group Member (as defined in the Debt Novation Agreements) and/or any other Unitholder should suffer/ incur a loss in connection with such debt.

The Project SPV, the Investment Manager and the Trust will render all reasonable assistance necessary to enable the payment of the Amounts to the Lenders, as applicable, including to obtain any required approval and authorization required from the NHAI or other Governmental Authority or any of the senior lenders of the Project SPV.

Any amounts received by the Project SPV or the Trust pursuant to the settlement or adjudication of Future Claims shall be distributed among the Unitholders in the proportion of their respective Unitholding percentages in the Trust in such manner as may be permitted under applicable law. In the event of any restructuring as set out above, any amounts received pursuant to Future Claims for periods prior to such restructuring shall be distributed among the Unitholders in the proportion of their respective Unitholding percentages.

Repayment of the Debt by the Project SPVs

The Project SPVs (except PDTPL) will repay the Subordinated Debt and Unsecured Loans to the Trust as may be mutually agreed between the Parties based on availability of cash flows. Interest at rate of 14% p.a. will be chargeable on the above Debt with effect from the earlier of (i) the project completion date under the relevant concession agreement and (ii) the date of listing of the Units on one or more Stock Exchanges. The terms of the repayment of the unsecured loans extended to PDTPL are set out in the shareholder loan agreement dated April 5, 2022. See "— *Shareholder Loan Agreements*" below.

The above Debt shall, at all times be subordinate to the debt provided by the senior lenders. Subject to the terms of the financing agreements and the relevant escrow agreement, payments towards such Debt (including interest) will be made out of balance available in the escrow account for utilization in accordance with the instructions of the Project SPV, on the relevant interest payment date or repayment date, after meeting all payments due to the senior lenders as of such date.

Governing Law, Dispute Resolution and Termination

The Debt Novation Agreements will be governed by the laws of India. Any dispute shall be referred to and finally resolved by arbitration administered by the Singapore International Arbitration Centre in accordance with the SIAC Rules for the time being in force. The arbitration panel will consist of three arbitrators, each of which shall be appointed by SIAC in accordance with the SIAC Rules. The seat and venue of the arbitration proceedings will be Delhi, India.

The Debt Novation Agreements will stand terminated and fall away automatically without any further act by the parties (i) upon the repayment or settlement of all amounts (including interests and other charges) in relation to the Debt and (ii) there are no Amounts remaining due to the Lenders.

Shareholder Loan Agreements

The Trust has provided Shareholder Loans in the form of unsecured loans to the Project SPVs under the shareholder loan agreements dated February 19, 2020 with each Project SPV (except PDTPL) and a shareholder loan agreement dated April 5, 2022 with PDTPL (collectively, the "**Project SPV Shareholder Loan Agreements**"). Additional debt is proposed to be provided by the Trust to the Project SPVs through disbursements under the Project SPV Shareholder Loan Agreements from time to time towards, *inter-alia*, funding of total project cost and working capital requirements of the Project SPVs.

A summary of the key terms of the Project SPV Shareholder Loan Agreements is set forth below.

Purpose	***AETL, IRB WTL, KTL, SYTL and YATL*** The Project SPV shall utilize the loan amounts solely for (i) the purpose of partial refinancing of certain secured loans provided to the Project SPV by the senior lenders; (ii) funding of total project cost; and (iii) working capital requirements or general corporate purposes of the Project SPV. ***CGTL, IRB HMTL, KGTL and UTL*** The Project SPV shall utilize the loan amounts solely for (i) funding of total project cost; and (ii) working capital requirements or general corporate purposes of the Project SPV. ***PDTPL*** The Project SPV shall utilize the loan amounts solely for funding of the total project cost of the Project SPV.
Term	The Project SPV shall repay the loan at the end of the concession period under the relevant concession agreement as mutually agreed between the parties to the Project SPV Shareholder Loan Agreement.
Interest	• The Project SPV shall pay accrued interest (subject to withholding of applicable taxes) at the rate of 14% p.a., or or such other rate as may be decided mutually by the parties to the

	Project SPV Shareholder Loan Agreement from time to time. Interest will accrue from the date of disbursement of the loan. • Interest will be chargeable from the earlier of the (i) project completion date under the relevant concession agreement and (ii) the date of listing of the Units on one or more Stock Exchanges. • Interest will be payable in arrears on a quarterly basis, on or before the expiry of the calendar month immediately succeeding the completion of each quarter, provided that the Project SPV may, at its discretion, elect to pay interest on a monthly basis, and such interest shall be payable on the first day of the subsequent month for which the interest is being paid. ***PDTPL*** • The Project SPV shall pay accrued interest (subject to withholding of applicable taxes) at the rate of 14.5% p.a., or or such other rate as may be decided mutually by the parties to the Project SPV Shareholder Loan Agreement from time to time. Interest will accrue from the date of disbursement of the loan. • Interest will be chargeable from the project completion date under the concession agreement. • Interest will be payable in arrears on a quarterly basis, on or before the expiry of the calendar month immediately succeeding the completion of each quarter, provided that the Project SPV may, at its discretion, elect to pay interest on a monthly basis, and such interest shall be payable on the first day of the subsequent month for which the interest is being paid
Repayment	• The Trust may call on the Project SPV to prepay the loan, in full or part, or permit the Project SPV to make payments of the outstanding loan, in full or part, after the date such payment is due, at any time during the term of the Project SPV Shareholder Loan Agreement until the final settlement date (as defined in the Project SPV Shareholder Loan Agreement). • The Project SPV may prepay the whole or part of the loan together with interest on that amount accrued up to the date of prepayment, by giving a prior written notice of not less than 30 days to the Trust, specifying the amount to be prepaid and the date of proposed prepayment. • The loan (in one or more tranches) provided under the Project Shareholder Loan Agreement shall, at all times be subordinate to the debt provided by the senior lenders. Subject to the terms of the financing agreements and the escrow agreements, payments towards the loan amounts (including interest) shall be made out of balance available in the escrow account for utilization in accordance with the instructions of the Project SPV on the relevant interest payment date or repayment date, after meeting all payments due to the senior lenders as of such date.
Security	Unsecured
Events of Default	The occurrence of any of the events or circumstances set out below shall constitute an "**Event of Default**", if not remedied within 180 days (or such extended period as may be provided by the Trust at its sole discretion) from the date of receiving notice of such default from the Trust. The Project SPV shall promptly give written notice to the Trust of any Event of Default and of any other event which, with the giving of notice or lapse of time or otherwise could constitute an Event of Default, and inform the Trust of any action taken or proposed to be taken by the Project SPV in connection therewith. • **Non-Payment:** The Project SPV fails to pay any amount due under the Project SPV Shareholder Loan Agreement or any other finance documents within a period of 180 days from the relevant due date. If debt due to senior lenders is outstanding, the Trust may declare a non-payment Event of Default only if one or more of the senior lenders declares an Event of Default in relation to amounts due to such senior lenders. • **Breach of Covenants and Undertakings:** The Project SPV breaches any provision of the Project SPV Shareholder Loan Agreement or any other finance documents. • **Misrepresentation:** Any representation or statement made by the Project SPV in any finance document or any other document delivered by or on behalf of the Project SPV

	under or in connection with any transaction document is or proves to have been incorrect or misleading in any material respect when made or results in a material adverse effect on the Project SPV or the relevant project. • **Cessation of Business**: The Project SPV ceasing or threatening or likely to cease, to carry on all or substantially all of its business or operations. • **Insolvency:** The Project SPV is unable to, or presumed or deemed to be unable to, or admits its inability to, pay its debts as they fall due, suspends making payments on any of its debts or, by reason of actual or anticipated financial difficulties, commences negotiations with one or more of its creditors with a view to rescheduling any of its indebtedness. • **Insolvency proceedings:** Any corporate action, legal proceedings or other procedure is taken in relation to: (a) the suspension of payments, a moratorium of any indebtedness, winding-up, dissolution, administration, provisional supervision or reorganization (by way of voluntary arrangement, scheme of arrangement or otherwise) of the Project SPV other than a solvent liquidation or reorganization of the Project SPV; (b) a composition or arrangement with any creditor of the Project SPV, or an assignment for the benefit of creditors generally of the Project SPV, or a class of such creditors; (c) the appointment of a liquidator, receiver, and manager, administrator, administrative receiver, compulsory manager, provisional supervisor or other similar officer in respect of the Project SPV or any of its assets; or (d) or any analogous procedure is taken in any jurisdiction. • **Unlawfulness and Invalidity:** (a) It is or becomes unlawful for the Project SPV to perform its obligations under the Project SPV Shareholder Loan Agreement or any other finance documents; or (b) any finance document is not or ceases to be legal, valid, binding or enforceable. • **Nationalization or Expropriation**: Any governmental authority has taken or has threatened to take any action to expropriate, condemn, nationalize or seize the relevant project or whole or part of the assets of the Project SPV, or the whole or substantially whole or part of the relevant project, resulting in the Project SPV being deprived or threatened to deprive to carry on its business or which will have a material adverse effect on the Project SPV or the relevant project on the operation of the business of the Project SPV. • **Cross Default**: The Project SPV defaults in the payment of any principal, interest, premium or other amount due (whether by scheduled maturity, mandatory prepayment, acceleration or demand) under any loan or credit agreement and/or defaults in the payments due under any existing facility agreement or the occurrence of an event of default under the existing facility agreements of the Project SPV. On and at any time after the occurrence of an Event of Default which has not been waived or cured and which is continuing, the Trust may, upon the delivery of seven business days' notice to the Project SPV of the occurrence of an Event of Default: (i) require all or part of the outstanding amounts to be payable immediately; and (ii) exercise such other rights as may be available to the Trust under the Project SPV Shareholder Loan Agreement, the finance documents or under applicable law. No further disbursement shall be made after the occurrence of an Event of Default.
Dispute Resolution	Any dispute shall be referred to and finally resolved by arbitration administered by the Singapore International Arbitration Centre in accordance with the Arbitration Rules of the Singapore International Arbitration Centre ("**SIAC Rules**") for the time being in force. The arbitration panel will consist of three arbitrators, each of which shall be appointed by SIAC in accordance with the SIAC Rules. The seat and venue of the arbitration proceedings shall be Delhi, India.
Governing Law	Laws of India

Unitholding pattern of the Trust

The table below provides details of the Unitholding pattern of the Trust, as at the date of this Disclosure Document:

S. No.	Name of Unitholder	No. of Units	As a % of the total outstanding Units
1.	IRB Infrastructure Developers Limited[(1)]	448,439,840	51.00
2.	Anahera Investment Pte. Ltd.	219,823,181	25.00
3.	Bricklayers Investment Pte. Ltd.	52,757,561	6.00
4.	Chiswick Investment Pte. Ltd.	52,757,561	6.00
5.	Stretford End Investment Pte. Ltd.	52,757,561	6.00
6.	Dagenham Investment Pte. Ltd.	52,757,561	6.00
TOTAL		**879,293,265**	**100.00**

[(1)]The Sponsor has pledged a certain percentage of its Units in favor of banks/financial institutions.

Fees and Expenses

1. *Fees and expenses of the Investment Manager*

Pursuant to the terms of the Investment Management Agreement, the fees will be paid to the Investment Manager for the services provided by it ("**Management Fees**"). The Management Fees will be an annual amount of ₹36.00 million per annum. The Management Fees may be revised for every Financial Year with the approval of the Unitholders, where the votes cast by Unitholders so entitled and voting in favor of a resolution are not less than one-and-a-half times the votes cast against such resolution. Pursuant to a resolution of the Unitholders, the Management Fees for the Financial Years 2023, 2024 and 2025 have been revised as set out below:

Financial Year	Amount (₹ million)
Financial Year 2023	47.90
Financial Year 2024	52.70
Financial Year 2025	58.00

2. *Fees and expenses of the Trustee ("Trusteeship Fee")*

The fee payable to the Trustee for acting as the trustee to the Trust pursuant to an engagement letter dated June 27, 2019 is set out below. Any amendment to trusteeship fees will require the approval of the Unitholders, where the votes cast by Unitholders so entitled and voting in favor of a resolution are not less than one-and-a-half times the votes cast against such resolution.

Particulars	Description
Service charges	Service charges are payable on a quarterly basis, i.e., ₹0.28 million plus applicable taxes payable quarterly in advance on April 1 for April to June, July 1 for July to September, October 1 for October to December and January 1 for January to March each year until full and final repayment of funds to Unitholders, winding up of the Trust and termination of the Indenture of Trust.
Delayed payment charges	In case the payment of service charges is not received within a period of 30 days from the date of the bill, the Trustee reserves the right to charge delayed payment charges at the rate of 12% p.a. on the outstanding amount.
Reset clause	The Trustee has the right to reset the service charges after expiry of two years from the date of execution of the Indenture of Trust as mutually agreed with the Investment Manager.
Out-of-pocket expenses	To be claimed by the Trustee on an actual basis within intimation to the Sponsor/Investment Manager
Invocation and enforcement	Any other work relating to invocation and enforcement of the Trust Assets in case of default would attract separate expenses and fees

In case of late payment of the above fees, penal interest on the outstanding amount would be payable in accordance with the terms of the Indenture of Trust (if applicable).

The above fee structure is subject to certain conditions specified in the engagement letter.

3. ***Fees and expenses of the Project Manager***

Pursuant to the Project Implementation Agreements, the Project SPVs which operate road assets that have not been completed will make payments to the Project Manager for the remaining engineering, procurement and construction works in relation to the relevant project ("**EPC Payments**") on a monthly basis, or as otherwise agreed among the parties to the Project Implementation Agreements based on invoices raised by the Project Manager. The agreed EPC Payments are set forth in the relevant Project Implementation Agreements. See "*Material Contracts and Material Documents*" on page 334.

Pursuant to the Project Implementation Agreements, the Project SPVs will also make payments to the Project Manager for the operation and maintenance works in relation to the relevant project ("**O&M Payments**", and together with the EPC Payments, the "**Project Management Payments**") on a monthly basis, or as otherwise agreed among the parties to the Project Implementation Agreements based on invoices raised by the Project Manager. The agreed O&M Payments applicable for the initial term of the Project Implementation Agreements (i.e., 10 years from the date of the relevant agreement) are set forth in the relevant Project Implementation Agreements. See "*Material Contracts and Material Documents*" on page 334.

No additional payments, including those on account of out of pocket expenses, delay in construction timeline, payment of taxes, any statutory liabilities, any actual losses or damages incurred on any account whatsoever, will be made to the Project Manager over and above the Project Management Payments, except for any payments related to change of scope (as defined in the relevant concession agreement) or utility shifting as required by the NHAI, which will be paid by the relevant Project SPV to the Project Manager as and when such payments are received from the NHAI. If a Project SPV has made any payments to NHAI related to change of scope, such amount will be reduced from the EPC Payments. If any payment due to a Project SPV by the NHAI in respect of the EPC works or the O&M works is delayed in terms of the relevant concession agreement, the payment obligations of the Project SPV to the Project Manager will be correspondingly delayed until the Project SPV receives payment from the NHAI.

Pursuant to addenda dated May 6, 2021 (the "**Addenda**") to the Project Implementation Agreements for CGTL, IRB HMTL, KGTL, IRB WTL and UTL, such Project SPVs have agreed to pay the Project Manager additional costs in relation to certain delays by NHAI and the lockdowns implemented due COVID-19 in the manner and subject to the conditions set out in the Addenda. Under the Project Implementation Agreement for PDTPL, PDTPL is entitled to retain a certain percentage of the total EPC Payments for the project which will be released to the Project Manager upon the completion of the project or as may be mutually agreed among the parties. Certain arrangements in relation to a mobilization advance have also been agreed under such Project Implementation Agreement.

4. ***Fees and expenses of the Auditor and Valuer***

The fees and expenses paid or payable by the Investment Manager to the Valuer and the Auditor is approximately ₹0.5 million and approximately ₹0.5 million, respectively.

Set-up costs

In connection with the establishment and registration of the Trust, the Sponsor has incurred ₹1.1 million in expenses.

INDUSTRY OVERVIEW

The information contained in this section is derived from various government and other industry sources. The Investment Manager, the Trustee, the Sponsor or any other person connected with the Listing have not independently verified this information. Industry sources and publications generally state that the information contained therein has been obtained from sources generally believed to be reliable, but that their accuracy, completeness and underlying assumptions are not guaranteed and their reliability cannot be assured. Industry publications are also prepared on information as of specific dates and may no longer be current or reflect current trends. Accordingly, investment decisions should not be based on such information. All references to years refer to calendar years except as otherwise stated.

Overview of the Global and Indian Economies

India is the fastest-growing trillion-dollar economy in the world and the fifth-largest overall, with a GDP of $3.47 trillion in 2022. India became the fifth-largest economy, overtaking the United Kingdom and France. The country ranked third when GDP was compared in terms of purchasing power parity at $11.67 trillion. India's nominal GDP per capita is $2,466. (*Source: IMF World Economic Outlook Database: October 2020; World Bank GDP ranking 2020*)

According to data from the Department of Economic Affairs, as of March 03, 2023, foreign exchange reserves in India reached US$ 562.4 billion mark. According to the Department for Promotion of Industry and Internal Trade (DPIIT), FDI equity inflow in India stood at US$ 36.75 billion between April 2022 and December 2022.

Growth is projected at 7.0 percent in FY2022/2023 vs 8.7 percent in FY2021/22. Headline inflation is projected at 6.8 percent in FY2022/23, amid elevated price pressures. Emanating from the revenue loss to the Centre on account of the excise duty cut, lower-than-budgeted transfer of the RBI's surplus, additional spending on food, fertilizer and LPG subsidies are estimated to have led to a widening of the fiscal deficit to 6.7 of GDP in FY2021/22.

Dwelling on the outlook for 2023-24, India's recovery from the pandemic was relatively quick, and growth in the upcoming year will be supported by solid domestic demand and a pickup in capital investment. Aided by healthy financials, incipient signs of a new private sector capital formation cycle are visible, compensating for the private sector's caution in capital expenditure, the government raised capital expenditure substantially.

Budgeted capital expenditure rose 2.7 times in the last seven years, from FY16 to FY23, reinvigorating the capital expenditure cycle. Structural reforms such as the introduction of the Goods and Services Tax and the Insolvency and Bankruptcy Code enhanced the efficiency and transparency of the economy and ensured financial discipline and better compliance.

Global growth is forecasted to slow from 3.2 percent in 2022 to 2.7 per cent in 2023 as per IMF's World Economic Outlook, October 2022. A slower growth in economic output coupled with increased uncertainty will dampen trade growth. This is seen in the lower forecast for growth in global trade by the World Trade Organisation, from 3.5 per cent in 2022 to 1.0 per cent in 2023.

Entrenched inflation may prolong the tightening cycle, and therefore, borrowing costs may stay higher for longer. In such a scenario, global economy may be characterized by low growth in FY24. However, the scenario of subdued global growth presents two silver linings – oil prices will stay low, and India's CAD will be better than currently projected. The overall external situation will remain manageable.

India's Infrastructure Opportunity

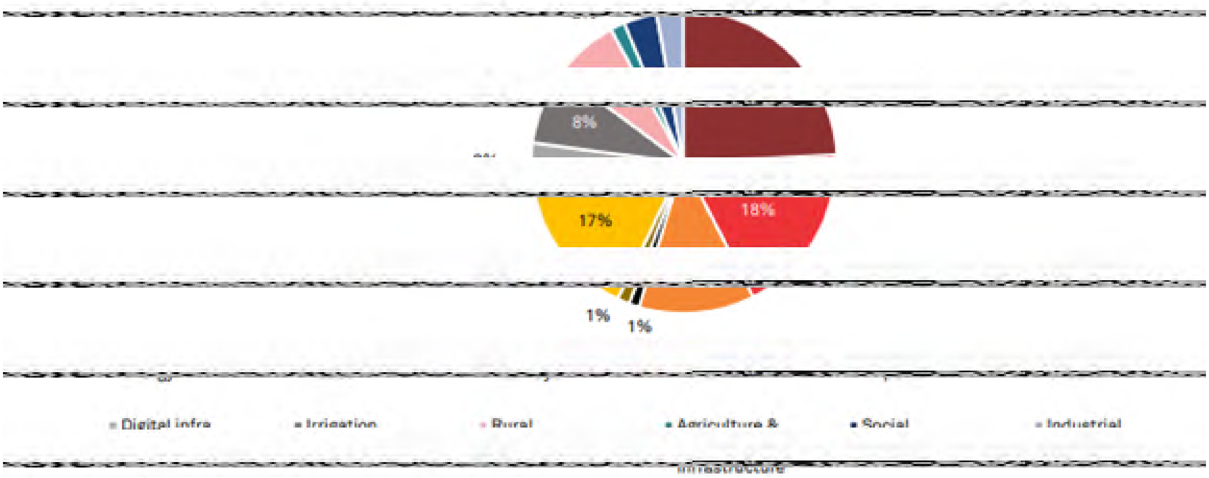
Infrastructure sector is a key driver for the Indian economy. Growing urbanization, demand for energy and financing needs for sustainable living pose a challenge for the infrastructural setup in the country. Infrastructure, and the lack of it, is envisaged as the primary growth constraint, while good infrastructure is widely recognized as an enabler of growth. In the coming era of supply chain disruptions, new technologies and reversal of financial deleveraging, infrastructure growth must keep pace with the need created for it. The opportunities in the infrastructure sector have seen an incremental curve over previous years and are growing to establish the sector as a key driver in India's development story at a high rate. The Government of India has given a massive push to the capital expenditure for key infrastructure sectors, especially highways, has got a big boost in Budget 2023-2024. The total allocation for the highways sector has increased to Rs.2.7 lakh crore from Rs.1.99lakh crore in FY 2022-2023. *(Source: Government of India, Ministry of Finance, Union Budget 2023-2024)*

National Infrastructure Pipeline

In December 2019, the Government launched the National Infrastructure Pipeline (the "NIP"), an investment plan for enhancing infrastructure in identified sectors, which is a first-of-its-kind exercise to provide world-class infrastructure across the country and improve the quality of life for all citizens. NIP is expected to enable a forward outlook on infrastructure projects to create jobs, improve ease of living and provide equitable access to infrastructure for all, thereby making growth more inclusive. NIP includes economic and social infrastructure projects.

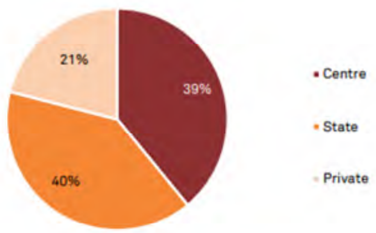
During the Financial Years 2020 to 2025, sectors such as energy (24%), roads (18%), urban (17%) and railways (12%) are expected to amount to approximately 71% of the projected infrastructure investments in India, with a total capital expenditure projected at ₹111 lakh crore. (*Source: National Infrastructure Pipeline – Report of the Task Force, Department of Economic Affairs, Ministry of Finance, Government of India – Volume I (the "Task Force Report – Volume I")*)

Figure 11 Sector-wise break-up of capital expenditure of Rs 111 lakh crore during fiscals 2020-2025



Source: Ministries/ departments/state governments/private sector

The Government of India (39%) and state governments (40%) are expected to have an almost equal share in implementing the NIP in India, followed by the private sector (21%). (*Source: The Task Force Report – Volume I*)



Source: PIRF submitted by ministries/ departments/state governments/private sector

Out of the total expected capital expenditure of ₹111 lakh crore, projects worth ₹44 lakh crore (40% of NIP) are under implementation, projects worth ₹33 lakh crore (30%) are at conceptual stage and projects worth ₹22 lakh crore (20%) are under development. Information regarding project stage are unavailable for projects worth ₹11 lakh crore (10%). (*Source: The Task Force Report – Volume I*)

Roads and Highways

According to the MoRTH, Financial Year 2022-23 was the year of consolidation of the gains that accrued from major policy decisions taken in the previous six years, a time for monitoring of ongoing projects, tackling road blocks and adding to the already impressive pace of work achieved during the past years. During the year, the MoRTH and its associated organizations have expanded the national highways network in the country, taking various steps to make these highways safe for the commuters and making best efforts to minimize adverse impact on the environment. As a result, over the last 8 years, length of National Highways has gone up by 47.8% from 97,830 km (FY 2014-15) to 1,44,634 km (as on November 30, 2022). *(Source: MoRTH press release titled "Year End Review 2022: Ministry of Road Transport and Highways" dated January 04, 2023)*

Details of National Highway length constructed per day during last five Financial Years are as follows:

Year	Length in km	Pace (km per day)
2017-18	9,829	26.93
2018-19	10,855	29.74
2019-20	10,237	27.97
2020-21	13,327	36.51
2021-22	10,457	28.64

(Source: MoRTH press release titled "Year End Review 2022: Ministry of Road Transport and Highways" dated January 04, 2023)

The MoRTH achieved the record-breaking milestone of constructing 37 km highways per day in the Financial Year 2020-2021 *(Source: MoRTH press release titled "Year End Review 2021: Ministry of Road Transport and Highways" dated December 31, 2021)*. The pace of national highway construction had slowed to 28.64 km a day in 2021-22, due to pandemic-related disruptions and a longer-than-usual monsoon in some parts of the country. However, in order to provide a boost to infrastructure development and enable it to overcome the impact of COVID-19 pandemic, the MoRTH has increased the annual project award by 42% in the past three years from 8,948 km in Financial Year 2019-2020 to 12,731 km in Financial Year 2021-2022.

Schemes

Bharatmala Pariyojana: This is the umbrella program for the highways sector that aims to optimize the efficiency of road traffic movement across the country by bridging critical infrastructure gaps. The Phase I of the Bharatmala Pariyojana approved in October 2017, focuses on development of 34,800 km of National Highways. The Pariyojana emphasized on a "corridor based National Highway development" to ensure infrastructure symmetry and consistent road user experience. The key components of the Pariyojana are Economic Corridors development, Inter-corridor and feeder routes development, National Corridors Efficiency Improvement, Border and International Connectivity Roads, Coastal and Port Connectivity Roads and Expressways. The Bharatmala Pariyojana Phase-I has approved around 24,800 km of roads, out of which 17,555 km have been awarded. Additionally, 5,972 km out of the 10,000 km of the remaining NHDP component for Bharatmala Phase-I have been awarded. This phase of the Bharatmala Pariyojana includes various categories of roads and residual NHDP projects, and it has been approved at a cost of Rs. 5.35 Lakh Crore. Components of phase I of Bharatmala Pariyojana as per the Financing Plan until 2021-2022 are as follows:

S No.	Components	Length (in km)	Outlay (in ₹ Crore)
1.	Economic corridors development	9,000	120,000
2.	Inter-corridor and feeder roads	6,000	80,000
3.	National Corridors Efficiency improvements	5,000	100,000
4.	Border and International connectivity roads	2,000	25,000

5.	Coastal and port connectivity roads	2,000	20,000
6.	Expressways	800	40,000
7.	Total	24,800	385,000
8.	Balance road works under NHDP	10,000	150,000
9.	**Total**		**535,000**

(Source: Ministry of Road Transport and Highways; and Demand for Grants 2018-19: Road Transport and Highways)

Under Phase-1, about 23,500 km. has been awarded and about 11,400 km. has been completed. The balance projects are targeted for award by Financial Year 2024-25.*Pradhan Mantri (PM) Gati Shakti National Master Plan (NMP)*: The seven engines that drive PM Gati Shakti are Roads, Railways, Airports, Ports, Mass Transport, Waterways and Logistics Infrastructure. The scope of PM Gati Shakti National Master Plan will encompass the seven engines for economic transformation, seamless multimodal connectivity and logistics efficiency. The projects pertaining to these 7 engines in the National Infrastructure Pipeline will be aligned with PM Gati Shakti framework. PM Gati Shakti National Master Plan is a critical tool for integrating economic & infrastructural planning and development. About 100 critical infrastructure gap projects have been prioritized for development in FY 2023-24 and Rs. 75,000 Cr. have been allocated for the same. Similarly, with multimodal infrastructure development, India's logistics cost will reduce further, improve ease of living and ease of doing business in the country.

Outlook

India's infrastructure sector is rapidly evolving and the key trends demonstrate positivity and optimism. The market for roads and highways in India is projected to exhibit a CAGR of 36.16% during 2016-2025, on account of growing Government initiatives to improve transportation infrastructure in the country. For the period of 2016-17 to 2021-22, the CAGR stands at 20%.

The highways sector in India has been at the forefront of performance and innovation. The government is committed towards expanding the National Highway network to 2 lakh kilometres by 2025 emphasizing the construction of the World Class Road infrastructure in time bound & target oriented way. India has a well-developed framework for Public-Private-Partnerships (PPP) in the highway sector. The Asian Development Bank ranked India at the first spot in PPP operational maturity and also designated India as a developed market for PPPs. The Hybrid Annuity Model (HAM) has balanced risk appropriated between private and public partners and boosted PPP activity in the sector. In the recent past, the Build Operate Transfer (BOT) projects have witnessed renewed interest from private players, therefore it is envisaged that the NHAI may come out with more tenders on BOT mode in the coming year. Asset recycling, through the Toll Operate Transfer (TOT) model has also been taken up by the NHAI and other State Government agencies.

The second phase of the Government of India's Bharatmala programme has been announced for launch. 5,000 km worth of projects are expected to be constructed under the aegis of this programme and Detailed Project Reports (DPRs) are being prepared prior to the approval of the projects so as to speed up the implementation process. In order to facilitate seamless travel between important economic centres, Bharatmala Phase-2 seeks to improve connectivity to a number of infrastructure projects, including multi-modal logistics parks (MMLPs) and under-construction expressways. The new phase would also take up the construction of highways that decongest existing roads, ring roads around major industrial centres and bypasses. The simultaneous implementation of phase-II projects will help in operationalising the remaining projects under phase-I, which is now scheduled to be completed by 2027.

BUSINESS

Some of the information in this section, including information with respect to our plans and strategies, contains forward-looking statements that involve risks and uncertainties. See "Forward-Looking Statements" and "Risk Factors" on pages 8 and 10, respectively, for a discussion of certain factors that may affect our business, results of operations or financial condition. Our actual results may differ materially from those expressed in or implied by these forward-looking statements.

Prospective investors should read this section together with the sections "Industry Overview", "Financial Statements" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Summary of the Concession Agreements" on pages 80, 243, 84 and 117, respectively, as well as the other information contained in this Disclosure Document.

This Disclosure Document includes Special Purpose Consolidated / Combined Financial Information for the Trust and the Project SPVs as at and for the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years 2022, 2021 and 2020. The Project SPVs (except PDTPL) were transferred to the Trust on February 25, 2020 by the Sponsor pursuant to the Formation Transactions undertaken as part of the initial offer through private placement of Units. PDTPL was acquired by the Trust on April 2, 2022. The effective date for consolidation of the Project SPVs (except PDTPL) was March 1, 2020 and for PDTPL was April 2, 2022. Consolidated financial information has been included for the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years 2022 and 2021. The financial information for Financial Year 2020 includes consolidated financial information for the one-month period ended March 31, 2020 and combined financial information for the 11 month period from April 1, 2019 to February 29, 2020.

In this section, unless the context otherwise requires, a reference to "we", "us" and "our" refers collectively to the Trust and the Project SPVs.

Overview

The Trust is a registered infrastructure investment trust under the InvIT Regulations. The Portfolio of the Trust comprises 10 toll-road assets in the states of West Bengal, Haryana, Uttar Pradesh, Rajasthan, Gujarat, Goa, Maharashtra and Karnataka in India. These toll roads are operated and maintained pursuant to concessions awarded by the NHAI.

The Trust has acquired the Portfolio comprised of the Project SPVs from the Sponsor and in the case of PDTPL, holds the Project SPV together with the Sponsor. Each of the Project SPVs is an eligible infrastructure project as defined under the InvIT Regulations. As of December 31, 2022, the Project SPVs owned the following toll road assets comprising 6,275 Lane Kilometers of highway:

- The Agra - Etawah NH-2 Project: A 124.52 km section of NH-2 between Agra and Etawah Bypass in Uttar Pradesh which is held by AETL;
- The Gulabpura - Chittorgarh NH-79 Project: A 124.87 km section of NH-79 between Gulabpura and Chittorgarh Bypass in Rajasthan which is held by CGTL;
- The Hapur - Moradabad NH-9 Project: A 99.867 km section of NH-9 between Hapur and Moradabad in Uttar Pradesh which is held by IRB HMTL;
- The Goa - Kundapur NH-17Project: A 187.28 km section of NH-17 between Goa/Karnataka border and Kundapur in Karnataka which is held by IRB WTL;
- The Kishangarh - Gulabpura NH-79/79A Project: A 90.00 km section of NH-79/79A between Kishangarh and Gulabpura in Rajasthan which is held by KGTL;
- The Kaithal - Rajasthan Border NH-152/65 Project: A 166.259 km section of NH-152/65 between Kaithal and Rajasthan Border in Haryana which is held by KTL;
- The Solapur - Yedeshi NH-211 Project: A 98.717 km section of NH-211 between Solapur and Yedeshi in Maharashtra which is held by SYTL;

- The Udaipur - Rajasthan Border NH-8 Project: A 113.80 km section of NH-8 between Udaipur and Rajasthan Border in Rajasthan and Gujarat which is held by UTL;

- The Yedeshi - Aurangabad NH-211 Project: A 189.09 km section of NH-211 between Yedeshi and Aurangabad in Maharashtra which is held by YATL; and

- The Palsit – Dankuni NH-19 Project: A 63.83 km section of NH-19 between Palsit and Dankuni in West Bengal which is held by PDTPL.

The map set out below depicts the location of the Portfolio:

The Sponsor of the Trust is IRB Infrastructure Developers Limited, one of the largest infrastructure development and construction companies in India in terms of net worth in the roads and highways sector according to the NHAI's annual prequalification for public private partnerships in national highway projects report for 2016. The Sponsor has been listed on the Stock Exchanges since 2008. As at December 31, 2022, the Sponsor had six road projects of which two were operational and four were under-construction or awaiting appointed date. The Sponsor also acts as the Project Manager. For further details, see "*The Sponsor and Project Manager*" on page 226.

The Investment Manager of the Trust is MMK Toll Road Private Limited. The Investment Manager has experience in operating a road project for a period of 13 years. 51% of the equity share capital in the Investment Manager is held by the Sponsor and 49% of the equity share capital of the Investment Manager is held by Croxley. For further details, see "*The Investment Manager*" and "*Corporate Governance*" on pages 229 and 111, respectively.

The Trustee of the Trust is IDBI Trusteeship Services Limited. The Trustee is registered with the SEBI as a debenture trustee under the Debenture Trustees Regulations. For further details, see "*The Trustee*" on page 235.

Update in relation to COVID-19

The outbreak and continuing spread of the COVID-19 pandemic globally and in India caused significant disturbance and slowdown of economic activity. Operations at all toll plazas of the Project SPVs had been closed down with effect from March 26, 2020 until midnight on April 19, 2020. This was done as per the directives issued by MoRTH / NHAI, in accordance with the MHA guidelines about commercial and private establishment in the wake of COVID-19 pandemic. The Project SPVs commenced collection of user fee at all toll plazas on National Highways with effect from April 20, 2020 as per the directives issued by NHAI and by ensuring compliance with preventive measures in terms of guidelines/ instructions issued by the Government of India to contain spread of COVID-19. Further, construction activities were also resumed gradually in the phased manner. For further details in relation to extension of concession period and payment of concession fee / premium, see "*Regulations and Policies*" on page 197.

There was a second wave of the pandemic in India April 2021 onwards. From the second fortnight of April 2021, various State Governments imposed restrictions on travel, which has led to a decline in our toll collections since such period. Please note that under the concession agreements, the Project SPVs are entitled to an extension of the concession period if actual average traffic falls below the target traffic set out in the agreements. For details, see " – *Details of the Project SPVs and the Portfolio*" and "*Summary of the Concession Agreements*" on pages 89 and 117, respectively.

The NHAI has offered an extension of concession period by three to six months to compensate for reduced revenue due to the COVID-19 lockdown. Certain Project SPVs have applied to the NHAI for appropriate relief (including extension of the concession period) and compensation as per the respective concession agreements for the time period during which the relevant projects have been impacted by COVID-19.

Also see "*Risk Factors – The outbreak and continuing spread of COVID-19 has had, and could further have, a material adverse effect on our business, financial condition and results of operations.*" on page 10.

Competitive Strengths

We believe that our key competitive strengths are as follows:

Portfolio of assets in key growth markets

The Trust owns 100% of nine of the Project SPVs, excluding PDTPL and 99.96% of PDTPL. Each of these Project SPVs is the concessionaire of a toll-road project in India.

The Project SPVs' gross toll revenues and gross toll revenue growth rates are set out below:

(₹ in million)

Project SPV	Project	Gross toll revenue in the nine-month period ended December 31, 2022	Gross toll revenue in the nine-month period ended December 31, 2021	Gross toll revenue in the Financial Year 2022	Gross toll revenue in the Financial Year 2021*	Gross toll revenue in the Financial Year 2020*
KTL	Kaithal - Rajasthan Board NH-152/65 Project	1,136.57	73.39**	441.10	701.85	954.18
SYTL	Solapur - Yedeshi NH-211 Project	947.02	580.34	839.58	693.07	664.06
YATL	Yedeshi - Aurangabad NH-211 Project	1,864.64	1,123.42	1,612.72	1,315.15	1,071.61
IRB WTL	Goa - Kundapur NH-17 Project	885.93	602.42	851.88	697.9	92.21
AETL	Agra - Etawah NH-2 Project	1,636.00	1,398.82	1,896.30	1,230.06	835.39
UTL	Udaipur - Rajasthan NH-8 Project	1,866.93	1,432.90	2,003.24	1,177.94	1,327.67
CGTL	Gulabpura - Chittorgarh NH-79 Project	2,534.07	1,535.53	2,276.44	1,402.25	1,594.43
KGTL	Kishangarh - Gulabpura NH-79/79A Project	1,412.16	749.04	1,050.58	935.71	1,116.43
IRB HMTL	Hapur - Moradabad NH-9 Project	1,618.92	1,047.98	1,405.59	1,270.85	1,076.81
PDTPL	Palsit-Dankuni NH-19 Project***	1,540.52	-	-	-	-
Total		**15,442.76**	**8,543.84**	**12,377.43**	**9,424.78**	**8,732.79**

* *Operations at all toll plazas of the Project SPVs were suspended from March 26, 2020 until midnight on April 19, 2020. This was done as per the directives issued by MoRTH / NHAI, in accordance with the Government of India guidelines in relation to the COVID-19 pandemic.*

*** Due to a protest against certain agricultural laws in India, tolling for the Kaithal – Rajasthan project operated by KTL was halted from December 25, 2020. The protest was called off on December 15, 2021 and toll collection resumed from December 16, 2021.*

**** Project commenced toll collection on April 2, 2022.*

For further information, see *"Financial Statements*" on page 243.

We believe that the Portfolio have growth potential due to expected growth in traffic volumes as a result of regional growth and expected increases in toll fees as a result of inflation adjustments.

Diversified road project portfolio and revenue base

The Portfolio consists of a mix of eligible infrastructure toll road projects spread across several states in India. We believe that the geographic diversity of the Portfolio will play a significant role in developing our experience and expertise, including our ability to evaluate, acquire, operate and maintain new projects.

The Portfolio assets are primarily located along economic corridors and across tourist hubs in India.

The Project SPVs' concession agreements are also temporally diverse in that they commenced and are expected to expire at different times. The concession agreements' residual terms range between approximately 14 years, 10 months and three days to approximately 21 years and 19 days as at December 31, 2022.

We believe that our geographically and temporally diverse project portfolio provides us with an advantage in capitalizing on new opportunities available in the roads and highways sector. We believe that this diversification strengthens our business by reducing our reliance on any specific region or project and reducing the potential impact on our business of any economic slowdown or force majeure event in any particular region or with respect to any particular project.

Experienced Sponsor/Project Manager and Investment Manager with consistent track record in operating and maintaining projects in the roads and highways sector in India

The Sponsor is one of the largest infrastructure development and construction companies in India in terms of net worth in the roads and highways sector according to the NHAI's annual prequalification for public private partnerships in national highway projects report for 2016. As at December 31, 2022, the Sponsor had six road projects of which two were operational and four were under-construction or awaiting appointed date.

The Sponsor also acts as the Project Manager. The Sponsor's BOT project portfolio includes the Ahmedabad Vadodara section of NH 8 and the Ahmedabad Vadodara Expressway and the Meerut Budaun (Group-I) section of Ganga Expressway. The Sponsor's HAM project portfolio includes the Gandeva to Ena project on the Vadodara-Mumbai eight lane expressway, four-laning of Punjab/Himachal Border to Mo Section of NH-154 and six-laning of Chittoor Thachur road. The Sponsor's TOT project includes the Yashwantrao Chavan Expressway (Mumbai Pune Expressway) and Mumbai – Pune section of NH-48 (old NH-4). The Sponsor has experience in developing road and highway infrastructure and has received various industry awards and recognitions.

The Sponsor/Project Manager has experience in the execution of construction work for roads, highways, and other relevant structures and had a track record of constructing over 11,900 Lane Kilometres of roads and highways as of December 31, 2022.

The Investment Manager has experience in operating road projects for a period of 14 years. 51% of the equity share capital of the Investment Manager is held by the Sponsor and 49% of the equity share capital of the Investment Manager is held by Croxley.

Experienced management team with industry experience

We are managed by qualified personnel of the Investment Manager who have management and operational experience in the roads and highways sector. For further details, see "*The Investment Manager*" on page 229. We believe that the experience and leadership of these teams contribute to our growth and success and position the Portfolio to be operated and managed in an efficient manner.

Attractive sector with strong underlying fundamentals

India has one of the largest road networks in the world, with approximately 6,371,847 km of roads comprising national highways, state highways, other public works department roads, district roads, rural roads, urban roads and project roads. (*Source: MoRTH Annual Report 2021-2022)*

India's national highways carry 40% of the total road-based traffic despite constituting less than 2% of the total road network. State highways together with major district roads constitute a secondary system of road transportation and contribute significantly to the development of India's rural economy and industrial growth. The secondary road system also carries about 40% of the total road traffic, despite constituting only 13% of the total road network. At the tertiary level are the rural roads. *(Source: Twelfth Five Year Plan (2012-2017), Economic Sectors, Volume II)*

The Government of India has emphasised on all forms of physical connectivity through Pradhan Mantri Gram Sadak Yojana, industrial corridors, dedicated freight corridors, Bharatmala and Sagarmala projects, Jal Marg Vikas and Ude Desh ke Aam Nagrik - UDAN schemes. According to the Union Budget 2019-20, the Pradhan Mantri Gram Sadak Yojana is envisaged to upgrade 125,000 km of road length over the next five years, with an estimated cost of ₹802,500 million under Pradhan Mantri Gram Sadak Yojana-III. 30,000 km of such roads have been built using green technology, waste plastic and cold mix technology.

MoRTH has planned to execute infrastructure projects worth Rs. 7 lakh crore over the next two to three years. In August 2021, the Government announced its plan to monetize assets worth Rs. 6 trillion between 2021-2022 and 2024-2025 under the National Monetisation Pipeline scheme. Roads have been included as a priority sector and the Government is expected to monetize assets worth Rs 1.6 trillion from the roads sector. The total length of road assets being considered for monetisation over four years is 26,700 km, which is around 22 percent of the total National Highways (with an approximate value of 121,155 km) excluding the network operated by private sector under build-operate-transfer (BOT) (Toll) based public private partnership (PPP) concessions.

Investment Strategy and Risk and Capital Management Strategy

Our principal business strategies which are proposed to be implemented by the Investment Manager are set out below:

Organic growth through proactive management

Our principal investment strategy is to proactively manage the Portfolio to support growth. In particular, the Investment Manager will seek to maintain or improve the SPVs' net incomes by, among other initiatives, curbing leakages, conducting proper due diligence, formulating and adopting policies and procedures and structuring investments to address tax or regulatory considerations. The Project Manager will assist the Investment Manager by carrying out the construction, operations, management and maintenance of the project in accordance with the relevant concession agreement and the Project Implementation Agreements and by procuring, operating and maintaining the project's toll management systems, including but not limited to, employing staff for toll collection, monitoring toll collection and providing security arrangements at toll plazas.

The Investment Manager will also focus on minimizing project operating expenses. The roads and highways sector is a highly competitive sector that is capital intensive and requires significant expenditure. Our ability to efficiently manage the costs associated with the Portfolio is critical to maintaining the SPVs' profit margins. The Investment Manager intends to focus on increasing the margins of the SPVs by strengthening internal processes and systems so as to improve utilization of resources and reduce costs. As part of our operations and maintenance systems and processes, the Investment Manager intends to work closely with the Project Manager to promote best practices, to minimize downtime or defects with respect to the Portfolio and to monitor performance of toll booth operators and maintenance contractors. The Investment Manager also intends to work with the Project Manager and the SPVs to upgrade technology as needed, to manage any leakages in toll collections and to streamline collection, route and maintenance operations. With this focus on proactive asset management and operating expense minimization, the Investment Manager hopes to increase our profit margins and achieve long-term growth.

Acquisition and divestment of toll road projects

The Investment Manager intends to expand our portfolio by identifying and selectively bidding for and acquiring additional toll road projects in accordance with the Procurement and Divestment Policy. Pursuant to the Framework Agreement, the Sponsor has agreed to certain arrangements in relation to submission of bids for (i) any new concession by the Sponsor and/or its affiliates involving the development or operation of roads and highways; or (ii) over any extensions of the concession period of road projects held by the Sponsor and/or its affiliates (other than the Project SPVs) with the Financial Investors. For details, see "*Related Party Transactions – Details of Related Party Transactions proposed to be undertaken*" on page 211. The Investment Manager may also consider divestment of certain toll road assets, depending on the maturity and profile of the relevant asset and subject to the Procurement and Divestment Policy. For details of the Procurement and Divestment Policy, see "*Corporate Governance – Policies of the Manager Group*" on page 113.

Optimization of capital structure

The Investment Manager will seek to employ appropriate financing policies and diversify its sources of financing with the objective of minimizing our overall cost of capital. The Investment Manager will ensure compliance with the provisions of the Indenture of Trust and the InvIT Regulations for borrowing. The Investment Manager may also pursue growth opportunities that require raising additional capital through the issuance of new Units.

Details of the Project SPVs and the Portfolio

The Portfolio comprises 10 toll-roads in the Indian states of West Bengal, Haryana, Uttar Pradesh, Rajasthan, Gujarat, Goa, Maharashtra and Karnataka that the Project SPVs operate and maintain pursuant to concessions granted by the NHAI. In relation to the projects for which construction has not been completed, see "*Government and Other Approvals*" on page 330 for information about the status of approvals and "*Risk Factors*" on page 10 for a discussion of risks in relation to delay of completion of the projects.

See "*Summary of the Concession Agreements*" on page 117 for a summary of the key terms of the concession agreements entered into by the Project SPVs with the NHAI.

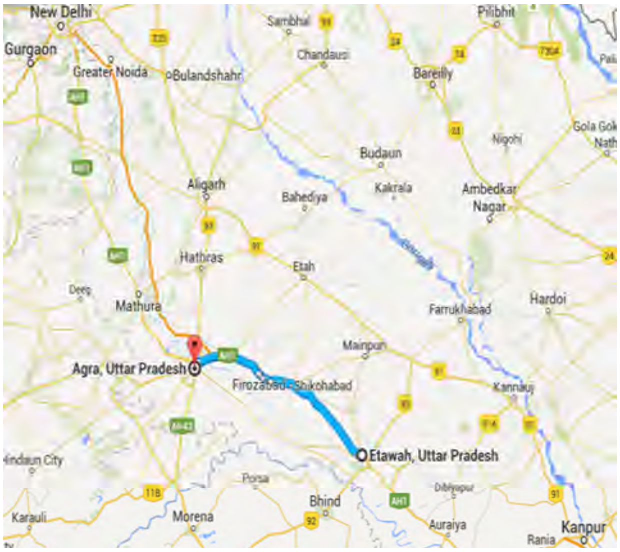
Details of the Project SPVs are set out below:

Project SPV	Project	Ownership of Project by the Trust	Lane km	Commencement of Concession Period	Commencement of Toll Collection	End of Concession Period	Concession Period (years)	Percentage of construction completion as at December 31, 2022 (in %)	Expected Completion
AETL	Agra - Etawah NH-2 Project	100%	747	August 1, 2016	August 1, 2016	July 31, 2040	24	N.A.	Received completion certificate dated November 24, 2020
CGTL	Gulabpura - Chittorgarh NH-79 Project	100%	749	November 4, 2017	November 4, 2017	November 3, 2037	20	N.A.	Received completion certificate dated August 14, 2021
IRB HMTL	Hapur - Moradabad NH-9 Project	100%	599	May 28, 2019	May 28, 2019	May 26, 2041	22	100	Received completion certificate dated July 1, 2022
IRB WTL	Goa - Kundapur NH-17 Project	100%	758	March 3, 2014	February 11, 2020	March 2, 2042	28	99	During Financial Year 2024
KGTL	Kishangarh - Gulabpura NH-79/79A Project	100%	540	February 21, 2018	February 21, 2018	February 20, 2038	20	100	Received completion certificate dated July 20, 2022
KTL	Kaithal - Rajasthan Board NH-	100%	665	July 15, 2015	September 6, 2017	July 14, 2042	27	N.A.	Received completion certificate dated

Project SPV	Project	Ownership of Project by the Trust	Lane km	Commencement of Concession Period	Commencement of Toll Collection	End of Concession Period	Concession Period (years)	Percentage of construction completion as at December 31, 2022 (in %)	Expected Completion
	152/65 Project								March 29, 2019
SYTL	Solapur - Yedeshi NH-211 Project	100%	395	January 21, 2015	March 7, 2018	January 20, 2044	29	N.A.	Received completion certificate dated October 15, 2019
UTL	Udaipur - Rajasthan NH-8 Project	100%	683	September 3, 2017	September 3, 2017	September 2, 2038	21	N.A.	Received completion certificate dated May 31, 2021
YATL	Yedeshi - Aurangabad NH-211 Project	100%	756	July 1, 2015	March 17, 2019	June 30, 2041	26	N.A.	Received completion certificate dated September 24, 2020
PDTPL	Palsit – Dankuni NH-19 Project	99.96%	363	April 2, 2022	April 2, 2022	April 1, 2039	17	22	Financial Year 2025

A summary of the key features of each Portfolio asset is discussed below.

1. *Agra – Etawah NH-2 Project*



Map of the Agra – Etawah NH-2 Project

On September 1, 2015, the NHAI and AETL entered into a concession agreement in respect of the Agra - Etawah NH-2 Project. AETL was engaged to augment a 124.52 km section of NH-2 between Agra and Etawah in Uttar Pradesh by six-laning on a DBFOT basis. Being a four-laning to six-laning project, the concession period and the collection of toll commenced on August 1, 2016. As per the relevant concession agreement, the Agra - Etawah NH-2 Project comprises the section of NH-2 from km 199.660 to km 323.525. The completion certificate in relation to the project was issued on November 24, 2020.

Corridor description

The Agra - Etawah NH-2 Project is a 124.52 km six-lane road, forming part of the section between Agra and Etawah in Uttar Pradesh. The Agra - Etawah NH-2 Project passes through the cities of Agra, Firozabad, and Etawah in the state of Uttar Pradesh and settlements *en-route* include Agra, Tundla, Firozabad, Shikohabad, Sirsaganj, and Jaswantnagar.

The Agra - Etawah NH-2 Project is a part of the Golden Quadrilateral, that connects Delhi in the north to Kolkata in the east on the NH19 (Old NH2) corridor. The Golden Quadrilateral is the longest road project in India and the fifth-longest highway in the world, connecting four major cities: Delhi, Mumbai, Chennai, and Kolkata. The Agra - Etawah NH-2 Project also connects large industrial and urban clusters of Kanpur and Lucknow to Delhi and Mathura.

The Agra - Etawah NH-2 Project facilitates east-west movement primarily between the eastern states and southern parts of Delhi NCR and Rajasthan. The Delhi-Lucknow corridor is an important traffic contributor. The corridor has a mix of both industrial and agricultural activities. Industries like leather and textile are located Agra and Kanpur, brass manufacturing in Moradabad, special economic zones based industrial development Rudrapur/Rampur area (in the state of Uttarakhand) and glass based manufacturing located in Firozabad are some of industrial settlements in the region. According to the Traffic Reports, a section of NH-2 from Agra to Etawah is part of major transportation link in the area connecting industrial cities of Agra- Kanpur and Lucknow. Important cities of Firozabad, Shikohabad and Jaswant Nagar fall on project alignment.

Concession period and revenue sharing arrangement

The NHAI granted AETL a concession for a period of 24 years for this project. The concession period commenced on August 1, 2016 and is expected to expire on July 31, 2040. AETL began collecting toll with respect to this project on August 1, 2016.

The concession agreement provides that if the actual traffic volume falls short of or exceeds the target traffic volume on the target date, the concession period will be extended or reduced, respectively. As per the concession agreement, in the event the actual average traffic on the target date exceeds the target traffic volume by more than 2.5%, the concession period may be reduced by 0.75% for every 1.00% excess in actual average traffic as compared to the target traffic volume, provided that such reduction in the concession period does not exceed 10% of the original concession period. In the event that the actual average traffic on the target date falls short of the target traffic volume by more than 2.5%, the concession period may be extended by 1.5% for every 1.00%, provided that such extension in the concession period does not exceed 20% of the original concession period. The concession agreement, however, also stipulates that, if the actual average traffic exceeds the design capacity in any accounting year, the NHAI may, at its discretion, cause AETL to undertake suitable capacity augmentation of the project. If capacity augmentation is required, the concession period would be for a period of up to five years so as to yield a post-tax return on equity of 16% per annum. The concession agreement also states that in the event that the NHAI requires AETL to undertake capacity augmentation, there will be no reduction in the concession period pursuant to any other provision of the concession agreement.

For this project, the target date and target traffic volume in the concession agreement is April 1, 2025 and 52,995 PCUs, respectively.

In consideration of the grant of concession, AETL pays the NHAI a concession fee of ₹1 per annum. Additionally, AETL was required to pay on the appointed date a premium in the form of an additional concession fee equal to ₹810 million as due to the NHAI during that year, due and payable for the period remaining in that year; and for each subsequent year of the concession period, the premium is determined by increasing the amount of premium in the respective year by an additional 5% as compared to the immediately preceding year.

Monthly toll revenue

The following table sets out the gross monthly toll revenues received from the project for the periods indicated:

Period	Toll revenue (₹ in millions)
January 2023	182.49
February 2023	184.41

Land

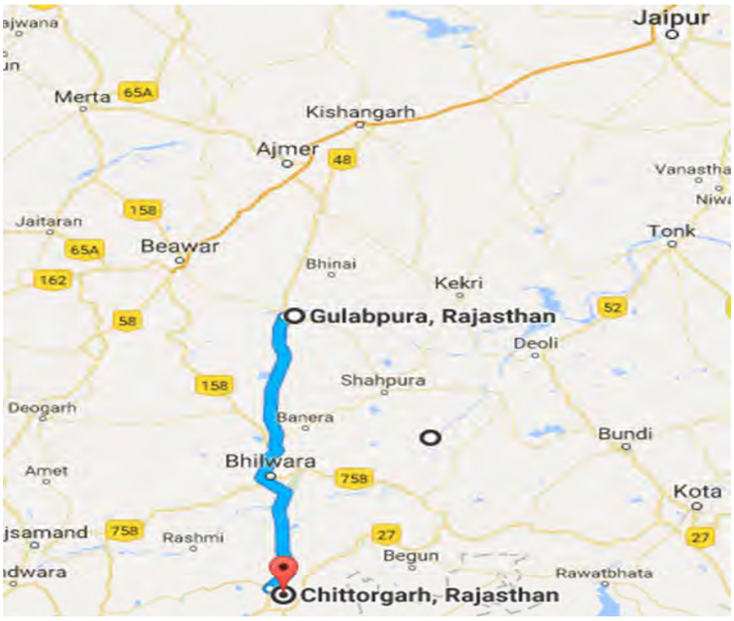
Land

The NHAI owns the land that underlies the Agra - Etawah NH-2 Project.

Structure of ownership of the project

For information about the structure of ownership of the project by the Trust, see "*Background and Structure of the Trust*" on page 62.

2. *Gulabpura – Chittorgarh NH-79 Project*



Map of the Gulabpura – Chittorgarh NH-79 Project

On December 9, 2016, the NHAI and CGTL entered into a concession agreement in respect of the Gulabpura - Chittorgarh NH-79 Project. CGTL was engaged to augment a 124.87 km section of NH-79 between Gulabpura and Chittorgarh in Rajasthan by six-laning on a DBFOT basis. Being a four-to-six-laning project, the concession period and the collection of toll commenced on November 4, 2017. As per the relevant concession agreement, the Gulabpura - Chittorgarh NH-79 Project comprises the section of NH-79 from km 90.00 to km 214.870. The completion certificate in relation to the project was issued on August 14, 2021.

Corridor description

The Gulabpura - Chittorgarh NH-79 Project is an approximately 125 km six-lane toll road on NH48 located in Rajasthan and forms part of the Delhi-Mumbai arm of the Golden Quadrilateral. It is also a part of the direct link between Kishangarh-Bhilwara and Chittorgarh.

The Gulabpura - Chittorgarh NH-79 Project forms part of the Golden Quadrilateral NH48 corridor. The key cities of Delhi, Ahmedabad, Vadodara, and Mumbai are connected by NH48. According to the Traffic Reports, the NH-79 is important link for traffic connecting Delhi, Jaipur to Udaipur, Chittorgarh and down south. According to the Traffic Reports, It is one of the major north-south road connectivity for the traffic from northern states of Haryana, Punjab and Delhi to Industrial and tourist areas of Rajasthan like Jaipur, Chittorgarh, Udaipur and then to Dahod, Ratlam and other parts of Madhya Pradesh.

The Gulabpura - Chittorgarh NH-79 Project serves long-distance traffic travelling between Delhi and Ahmedabad (and the south). The Gulabpura - Chittorgarh NH-79 Project also caters to the demand of local movements between Bhilwara, Chittorgarh and Udaipur in addition to medium distance movements between Bhilwara, Ahmedabad, industrial towns in Gujarat (such as Morbi, Kandla and Mundra). The presence of various tourism centres such as Chittorgarh also contributes to tourism activity.

Concession period and revenue sharing arrangement

The NHAI granted CGTL a concession for a period of 20 years for this project. The concession period commenced on November 4, 2017 and is expected to expire on November 3, 2037. Being a four-to-six-laning project, CGTL began collecting toll with respect to this project on November 4, 2017. The completion certificate in relation to the project was issued on August 14, 2021.

The concession agreement provides that if the actual traffic volume falls short of or exceeds the target traffic volume on the target date, the concession period will be extended or reduced, respectively. As per the concession agreement, in the event the actual average traffic on the target date exceeds the target traffic volume by more than 2.5%, the concession period may be reduced by 0.75% for every 1.00% excess in actual average traffic as compared to the target traffic volume, provided that such reduction in the concession period does not exceed 10% of the original concession period. In the event that the actual average traffic on the target date falls short of the target traffic volume by more than 2.5%, the concession period may be extended by 1.5% for every 1.00%, provided that such extension in the concession period does not exceed 20% of the original concession period. The concession agreement, however, also stipulates that, if the actual average traffic exceeds the design capacity in any accounting year, the NHAI may, at its discretion, cause CGTL to undertake suitable capacity augmentation of the project. If capacity augmentation is required, the concession period would be for a period of up to five years so as to yield a post-tax return on equity of 16% per annum. The concession agreement also states that in the event that the NHAI requires CGTL to undertake capacity augmentation, there will be no reduction in the concession period pursuant to any other provision of the concession agreement.

For this project, the target date and target traffic volume in the concession agreement is June 1, 2026 and 76,316 PCUs, respectively.

In consideration of the grant of concession, CGTL pays the NHAI a concession fee of ₹1 per annum. Additionally, after the third anniversary of the COD, CGTL is required to pay a premium in the form of an additional concession fee equal to ₹2,286.00 million as due to the NHAI during that year, due and payable for the period remaining in that year; and for each subsequent year until the ninth anniversary of the COD, the premium will be determined by increasing the amount of premium in the respective year by an additional 3% as compared to the immediately preceding year, and for each subsequent year of the concession period, the premium will be determined by increasing the amount of premium in the respective year by an additional 8% as compared to the immediately preceding year.

The following table sets out the gross monthly toll revenues received from the project for the periods indicated:

Period	Toll revenue (₹ in millions)
January 2023	300.32
February 2023	295.54

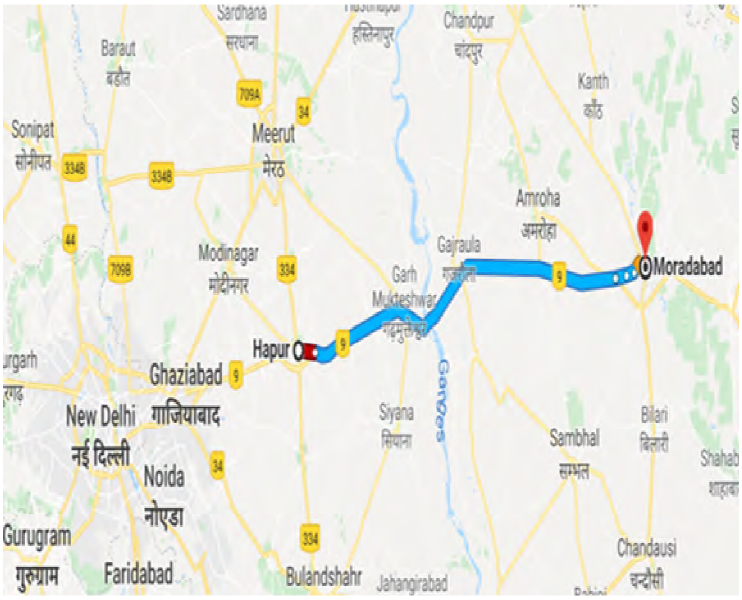
Land

The NHAI owns the land that underlies the Gulabpura - Chittorgarh NH-79 Project.

Structure of ownership of the project

For information about the structure of ownership of the project by the Trust, see "*Background and Structure of the Trust*" on page 62.

3. *Hapur – Moradabad NH-9 Project*



Map of the Hapur - Moradabad NH-9 Project

On May 29, 2018, the NHAI and IRB HMTL entered into a concession agreement in respect of the Hapur – Moradabad NH-9 Project. IRB HMTL was engaged to augment a 99.867 km section of NH-9 between Hapur and Moradabad in Uttar Pradesh by six laning on a DBFOT basis. The concession period and the collection of tolls commenced on May 28, 2019. As per the relevant concession agreement, the Hapur – Moradabad NH-9 Project comprises the section of NH-9 from km 50.00 to km 148.277. The completion certificate in relation to the project was issued on July 1, 2022.

Corridor description

The Hapur-Moradabad NH-9 Project is an approximately 100 km six-lane highway currently under capacity expansion from four lanes to six lanes located in Uttar Pradesh. The Hapur-Moradabad NH-9 Project is part of the NH9 corridor that connects Delhi to Moradabad and lies on the Delhi-Lucknow corridor. It is also part of the direct link between the northern states and east India and Nepal. It also connects Delhi to the state of Uttarakhand, which is a key tourism and industrial cluster in the country, and to Lucknow which further connects to NH27 for east-west movements.

The section has one end in Moradabad which houses industries including the metal and export business. The west-end of the Hapur-Moradabad NH-9 Project, Hapur, has medium and small-scale industries including paper, textiles, and steel tube production. Hapur is an important commercial centre for grains, jiggery and potato. Apart from catering to the Agra-Lucknow corridor and the long-distance movement between the northern and eastern states, the Hapur-Moradabad NH-9 Project is a key route for the tourist movements towards Uttarakhand from Delhi and Western Uttar Pradesh. Religious places along the route such as Brijghat and Garh Mukteshwar also attract tourist traffic.

The Hapur-Moradabad NH-9 Project facilitates east-west movement primarily between the eastern states/Uttarakhand/Nepal and Haryana/Punjab/ northern Rajasthan. The Delhi-Lucknow corridor is an important traffic contributor. The corridor has a mix of both industrial and agricultural activities. Industries like leather and textile are located Agra and Kanpur, brass manufacturing in Moradabad, special economic zones based industrial development Rudrapur/Rampur area (in the state of Uttarakhand), and glass based manufacturing located in Firozabad as some of industrial settlements in the region. According to the Traffic Reports, induced traffic from the developments around Hapur-Moradabad NH-9 Project corridor will be a positive contributing factor to the traffic growth on the project corridor

Concession period and revenue sharing arrangement

The NHAI granted IRB HMTL a concession for a period of 22 years for this project. The concession period commenced on May 28, 2019 and is expected to expire on May 26, 2041. Being a four-to-six-laning project, IRB HMTL began collecting toll with respect to this project on May 28, 2019.

The concession agreement provides that if the actual traffic volume falls short of or exceeds the target traffic volume on the target date, the concession period will be extended or reduced, respectively. As per the concession agreement, in the event the actual average traffic on the target date exceeds the target traffic volume by more than 2.5%, the concession period may be reduced by 0.75% for every 1.00% excess in actual average traffic as compared to the target traffic volume, provided that such reduction in the concession period does not exceed 10% of the original concession period. In the event that the actual average traffic on the target date falls short of the target traffic volume by more than 2.5%, the concession period may be extended by 1.5% for every 1.00%, provided that such extension in the concession period does not exceed 20% of the original concession period. The concession agreement, however, also stipulates that, if the actual average traffic exceeds the design capacity in any accounting year, the NHAI may, at its discretion, cause IRB HMTL to undertake suitable capacity augmentation of the project. If capacity augmentation is required, the concession period would be for a period of up to five years so as to yield a post-tax return on equity of 16% per annum. The concession agreement also states that in the event that the NHAI requires IRB HMTL to undertake capacity augmentation, there will be no reduction in the concession period pursuant to any other provision of the concession agreement.

For this project, the target date and target traffic volume in the concession agreement is April 1, 2028 and 67,413 PCUs, respectively.

In consideration of the grant of concession, IRB HMTL pays the NHAI a concession fee of ₹1 per annum. Additionally, after the third anniversary year of the COD, IRB HMTL is required to pay a premium in the form of an additional concession fee equal to ₹315.00 million as due to the NHAI during that year, due and payable for the period remaining in that year; and for each subsequent year till the ninth anniversary of the COD, the premium will be determined by increasing the amount of premium in the respective year by an additional 3% as compared to the immediately preceding year and for each subsequent year of the concession period, the premium will be determined by increasing the amount of premium in the respective year by an additional 8% as compared to the immediately preceding year.

Monthly toll revenue

The following table sets out the gross monthly toll revenues received from the project for the periods indicated:

Period	**Toll revenue (₹ in millions)**
January 2023	216.65
February 2023	206.45

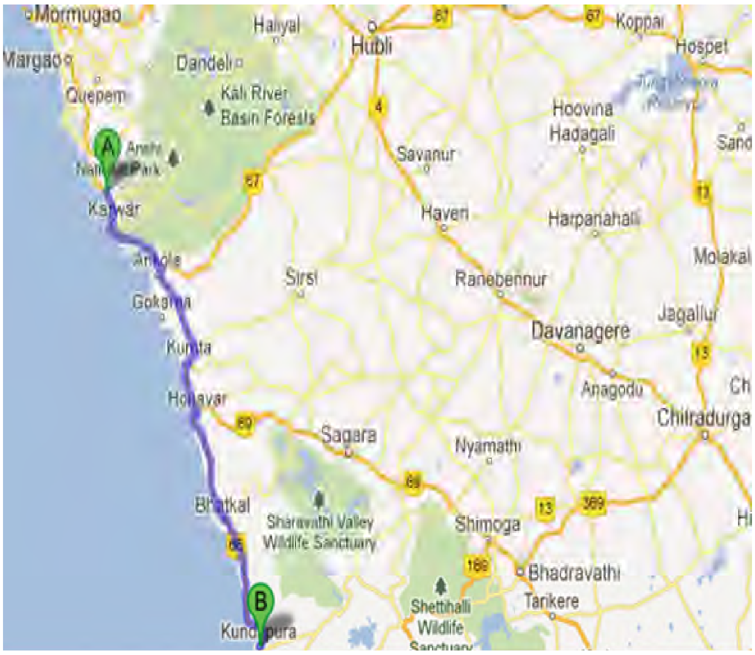
Land

The NHAI owns the land that underlies the Hapur – Moradabad NH-9 Project.

Structure of ownership of the project

For information about the structure of ownership of the project by the Trust, see "*Background and Structure of the Trust*" on page 62.

4. ***Goa – Kundapur NH-17 Project***



Map of the Goa – Kundapur NH-17 Project

On March 25, 3013, the NHAI and IRB WTL entered into a concession agreement in respect of the Goa – Kundapur NH-17 Project. IRB WTL was engaged to augment a 187.28 km section of NH-17 between Goa and Kundapur in Karnataka by four-laning on a DBFOT basis. The concession period commenced on March 3, 2014. As per the relevant concession agreement, the Goa – Kundapur NH-17 Project comprises the section of NH-17 from km 93.700 to km 283.300. A provisional completion certificate was issued on January 31, 2020. The second provisional completion certificate was issued on February 28, 2022 and the third provisional completion certificate was issued on March 24, 2023.

Corridor description

The Goa – Kundapur NH-17 Project is situated in the state of Karnataka, connecting Goa-Karnataka border to Kundapur in the south. The Goa – Kundapur NH-17 Project forms part of Panvel-Kochi-Kanyakumari Highway (NH66) on the west coast of India.

Some of the key urban centers along the Goa – Kundapur NH-17 Project are Ankola, Bhatkal, Kumta and Karwar. The highway facilitates the north-south movement as it connects Maharashtra in the north to Kerala in the south.

Kumta, Murdeshwar and Shivamogga are major religious and recreational tourism centres in the region and contribute to tourism traffic. Apart from these tourism-related cities, the Goa – Kundapur NH-17 Project generates tourism on its own as the highway runs parallel to the Arabian Sea. The port of Mangalore which is located 90 km south of Kundapur is a major commercial traffic generator. Coal traffic also moves from Mangalore port to Bagalkotti, Bijapur and Gulbarga. The Belekeri plaza to the north of the Goa – Kundapur NH-17 Project has agricultural activity and hosts a naval base.

Concession period and revenue sharing arrangement

The NHAI granted IRB WTL a concession for a period of 28 years for this project. The concession period commenced on March 3, 2014 and is expected to expire on March 2, 2042. IRB WTL commenced tolling on February 11, 2020.

The concession agreement provides that if the actual traffic volume falls short of or exceeds the target traffic volume on the target date, the concession period will be extended or reduced, respectively. As per the concession agreement, in the event the actual average traffic on the target date exceeds the target traffic volume by more than 2.5%, the concession period may be reduced by 0.75% for every 1.00% excess in actual average traffic as compared to the target traffic volume, provided that such reduction in the concession period does not exceed 10% of the original concession period. In the event that the actual average traffic on the target date falls short of the target traffic volume by more than 2.5%, the concession period may be extended by 1.5% for every 1.00%, provided that such extension in the concession period does not exceed 20% of the original concession period. The concession agreement, however, also stipulates that, if the actual average traffic exceeds the design capacity in any accounting year, the NHAI may, at its discretion, cause IRB WTL to undertake suitable capacity augmentation of the project. If capacity augmentation is required, the concession period would be for a period of up to five years so as to yield a post-tax return on equity of 16% per annum. The concession agreement also states that in the event that the NHAI requires IRB WTL to undertake capacity augmentation, there will be no reduction in the concession period pursuant to any other provision of the concession agreement.

For this project, the target date and target traffic volume in the concession agreement is April 1, 2022 and 21,307 PCUs, respectively.

In consideration of the grant of concession, IRB WTL pays the NHAI a concession fee of ₹1 per annum.

Monthly toll revenue

The following table sets out the gross monthly toll revenues received from the project for the periods indicated:

Period	Toll revenue (₹ in millions)
January 2023	111.37
February 2023	99.53

Land

The NHAI owns the land that underlies the Goa – Kundapur NH-17 Project.

Structure of ownership of the project

For information about the structure of ownership of the project by the Trust, see "*Background and Structure of the Trust*" on page 62.

5. *Kishangarh – Gulabpura NH-79/79A Project*

Map of the Kishangarh – Gulabpura NH-79/79A Project

On February 22, 2017, the NHAI and KGTL entered into a concession agreement in respect of the Kishangarh – Gulabpura NH-79/79A Project. KGTL was engaged to augment a 90.00 km section of NH-79/79A between Kishangarh and Gulabpura in Rajasthan by six-laning on a DBFOT basis. Being a four-to-six-laning project, the concession period and the collection of toll commenced on February 21, 2018. As per the relevant concession agreement, the Kishangarh – Gulabpura NH-79/79A Project comprises the section of NH-79/79A from km 0.000 to km 90.000. The completion certificate in relation to the project was issued on July 20, 2022.

Corridor description

The Kishangarh – Gulabpura NH-79/79A Project is a 90 km stretch on NH48 between Kishangarh and Gulabpura in Rajasthan. The project is located in Rajasthan and forms part of the Delhi-Mumbai arm of the Golden Quadrilateral. It is also part of the direct link between Kishangarh-Bhilwara and Chittorgarh.

The Kishangarh – Gulabpura NH-79/79A Project connects Ajmer to Gulabpura, traversing through major settlement stretches such as Gulabpura, Bhilwara, Chittorgarh, Mangalwad, and finally Udaipur. The Kishangarh – Gulabpura NH-79/79A Project primarily serves traffic travelling between Delhi, Rajasthan, Gujarat, Maharashtra and Southern states (Kerala, Tamil Nadu, Karnataka). There are also several textile industries and marble/granite industries bordering the Kishangarh – Gulabpura NH-79/79A Project. According to the Traffic Reports, major mining industries of marble, Zink, felspar, quarts of Udaipur and textile industry of Bhiwara provide are major contributor of commercial traffic on project corridor. Additionally Jaipur, Ajmer, Udaipur, Chittorgarh and Bhilwara major tourist centers of India. This adds substantial value for passenger traffic on the project corridor section.

Concession period and revenue sharing arrangement

The NHAI granted KGTL a concession for a period of 20 years for this project. The concession period commenced on February 21, 2018 and is expected to expire on February 20, 2038. KGTL began collecting toll with respect to this project on February 21, 2018.

The concession agreement provides that if the actual traffic volume falls short of or exceeds the target traffic volume on the target date, the concession period will be extended or reduced, respectively. As per the concession agreement, in the event the actual average traffic on the target date exceeds the target traffic volume by more than 2.5%, the concession period may be reduced by 0.75% for every 1.00% excess in actual average traffic as compared to the target traffic volume, provided that such reduction in the concession period does not exceed 10% of the original concession period. In the event that the actual average traffic on the target date falls short of the target traffic volume by more than 2.5%, the concession period may be extended by 1.5% for every 1.00%, provided that such extension in the concession period does not exceed 20% of the original concession period. The concession agreement, however, also stipulates that, if the actual average traffic exceeds the design capacity in any accounting year, the NHAI may, at its discretion, cause KGTL to undertake suitable capacity augmentation of the project. If capacity augmentation is required, the concession period would be for a period of up to five years so as to yield a post-tax return on equity of 16% per annum. The concession agreement also states that in the event that the NHAI requires KGTL to undertake capacity augmentation, there will be no reduction in the concession period pursuant to any other provision of the concession agreement.

For this project, the target date and target traffic volume in the concession agreement is May 1, 2026 and 76,236 PCUs, respectively.

In consideration of the grant of concession, KGTL pays the NHAI a concession fee of ₹1 per annum. Additionally, after the third anniversary year of the COD, KGTL is required to pay a premium in the form of an additional concession fee equal to ₹1,863.00 million as due to the NHAI during that year, due and payable for the period remaining in that year; and for each subsequent year till the ninth anniversary of the COD, the premium will be determined by increasing the amount of premium in the respective year by an additional 3% as compared to the immediately preceding year and for each subsequent year of the concession period, the premium will be determined by increasing the amount of premium in the respective year by an additional 8% as compared to the immediately preceding year.

Monthly toll revenue

The following table sets out the gross monthly toll revenues received from the project for the periods indicated:

Period	Toll revenue (₹ in millions)
January 2023	202.42
February 2023	199.92

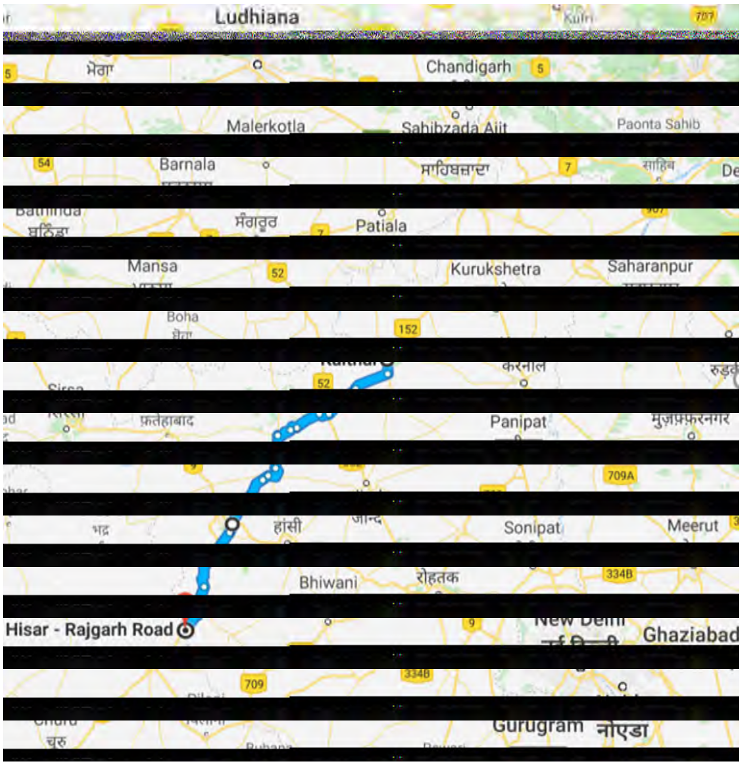
Land

The NHAI owns the land that underlies the Kishangarh – Gulabpura NH-79/79A Project.

Structure of ownership of the project

For information about the structure of ownership of the project by the Trust, see "*Background and Structure of the Trust*" on page 62.

6. *Kaithal – Rajasthan Border NH-152/65 Project*



Map of the Kaithal – Rajasthan Border NH-152/65 Project

On June 23, 2014, the NHAI and KTL entered into a concession agreement in respect of the Kaithal – Rajasthan Border NH-152/65 Project. KTL was engaged to augment a 166.259 km section of NH-152/65 between Kaithal and Rajasthan Border in Haryana by four-laning on a DBFOT basis. The concession period commenced on July 15, 2015 and the collection of toll commenced on September 6, 2017. As per the relevant concession agreement, the Kaithal - Rajasthan Border NH-152/65 Project comprises the section of NH-152/65 from km 33.250 to km 241.580. Provisional completion certificates dated September 6, 2017 and July 9, 2018 and a completion certificate dated March 29, 2019 have been issued in relation to the project.

Corridor description

The Kaithal - Rajasthan Border NH-152/65 Project is an approximately 166 km long four-lane section connecting Kaithal and Haryana-Rajasthan border in the state of Haryana. The Kaithal - Rajasthan Border NH-152/65 Project is part of the NH-52 corridor connecting northern states including Haryana, Punjab, and Himachal Pradesh with Rajasthan and Gujarat in the west.

The areas surrounding the Kaithal - Rajasthan Border NH-152/65 Project is predominantly agricultural along with dairy related activities. According to the Traffic Reports, the project road forms part of an important transportation corridor which connects northern states like Haryana, Punjab and Himachal Pradesh to southern states and development centers on the west coast line of India..

Concession period and revenue sharing arrangement

The NHAI granted KTL a concession for a period of 27 years for this project. The concession period commenced on July 15, 2015 and is expected to expire on July 14, 2042. KTL began collecting toll with respect to this project on September 6, 2017.

The concession agreement provides that if the actual traffic volume falls short of or exceeds the target traffic volume on the target date, the concession period will be extended or reduced, respectively. As per the concession agreement, in the event the actual average traffic on the target date exceeds the target traffic volume by more than 2.5%, the concession period may be reduced by 0.75% for every 1.00% excess in actual average traffic as compared to the target traffic volume, provided that such reduction in the concession period does not exceed 10% of the original concession period. In the event that the actual average traffic on the target date falls short of the target traffic volume by more than 2.5%, the concession period may be extended by 1.5% for every 1.00%, provided that such extension in the concession period does not exceed 20% of the original concession period. The concession agreement, however, also stipulates that, if the actual average traffic exceeds the design capacity in any accounting year, the NHAI may, at its discretion, cause KTL to undertake suitable capacity augmentation of the project. If capacity augmentation is required, the concession period would be for a period of up to five years so as to yield a post-tax return on equity of 16% per annum. The concession agreement also states that in the event that the NHAI requires KTL to undertake capacity augmentation, there will be no reduction in the concession period pursuant to any other provision of the concession agreement.

For this project, the target date and target traffic volume set out in the concession agreement is April 1, 2023 and 21,919 PCUs, respectively.

In consideration of the grant of concession, KTL pays the NHAI a concession fee of ₹1 per annum.

Monthly toll revenue

The following table sets out the gross monthly toll revenues received from the project for the periods indicated:

Period	**Toll revenue (₹ in millions)**
January 2023	123.88
February 2023	120.32

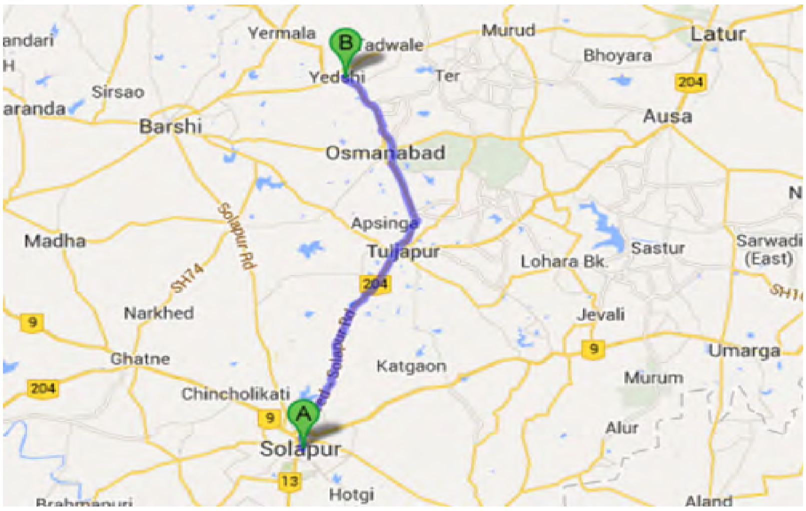
Land

The NHAI owns the land that underlies the Kaithal – Rajasthan Border NH-152/65 Project.

Structure of ownership of the project

For information about the structure of ownership of the project by the Trust, see "*Background and Structure of the Trust*" on page 62.

7. *Solapur – Yedeshi NH-211 Project*



Map of the Solapur - Yedeshi NH-211 Project

On March 3, 2014, the NHAI and SYTL entered into a concession agreement in respect of the Solapur – Yedeshi NH-211 Project. SYTL was engaged to augment a 98.717 km section of NH-211 between Solapur and Yedeshi in Maharashtra by four-laning on a DBFOT basis. The concession period commenced on January 21, 2015 and the collection of toll commenced on March 7, 2018. As per the relevant concession agreement, the Solapur – Yedeshi NH-211 Project comprises the section of NH-211 from km 0.000 to km 100.000. A provisional completion certificate was issued on March 5, 2018. The completion certificate for the project was issued on October 15, 2019.

Corridor description

The Solapur – Yedeshi NH-211 Project is a 98.717 km stretch that forms part of the NH52 north-south corridor. The Solapur – Yedeshi NH-211 Project connects Delhi and northern parts of India with major cities such as Bengaluru, Chennai, Hyderabad in the south. The Solapur – Yedeshi NH-211 Project also caters to east-west movement between Gujarat and eastern states such as Telangana (Hyderabad), Andhra Pradesh (Vijaywada) and parts of Tamil Nadu (Chennai). The Solapur – Yedeshi NH-211 Project has significant areas of industrial influence and tourism influence.

According to the Traffic Reports, the project road forms part of an important transportation corridor which works as gateway to Karnataka and rest of south India for Marathwada region of Maharashtra. It connects Solapur – Dhule and forms an important transportation link for traffic from Vijapur, Hubli and other parts of north Karnataka to Aurangabad, Jalna, Beed and other places in the Marathwada region.

Concession period and revenue sharing arrangement

The NHAI granted SYTL a concession for a period of 29 years for this project. The concession period commenced on January 21, 2015 and is expected to expire on January 20, 2044. SYTL began collecting toll with respect to this project on March 7, 2018.

The concession agreement provides that if the actual traffic volume falls short of or exceeds the target traffic volume on the target date, the concession period will be extended or reduced, respectively. As per the concession agreement, in the event the actual average traffic on the target date exceeds the target traffic volume by more than 2.5%, the concession period may be reduced by 0.75% for every 1.00% excess in actual average traffic as compared to the target traffic volume, provided that such reduction in the concession period does not exceed 10% of the original concession period. In the event that the actual average traffic on the target date falls short of the target traffic volume by more than 2.5%, the concession period may be extended by 1.5% for every 1.00%, provided that such extension in the concession period does not exceed 20% of the original concession period. The concession agreement, however, also stipulates that, if the actual average traffic exceeds the design capacity in any accounting year, the NHAI may, at its discretion, cause SYTL to undertake suitable capacity augmentation of the project. If capacity augmentation is required, the concession period would be for a period of up to five years so as to yield a post-tax return on equity of 16% per annum. The concession agreement also states that in the event that the NHAI requires SYTL to undertake capacity augmentation, there will be no reduction in the concession period pursuant to any other provision of the concession agreement.

For this project, the target date and target traffic volume in the concession agreement is October 1, 2023 and 22,210 PCUs, respectively.

In consideration of the grant of concession, SYTL pays the NHAI a concession fee of ₹1 per annum.

Monthly toll revenue

The following table sets out the gross monthly toll revenues received from the project for the periods indicated:

Period	Toll revenue (₹ in millions)
January 2023	121.07
February 2023	110.59

Land

The NHAI owns the land that underlies the Solapur - Yedeshi NH-211 Project.

Structure of ownership of the project

For information about the structure of ownership of the project by the Trust, see "*Background and Structure of the Trust*" on page 62.

8. *Udaipur - Rajasthan Border NH-8 Project*

Map of the Udaipur – Rajasthan Border NH-8 Project

On December 9, 2016, the NHAI and UTL entered into a concession agreement in respect of the Udaipur - Rajasthan Border NH-8 Project. UTL was engaged to augment a 113.80 km section of NH-8 between Udaipur and Rajasthan Border in Rajasthan and Gujarat by six-laning on a DBFOT basis. Being a four-to-six-laning project, the concession period and the collection of toll commenced on September 3, 2017. As per the relevant concession agreement, the Udaipur - Rajasthan Border NH-8 Project comprises the section of NH-8 from km 287.400 to km 401.200. The completion certificate in relation to the project was issued on May 31, 2021.

Corridor description

The 114 km four-lane toll road (NH-48) is located in Rajasthan and forms part of the Delhi-Mumbai arm of the Golden Quadrilateral. It is also part of the direct link between Ahmedabad and Udaipur.

The Udaipur - Rajasthan Border NH-8 Project acts as a funnel for traffic using the northern sections of NH48 section, NH58 (Bhilwara-Rajsamand-Udaipur) section for trips between areas north of Udaipur and Udaipur/Ahmedabad/Mumbai and the south. According to the Traffic Reports, the area around the project stretch from Udaipur to Gujarat border has green marble mines and other establishments. Major religious centres like Shamlaji and Ekling ji contribute to substantial passenger traffic on the project stretch.

Concession period and revenue sharing arrangement

The NHAI granted UTL a concession for a period of 21 years for this project. The concession period commenced on September 3, 2017 and is expected to expire on September 2, 2038. UTL began collecting toll with respect to this project on September 3, 2017.

The concession agreement provides that if the actual traffic volume falls short of or exceeds the target traffic volume on the target date, the concession period will be extended or reduced, respectively. As per the concession agreement, in the event the actual average traffic on the target date exceeds the target traffic volume by more than 2.5%, the concession period may be reduced by 0.75% for every 1.00% excess in actual average traffic as compared to the target traffic volume, provided that such reduction in the concession period does not exceed 10% of the original concession period. In the event that the actual average traffic on the target date falls short of the target traffic volume by more than 2.5%, the concession period may be extended by 1.5% for every 1.00%, provided that such extension in the concession period does not exceed 20% of the original concession period. The concession agreement, however, also stipulates that, if the actual average traffic exceeds the design capacity in any accounting year, the NHAI may, at its discretion, cause UTL to undertake suitable capacity augmentation of the project. If capacity augmentation is required, the concession period would be for a period of up to five years so as to yield a post-tax return on equity of 16% per annum. The concession agreement also states that in the event that the NHAI requires UTL to undertake capacity augmentation, there will be no reduction in the concession period pursuant to any other provision of the concession agreement.

For this project, the target date and target traffic volume in the concession agreement is September 21, 2026 and 61,435 PCUs, respectively.

In consideration of the grant of concession, UTL pays the NHAI a concession fee of ₹1 per annum. Additionally, immediately after the third anniversary year of the COD, a premium in the form of an additional concession fee equal to ₹1,638.00 million is required to be paid by UTL as due to the NHAI during that year, due and payable for the period remaining in that year; and for each subsequent year till the ninth anniversary of the COD, the premium will be determined by increasing the amount of premium in the respective year by an additional 3% as compared to the immediately preceding year and for each subsequent year of the concession period, the premium will be determined by increasing the amount of premium in the respective year by an additional 8% as compared to the immediately preceding year.

Monthly toll revenue

The following table sets out the gross monthly toll revenues received from the project for the periods indicated:

Period	Toll revenue (₹ in millions)
January 2023	221.36
February 2023	218.16

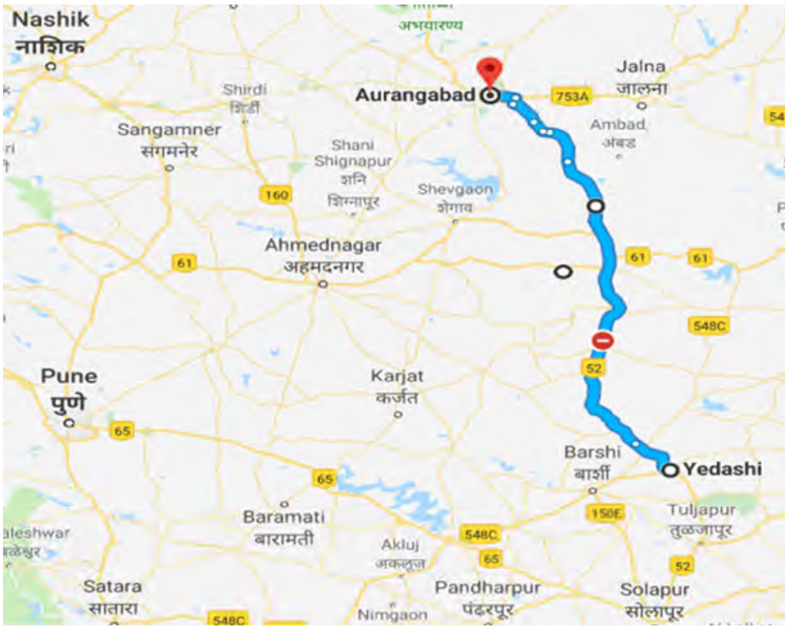
Land

The NHAI owns the land that underlies the Udaipur - Rajasthan Border NH-8 Project.

Structure of ownership of the project

For information about the structure of ownership of the project by the Trust, see "*Background and Structure of the Trust*" on page 62.

9. *Yedeshi – Aurangabad NH-211 Project*



Map of the Yedeshi - Aurangabad NH-211 Project

On May 30, 2014, the NHAI and YATL entered into a concession agreement in respect of the Yedeshi - Aurangabad NH-211 Project. YATL was engaged to augment a 189.09 km section of NH-211 between Yedeshi and Aurangabad in Maharashtra by four-laning on a DBFOT basis. The concession period commenced on July 1, 2015 and the collection of toll commenced on March 17, 2019. As per the relevant concession agreement, the Yedeshi – Aurangabad NH-211 Project comprises the section of NH-211 from km 100.00 to km 290.200. A provisional completion certificate was issued on March 15, 2019. The completion certificate was issued on September 24, 2020.

Corridor description

The Yedeshi – Aurangabad NH-211 Project forms part of the NH52 north-south corridor. The Yedeshi – Aurangabad NH-211 Project connects Delhi and northern parts of India with major cities such as Bengaluru, Chennai, Hyderabad in the south. The Yedeshi – Aurangabad NH-211 Project also caters to east-west movement between Gujarat and eastern states such as Telangana (Hyderabad), Andhra Pradesh (Vijaywada) and parts of Tamil Nadu (Chennai). The Yedeshi – Aurangabad NH-211 Project has significant areas of industrial influence and tourism influence.

According to the Traffic Reports, an adjacent road to the project stretch was in poor condition and accordingly, there was additional traffic on project road in the reporting period, which is expected to reduce during the second half of 2023.

Concession period and revenue sharing arrangement

The NHAI granted YATL a concession for a period of 26 years for this project. The concession period commenced on July 1, 2015 and is expected to expire on June 30, 2041. YATL began collecting toll with respect to this project on March 17, 2017.

The concession agreement provides that if the actual traffic volume falls short of or exceeds the target traffic volume on the target date, the concession period will be extended or reduced, respectively. As per the concession agreement, in the event the actual average traffic on the target date exceeds the target traffic volume by more than 2.5%, the concession period may be reduced by 0.75% for every 1.00% excess in actual average traffic as compared to the target traffic volume, provided that such reduction in the concession period does not exceed 10% of the original concession period. In the event that the actual average traffic on the target date falls short of the target traffic volume by more than 2.5%, the concession period may be extended by 1.5% for every 1.00%, provided that such extension in the concession period does not exceed 20% of the original concession period. The concession agreement, however, also stipulates that, if the actual average traffic exceeds the design capacity in any accounting year, the NHAI may, at its discretion, cause YATL to undertake suitable capacity augmentation of the project. If capacity augmentation is required, the concession period would be for a period of up to five years so as to yield a post-tax return on equity of 16% per annum. The concession agreement also states that in the event that the NHAI requires YATL to undertake capacity augmentation, there will be no reduction in the concession period pursuant to any other provision of the concession agreement.

For this project, the target date and target traffic volume in the concession agreement is October 1, 2023 and 24,407 PCUs, respectively.

In consideration of the grant of concession, YATL pays the NHAI a concession fee of ₹1 per annum.

Monthly toll revenue

The following table sets out the gross monthly toll revenues received from the project for the periods indicated:

Period	Toll revenue (₹ in millions)
January 2023	239.67
February 2023	218.56

Land

The NHAI owns the land that underlies the Yedeshi – Aurangabad NH-211 Project.

Structure of ownership of the project

For information about the structure of ownership of the project by the Trust, see “*Background and Structure of the Trust*” on page 62.

10. Palsit – Dankuni NH-19 Project

Map of the Palsit – Dankuni NH-19 Project

On June 14, 2021, the NHAI and PDTPL entered into a concession agreement in respect of the Palsit – Dankuni NH-19 Project. PDTPL was engaged to augment a section of NH-19 Palsit to Dankuni (upto NH-6 Connector) from KM 588.870 to KM 652.700 (total design length 63.830 km) in West Bengal by six-laning on a BOT (toll) basis. Being a four-laning to six-laning project, the concession period and the collection of toll commenced on April 2, 2022. As per the relevant concession agreement, the Palsit – Dankuni NH-19 Project comprises the section of NH-19 from km 521.120 to km 588.870.

Corridor description

The asset is located on National Highway 19 (NH2). NH2 runs over 1,465 km and connects some of the major states of Delhi, Haryana, Uttar Pradesh with the eastern states of Bihar, Jharkhand and West Bengal. The highway also connects Delhi with cities like, Mathura, Agra, Kanpur, Allahabad, Durgapur and later stretches to connect to Kolkata. All these cities have major industrial centres. The asset becomes a key link in connecting Haldia port, in south of the asset, to the rest of West Bengal, Uttar Pradesh, Bihar, Jharkhand, Assam, Arunachal Pradesh, and Nepal. The asset lies in close proximity to state capital, Kolkata, which is one of the key distribution centres and has good connectivity with several parts of the country and generates a significant volume of traffic on the asset. The areas along the asset are agricultural along with industries and warehouse concentrated around urban areas. The key industrial areas include Durgapur, Asansol, Panagarh and Dankuni.

According to the Traffic Reports, section of NH-19 from Palsit to Dankuni is part of a major transportation link in the area connecting industrial cities of Dhanbad, Asansol, Durgapur and Kolkata. The project stretch acts as a gateway link to Kolkata from northern India.

Concession period and revenue sharing arrangement

The NHAI granted PDTPL a concession for a period of 17 years for this project. The concession period commenced on April 2, 2022 and is expected to expire on April 1, 2039. PDTPL began collecting toll with respect to this project on April 2, 2022.

The concession agreement provides that if the actual average traffic falls short of or exceeds the target traffic on the target date, the concession period will be extended or reduced, respectively. As per the concession agreement, in the event the actual average traffic on the target date exceeds the target traffic by more than 5%, the concession period may be reduced by 1.00% for every 1.00% excess in actual average traffic as compared to the target traffic, provided that such reduction in the concession period does not exceed 20% of the original concession period. In the event that the actual average traffic on the target date falls short of the target traffic by more than 5%, the concession period may be extended by 1.00% for every 1.00%, provided that such extension in the concession period does not exceed 20% of the original concession period. The concession agreement, however, also stipulates that if the average daily traffic exceeds the design capacity in any accounting year, an indirect political event under the concession agreement will be deemed to have occurred and the NHAI may, at its discretion, terminate the concession agreement. If PDTPL has completed the construction works necessary for augmenting the capacity of the project such that its capacity has increased sufficiently for carrying the then current traffic, prior to the issue of a termination notice by the NHAI, the indirect political event will deemed to have been cured.

For this project, the target dates are expected to be May 1, 2026, May 1, 2031 and May 1, 2036. The target traffic on these dates is expected to be 65,830 PCUs, 84,018 PCUs and 107,270 PCUs, respectively, and the actual average traffic will be derived based on the procedures prescribed by the NHAI in accordance with the concession agreement.

In consideration of the grant of concession, PDTPL pays the NHAI a concession fee of ₹1 per annum. Additionally, immediately after the first anniversary of the project completion date, a premium in the form of an additional concession fee for every year of the remaining concession period is payable by PDTPL. The premium to be paid for the second year after the project completion date is equal to 10.8% of the realisable fee and is required to be paid by PDTPL as due to the NHAI during that year. For subsequent years, the premium will be determined based on the total realisable fee in the respective year at the percentage to be arrived at by increasing the percentage of premium in the respective year by an additional 1% as compared to the immediately preceding year.

Monthly toll revenue

The following table sets out the gross monthly toll revenues received from the project for the periods indicated:

Period	Toll revenue (₹ in millions)
January 2023	184.62
February 2023	166.43

Land

The NHAI owns the land that underlies the Palsit – Dankuni NH-19 Project.

Structure of ownership of the project

For information about the structure of ownership of the project by the Trust, see "*Background and Structure of the Trust*" on page 62.

Operation and Maintenance Services

Our key business activity is the development, operation and maintenance of the Portfolio pursuant to, and in accordance with, the provisions of the concession and other road project related agreements (as applicable). The Project SPVs are required to operate and maintain their respective assets in accordance with the relevant concession agreement, including by modifying, repairing or otherwise making improvements to the road. In particular, each of the concession agreements requires the Project SPV to maintain their respective assets to certain standards during the concession period. The NHAI has used, and will likely continue to use, independent engineers to carry out periodic tests to assess the quality of the roads or bridges and their related maintenance.

The Project Manager manages the critical day-to-day operation and maintenance of the Portfolio. The Project Manager, through the relevant Project Implementation Agreement, provides project and contract management support, such as liaising with and supervising sub-contractors, managing design and planning and obtaining necessary licenses and approvals for the projects.

A Project SPV is generally responsible for carrying out operation and maintenance activities at its toll road during its concession period. The scope of a Project SPV's operation and maintenance activities is usually defined in the relevant concession agreement. Within the scope of such operation and maintenance obligations, the Project SPV may be required to undertake routine and periodic maintenance of project roads, maintain and comply with safety standards to ensure smooth and safe traffic movement, deploy adequate human resources for incident management, maintain proper medical and sanitary arrangements for personnel deployed at the site, prevent any unauthorized entry to and exit from the project as may be required. The activities of the Project SPVs are undertaken by the Project Manager pursuant to the Project Implementation Agreements.

A computerised maintenance management system is used to ensure that all maintenance is systematically and correctly scheduled, carried out and recorded. In addition, it is used to assure planning, control and monitoring of each maintenance activity. Maintenance methodologies and system performance are regularly reviewed and examined for optimisation of resource deployment.

Operations

Toll collection system

Toll is collected for each journey through each of the toll plazas. Signs setting out the toll rates are displayed at the toll booths and tolls can be paid or tendered by the driver of any vehicle in the following manner:

Cash

Tolls paid by means of cash are collected by toll collectors at the manual toll booths.

Electronic toll collection

The Project SPVs make use of technology for the operation of the projects which helps in improving operational efficiency and ensuring transparency in the process of toll collection, including through electronic toll collection system based on radio-frequency identification technology, which was implemented in the projects. Further, the Project SPVs also use weight based tolling systems with the help of devices that are designed to capture and record axle weights and gross vehicle weights as vehicles drive over a measurement device fitted in each lane.

Monitoring

Toll collection

Payments at the toll plazas, both electronic as well as cash payments are processed through a semi-automated or a fully-automated toll collection system, depending on complexity of the project. Both these systems collect and store traffic and payment data, thereby reducing the need for manual operation. A semi-automated system consists of revenue collection software desktop, barrier gate, smart cards and monitoring cameras and a fully automated system includes equipment such as vehicle counting classifier, vehicle audit system, communication channels and traffic control equipment in addition to all the components of a semi-automated system.

For the purpose of identifying categories of vehicles and to charge an appropriate toll rate, the automatic vehicle identification based in-road/infrared sensors are also used. The Project SPVs also use weigh-in-motion technology for projects where weight based toll collection is mandated. The weight based tolling systems are integrated with the fully automatic toll collection system for enhanced revenue controls.

There are cameras installed particularly for capturing and recording any toll evasion incidents by vehicles. There is also a back-up power supply system to ensure that there is no interruption to power supply at the toll plazas in order to maintain a stable power supply for the sub-systems and equipment. Servers used in the toll collection systems at the toll plazas are capable of real time uploading of transaction data from toll lane equipment and performing an automatic daily backup to prevent any toll data loss and to enable quick system recovery, which allows the Project SPVs to collect variable amounts of tolls depending on the class of motor vehicles and serves as a traffic information system.

Only certain authorized persons have access to the toll collection systems and the activities are recorded for security purposes. The Project Manager is responsible for operating the toll collection system at the toll plazas of the Project SPVs and taking regular preventive and corrective measures to maintain such systems at the highest levels of security and reliability.

We have set up a centralized control room ("**Control Room**") at our office in Mumbai that consolidates cameras at the toll plazas to enable video based monitoring of the toll operations throughout the day.

Traffic control

There is an emergency telephone system to provide a reliable communication channel for the drivers in cases of emergency where they need to communicate with staff at the Control Room. Emergency telephone systems and emergency helpline numbers are provided at all projects where such systems and numbers are required by the relevant concession agreement. There are also patrol vehicles that patrol an assigned section of the relevant project for regulating traffic and undertaking surveillance activities.

Safety Measures

Under the terms of the concession agreements, concessionaires are required to ensure certain safety requirements, which include measures such as road signs, pavement marking, traffic control devices, roadside furniture, highway design elements, enforcement and emergency response. The concessionaires are bound by, *inter-alia*, applicable law and applicable permits, the Manual for Safety in Road Design as issued by MoRTH, relevant standards and guidelines of the Indian Roads Congress and good industry practice. The concessionaires also carry out safety audits of the projects from time to time, by appointing a safety consultant, which is comprised of, among others, one road safety expert and one traffic planner. These safety requirements apply to all phases of construction, operation and maintenance with emphasis on identification of factors associated with accidents and implementation of appropriate remedial measures.

Management

We are managed by qualified personnel of the Investment Manager, all of whom have management and operational experience in the roads and highways sector.

The Investment Manager, in consultation with the Trustee, has appointed the directors on the board of each Project SPV in accordance with the InvIT Regulations. Each Project SPV's board of directors has also formed committees as may be required under the Companies Act, 2013 and rules made thereunder.

For further details about the Investment Manager, see "*The Investment Manager*" on page 229.

Various financing agreements that the Project SPVs have entered into with certain banks and financial institutions contain certain restrictive covenants, including, but not limited to, requirements that they obtain consent from the lenders prior to changing the composition of any board of directors of any Project SPV. For more details, see "*Risk Factors – The Project SPVs are subject to restrictive covenants under their financing agreements that could limit our flexibility in managing our business or to use cash or other assets*" on page 26.

Seasonality

Traffic volume tends to decrease during the monsoon season and conversely tends to increase during holiday seasons. While the northern parts of India experience monsoon rains during the period from June or July until September or October every year, the southern parts of India, especially Tamil Nadu and some parts of coastal Andhra Pradesh, experience monsoon rains even during the months of October to December. The monsoon season may also restrict the ability to carry on activities related to operation and maintenance of toll roads. For further details on risk associated with seasonality, see "*Risk Factors – Our business will be subject to seasonal fluctuations that may affect our cash flows*" on page 20. Conversely, traffic volume tends to increase during holiday seasons.

Health, Safety and Environment

The Investment Manager and Project Manager believe that the Trust and the Project SPVs are in compliance, in all material respects, with applicable health, safety and environmental regulations and other requirements in their operations. The Project Manager believes that accidents and occupational health hazards can be significantly reduced through a systematic analysis and control of risks and by providing appropriate training to management, employees and sub-contractors. Project managers appointed by the Project SPVs for a project are principally responsible for ensuring that safety standards are met at the relevant project sites.

Intellectual Property

We do not own the "IRB" trademark and "IRB" logo, which are registered in the name of, and owned by, the Sponsor. However, pursuant to a separate name licensing agreement (as amended), the Sponsor has granted to the Trust, each of the Project SPVs and the Investment Manager, the non-transferable and non-assignable right to use the "IRB" trademark as part of their respective corporate names, if applicable, as well as the "IRB" logo in connection with their respective businesses, on a non-exclusive basis. The license may be terminated under certain circumstances, including (i) if the Sponsor or any of its subsidiaries ceases to be the sponsor of the Trust for any reason whatsoever; or (ii) if the Sponsor or any of its subsidiaries ceases to hold at least 51% of the equity share capital of the Investment Manager, or an entity which is not a subsidiary of the Sponsor is appointed as the investment manager of the Trust. Upon the termination of the license, the Trust or the relevant Project SPV, as the case may be, will be required to cease the use of the IRB trademark and change its name to remove IRB from its name within three months from the date of termination, which may have a material adverse effect on the operations of the Project SPVs and require management's time and attention.

See also "*Risk Factors – We do not own the 'IRB' trademark and logo. Our license to use the 'IRB' trademark and logo may be terminated under certain circumstances and our ability to use the trademark and logo may be impaired*" on page 24.

Property

The Investment Manager's registered office is located in Mumbai from which all its administrative and reporting activities are conducted. The principal place of business of the Trust is located in Mumbai. The Investment Manager and the Trust also have an office located in New Delhi. The Project SPVs typically lease various premises across India to facilitate their work at their project sites. These leases usually expire upon completion of the relevant project.

Insurance

The Project SPVs' operations are subject to hazards inherent in providing operation and maintenance services, such as risk of equipment failure, work accidents, fire, earthquake, flood and other force majeure events. This includes hazards that may cause injury and loss of life, damage and destruction of property, equipment and environmental damage. The principal types of insurance coverage for the Portfolio include standard fire and special perils insurance, contractor all-risk insurance and money insurance. The Investment Manager also maintains management liability insurance. The Investment Manager and the Trustee confirm that the amount of insurance that we presently maintain represents an adequate and appropriate level of coverage required to insure the Project SPVs' business and operations and all the infrastructure assets held by the Project SPVs, and is in accordance with the concession agreements and industry standards in India and will perform regular assessment on the adequacy of its insurance coverage on a yearly basis.

Legal Proceedings

The Project SPVs the Sponsor, the Investment Manager, the Project Manager and the Trustee are or may be involved in legal proceedings or claims from time to time. Certain proceedings or claims are currently pending at different levels of adjudication before various courts, tribunals and regulatory authorities. For a description of the material legal proceedings that are outstanding, see "*Material Litigation and Regulatory Action*" on page 312.

CORPORATE GOVERNANCE

Set out below is a summary of the corporate governance framework which is applicable in relation to the Trust, the Investment Manager and the Project SPVs.

Pursuant to the InvIT Regulations, certain governance requirements, including in relation to the composition of the Board, committees of the Board and policies will become applicable to the Trust with effect from April 1, 2023. The Investment Manager has submitted an application dated March 16, 2023 to the SEBI seeking an extension for a period of three months from the date of listing of the Units to comply with such requirements.

Composition of the Board of Directors of the Investment Manager

As at the date of this Disclosure Document, the Sponsor holds 51% of the equity share capital of the Investment Manager and Croxley Investment Pte. Ltd. ("**Croxley**") holds 49% of the equity share capital of the Investment Manager. For details of the current board of directors of the Investment Manager (the "**Board**"), see "*The Investment Manager*" on page 229.

The Sponsor, Croxley and the Investment Manager have entered into a shareholders agreement dated August 6, 2019, as amended (the "**IM SHA**"). For details of the rights in relation to shareholding and certain other rights of Croxley in the Investment Manager, see "*The Investment Manager*" on page 229.

The Board may consist of five directors in accordance with the terms of the IM SHA. The composition of the Board is as follows:

(a) the Sponsor is entitled to nominate one director on the Board (the "**Sponsor Director**");

(b) Croxley is entitled to nominate one director on the Board (the "**Investor Director**"); and

(c) three independent directors are to be appointed in accordance with the Companies Act, of which: (i) the Sponsor and Croxley are entitled to recommend the appointment one independent director each; and (ii) the Sponsor and Croxley are entitled to jointly recommend the appointment of one independent director.

Under the IM SHA, an alternate director may be appointed to act as an alternate to the Sponsor Director or Investor Director during such director's absence for a period of at least three months from India, in accordance with the Companies Act.

The Investment Manager will reimburse the Board for all actual travel and accommodation expenses incurred by them or their alternate directors in connection with the performance of their duties as directors of the Investment Manager in accordance with the IM SHA. The directors will be entitled to sitting fees or any other remuneration for attending meetings as mutually agreed in writing by the parties.

In addition to the right to nominate directors on the Board, the Sponsor and Croxley are entitled to appoint one observer on the Board and/or the committees of the Board.

Chairperson

The chairperson of the Board will be the Sponsor Director unless an Event of Default has occurred.

Quorum

Subject to the provisions of the Companies Act, the Sponsor Director and the Investor Director will constitute a quorum in meetings of the Board (including any meetings held by video-conferencing).

If quorum is not present within 30 (thirty) minutes of the scheduled time for any meeting of the Board or ceases to exist at any time during such meeting, the meeting of the Board will be automatically adjourned and be reconvened on the same day in the following week, time and place and if such day is not a Business Day, then the immediately following Business Day. At any such adjourned meeting, the presence of at least three Directors shall be required to constitute the quorum; provided that no Reserved Matters will be taken up for discussion or voted upon at any adjourned Board Meeting unless the Investor Director and the IRB Director are present in such meeting, or if prior written consent in respect of such Reserved Matters has been obtained in accordance with the IM SHA. No matters which were not part of the agenda for the original Board meeting will be discussed at such adjourned meeting. Subject to the terms of the IM SHA, the Investor Director and the IRB Director may at any time waive their respective right to form part of the quorum for a particular Board Meeting, in writing, and at any such Board Meeting, no new matters other than those forming part of the agenda for such Board Meeting will be discussed or taken up.

Frequency of meetings

Subject to the provisions of the Companies Act, the Board will meet at least four times a year and once every 120 days, at any location mutually agreed between the Sponsor Director and the Investor Director.

Committees

The Investment Manager has constituted (i) an audit committee; (ii) a capex monitoring committee; (iii) a health and safety monitoring committee; and (iv) an internal complaints committee under the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 in accordance with the terms of the IM SHA.

The Investment Manager has also constituted a nomination and remuneration committee and a refinance committee.

The Sponsor and Croxley have the right to nominate the Sponsor Director or the Investor Director, as applicable, as a member of any committee or sub-committee of the Board. In addition to the committees of the Board set out above, the Board may constitute committees for various functions from time to time.

Reserved Matters

In accordance with the terms of the IM SHA, the Sponsor and Croxley have agreed that no resolution will be passed or decision or action be taken by the Investment Manager in relation to any Manager Group Member, in any manner, including by the Board, the shareholders or otherwise in respect of any of the Reserved Matters, unless the written consent of the Sponsor and Croxley has been obtained through the Sponsor Director and the Investor Director in the manner specified in the IM SHA, prior to any decisions on Reserved Matters being taken in any other manner. Subject to applicable law, the Sponsor, Croxley, the Sponsor Director and/or the Investor Director will have the right to require that any Reserved Matter be decided at a shareholder meeting instead of at a Board meeting and/or with the prior written consent of Croxley or of the Sponsor in accordance with the terms of the IM SHA.

Under the IM SHA, any obligation on any Manager Group Member is deemed to be a simultaneous and corresponding obligation on the Sponsor to exercise its voting rights in relation to the Investment Manager to perform such obligation.

For details of the Reserved Matters, see "*Rights of Unitholders – Approval of Unitholders*" on page 222.

Directors of the SPVs

The Investment Manager, in consultation with the Trustee, has appointed the directors on the board of each Project SPV in accordance with the InvIT Regulations. Further, pursuant to the terms of the IM SHA, each of the Sponsor and the Croxley have the right to require a director or observer on the board of directors of any SPV as a representative of the Investment Manager.

Fall-Away

The rights of the Sponsor and Croxley in relation to the board of directors of the Investment Manager, shareholders meetings and voting and reserved matters under the IM SHA will terminate with respect to such party upon such party's (together its affiliates') shareholding in the Investment Manager (calculated on a fully diluted basis) falling below 20% of the share capital of the Investment Manager.

All rights of the Sponsor or Croxley under the IM SHA other than the economic and voting rights attached to the securities held by them shall terminate with respect to such party upon such party's (together with its affiliates') shareholding in the Investment Manager (calculated on a fully diluted basis) falling below 10% of the share capital of the Investment Manager.

Policies of the Manager Group

Pursuant to the terms of the IMA SHA, the Investment Manager (on behalf of itself and the Trust) and each of the Project SPVs are required to adopt certain policies for corporate governance, key terms of which are set out below. Each Manager Group Member is required to ensure that these policies remain in full force and effect and consider amendments in accordance with the terms of the Framework Agreement. Mr. Kaustubh Shevade has been designated by the Investment Manager as the Compliance Officer with respect to the Trust.

Code of Conduct

The Code of Conduct serves as a basis for maintaining the standards of honest and ethical business conduct including the ethical handling of actual or apparent conflicts of interest between personal and professional relationships, and ensuring confidentiality of corporate information and data for the Manager Group, the Sponsor/Project Manager, and the Trustee (together the "**Trust Entities**") and compliance with the applicable laws and the InvIT Regulations. The key terms of the Code of Conduct include *inter-alia*:

(i) Duties must be carried out in an honest, fair, diligent and ethical manner within the scope of the authority conferred and in accordance with applicable laws, rules, regulations, agreements, guidelines, standards, and internal policies and procedures.

(ii) Assets, properties, and human resources of the Manager Group Members are to be used only for the official business of the Trust Entities, and the security of all confidential information must be ensured.

(iii) The Trust Entities must not, and ensure that their employees do not engage in any business activity that conflicts with the interest of a Manager Group Member.

(iv) The Trust and the parties to the Trust must conduct all affairs in the interest of the unitholders of the InvIT, and they shall make adequate, accurate, explicit and timely disclosure of relevant material information to all unit holders, exchanges and the Securities and Exchange Board of India in accordance with the InvIT Regulations.

(v) The Trust, the parties to the Trust and any third party appointed by the Investment Manager shall not use any unethical means to sell, market or induce any person to buy units of the Trust and where a third party appointed by the Investment Manager fails to comply with this condition, the Investment Manager shall be held liable for the same. The Trust and the parties to the Trust shall render at all times high standards of service, exercise due diligence, ensure proper care and exercise independent professional judgment.

Disclosure of Information Policy

This policy sets out the process and procedure for determining materiality of information in relation to periodic disclosures required under applicable law, including the InvIT Regulations. The key terms of the Disclosure of Information Policy include *inter-alia*:

(i) The following information in relation to the Manager Group shall be provided to the Unitholders:
   a. quarterly management accounts within 20 days from the end of each calendar month;
   b. unaudited quarterly financial statements (including profit and loss accounts and a balance sheet) and management accounts for each financial quarter within 45 days from the end of such financial quarter;
   c. audited annual financial statements (including profit and loss accounts and a balance sheet) for every Financial Year within 60 days of the end of such Financial Year;
   d. notices, agenda and minutes of meetings of board of directors, committees of the board and shareholders of the Manager Group Member as may be requested by the unitholders;
   e. copies of all agreements, business projections, reports, certificates and any material information regularly provided to any other security holder or lender (in their capacity as security holders or lenders), including any management or audit or investigative reports provided to any security holder or lender, simultaneously with such security holder or lender;
   f. proposed Annual Budget for the upcoming Financial Year by March 15 of the preceding Financial Year;
   g. toll collection MIS data and lenders' independent engineers' reports for each SPV on monthly basis;
   h. prior intimation, to the extent practicable, regarding initiation of any criminal litigation to which the Manager Group Member is a party; and

i. prior intimation regarding initiation of any civil or administrative litigation, arbitration or other legal proceedings to which the Manager Group Member is a party and which relate to a claim amount exceeding INR 25 million.

(ii) Disclosure of information to regulators:
   a. The Manager Group Member shall submit the information required to be submitted to the SEBI, the NHAI, MoRTH, the RBI, the Stock Exchanges or any other governmental, regulatory, statutory, administrative, or judicial body under applicable law, including or such further information or clarification required by any of them; and
   b. The Manager Group Member shall inform the SEBI, in writing, if any information or particulars previously submitted to SEBI are found to be false or misleading in any material particular or if there is any material change in the information already submitted, in accordance with InvIT Regulations.

Distribution Policy

For details of the Distribution Policy, see "*Distributions*" on page 217.

Procurement and Divestment Policy

This policy sets out the guidelines for procurement and divestment of the Trust Assets and the assets of any Manager Group Member (collectively, the "**Manager Group Assets**"). The key terms of the Procurement and Divestment Policy include, *inter-alia*:

(i) The Investment Manager is empowered to make all investment decisions with respect to the underlying assets or projects of the Trust, including, without limitation, investigation, selection, development, negotiation, structuring, restructuring, commitment to or monitoring and any further investment or divestment of the underlying assets or projects of the Trust.

(ii) The Investment Manager shall focus on addition of new assets to the existing portfolio of the Manager Group Assets. The projects acquired shall be in the under-construction phase in order to utilize and leverage the experience and technical expertise of the Manager Group Members.

(iii) Any decision for procurement and divestment of the Manager Group Assets must be made in accordance with the Annual Budget, the Business Plan and the terms of the Framework Agreement and the IM SHA. Any procurement or divestment that is not in accordance with such documents will require the written consent of the shareholders of the Investment Manager and the Unitholders of the Trust. It is clarified that this shall be treated as a matter which is not in the ordinary course of business and will require the approval of the unitholders under Regulation 22(5)(d) of the InvIT Regulations.

Leverage Policy

For details of the Leverage Policy, see "*Leverage*" on page 205.

Nomination and Remuneration Policy

This policy sets out the guidelines regarding the nomination, remuneration and removal of directors, key managerial personnel and employees of the Manager Group. The key terms of the Nomination and Remuneration Policy include, *inter-alia*:

(i) The board of directors of the Manager Group Members shall, as applicable, have the required number of independent directors in terms of the applicable law, including the Companies Act.

(ii) The board of directors of each of the Manager Group Members, is, as applicable, expected to possess the required expertise, skill and experience to effectively manage and direct the Manager Group Members to attain its organizational and business goals. They are expected to be persons with vision, leadership qualities, and proven competence and integrity.

(iii) Each member of the board of directors of the Manager Group Members, as applicable, shall ensure that their personal interest does not run in conflict with the any of the Manager Group Member's interests.

(iv) The annual performance and remuneration review of the employees of the Manager Group Members shall be done once every year. The review of remuneration will be undertaken on the basis of the following criteria:
   a. Performance of the employee;
   b. Performance of the team to which such employee belongs;
   c. Overall performance of the Manager Group Member; and
   d. Prevailing business environment and requirement of manpower for future projects.

Additionally, the following terms will be applicable to the Investment Manager:

a. The board of directors shall constitute a capex monitoring committee, a health and safety monitoring committee, an audit committee and all such other committees of the board of directors as are required to be constituted by the Investment Manager under applicable law.
b. The board of directors shall appoint and designate such key managerial personnel as are required under applicable law, including a Chief Executive Officer, a Chief Financial Officer and a Company Secretary of the Investment Manager. These key managerial persons shall be jointly nominated by the Sponsor and Croxley, and appointed by the board of directors.

Record Retention Policy

The policy sets out the guidelines for the identification of documents and records which are required to be preserved, storage, maintenance and preservation of documents and records of the Manager Group and protection and preservation of all the necessary documents and records as per the statutory requirements. The key terms of the Record Retention Policy include, *inter-alia*:

(i) The policy applies to all the documents required to be maintained in terms of the InvIT Regulations, the applicable secretarial standards, and any other applicable law which shall be preserved under the custody of the compliance officer of the respective Manager Group Members. It also applies to all financial records required to be maintained in terms of the InvIT Regulations, the prescribed accounting standards, the Income Tax Act, 1961, and any other applicable law which shall be maintained under the custody of the chief financial officer of the respective Manager Group Member.

(ii) All documents which are required to be preserved by virtue of applicable laws shall be preserved either permanently or for such periods as may be mandated by applicable laws from time to time.

(iii) Documents which are required to be preserved for a period of not less than eight years after the completion of the relevant transaction shall be determined by the relevant heads of departments of the Manager Group Member from time to time.

(iv) Documents shall be preserved in a chronological manner for each financial year.

(v) The Manager Group Members shall maintain back-up of all documents maintained in electronic form. Documents which are confidential in nature shall, wherever possible, be kept under lock and key and shall be shared on a 'need to know' basis only, with persons directly involved in the transaction involving such documents and records.

(vi) Certain documents may be required to be kept open by the Manager Group Member for inspection in the manner specified under such applicable law. Regulatory authorities, including the SEBI, have the right of access to all registers and records.

(vii) Documents which are statutorily required to be hosted on the website of any Manager Group Member shall be hosted within the prescribed timeline from the occurrence of the event.

(viii) Where documents are no longer required to be preserved, or on the expiration of the specified period of time for which they were required to be preserved, they may be discarded or disposed off in accordance with the procedure specified under the applicable law, and where no procedure has been specified, they may be discarded or disposed off in accordance with the standard operating procedures applicable to the respective departments.

In addition, the Investment Manager (on behalf of itself and the Trust) and each of the Project SPVs have also adopted policies on corporate social responsibility, environment, health and safety, maternity benefits, equal opportunities, procurement, prohibited practices and anti-trust practices, anti-corruption practices, prevention of sexual harassment and anti-harassment, personal data protection and whistle-blowing.

SUMMARY OF THE CONCESSION AGREEMENTS

Set out below are summaries of the concession agreements entered into by the Project SPVs in relation to their respective business. The descriptions and summaries of the agreements below are not and nor do they purport to be complete descriptions or summaries of all terms of such agreements. Certain terms used in this section have the meanings assigned to such terms in the respective concession agreements.

1. Concession Agreement between AETL and the NHAI dated September 1, 2015

AETL has entered into a concession agreement for six-laning of km 199.660 to km 323.525, Agra to Etawah Bypass section of NH-2 in Uttar Pradesh on build, operate and transfer ("**BOT**") basis (the "**AETL Concession Agreement**"), for a period of 24 years, from August 1, 2016 ("**AETL Appointed Date**") or until such date on which the AETL Concession Agreement is terminated by a termination notice ("**AETL Termination Date**", and the period between the AETL Appointed Date and the AETL Termination Date, the "**AETL Concession Period**").

Certain Definitions

"**AETL Debt Due**" shall mean the aggregate of the following sums expressed in Indian Rupees outstanding on the transfer date:

a) the principal amount of the debt provided by the senior lenders under the financing agreements for financing the total project cost (the "**Principal**") but excluding any part of the Principal that had fallen due for repayment two years prior to the transfer date;

b) all accrued interest, financing fees and charges payable under the financing agreements on, or in respect of, the debt referred to in the sub-clause above until the transfer date but excluding (i) any interest, fees or charges that had fallen due one year prior to the transfer date, (ii) any penal interest or charges payable under the financing agreements to any senior lender, and (iii) any pre-payment charges in relation to accelerated repayment of debt except where such charges have arisen due to an NHAI Default (as defined below); and

c) any subordinated debt which is included in the financing package and disbursed by lenders for financing the total project cost;

If all, or any part of the AETL Debt Due is convertible into equity at the option of the senior lenders and/or AETL, it shall, for the purposes of the AETL Concession Agreement, be deemed to be AETL Debt Due even after the conversion and the Principal thereof shall be dealt with as if such conversion had not been undertaken;

"**AETL Debt Service**" shall mean the sum of all payments on account of Principal, interest, financing fees and charges due and payable in an accounting year to the senior lenders under the financing agreements;

"**AETL Project Assets**" shall mean all physical and other assets relating to and forming part of the site including (a) rights over the site in the form of licence, right of way or otherwise; (b) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road overbridges, drainage works, traffic signals, sign boards, kilometre-stones, toll plazas, electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; (c) project facilities situated on the site; (d) all rights of AETL under the project agreements; (e) financial assets, such as receivables, security deposits etc.; (f) insurance proceeds; and (g) applicable permits and authorizations relating to or in respect of the AETL Project Highway (as defined below), but does not include additional facilities;

"**AETL Project Highway**" shall mean the site comprising the existing road comprising section of six-laning of Agra-Etawah Bypass section of NH-2 from km 199.660 to km 323.525 in the State of Uttar Pradesh under NHDP Phase-V on BOT(Toll) mode and all AETL Project Assets, and its subsequent development and augmentation in accordance with the AETL Concession Agreement;

"**AETL Project**" shall mean the construction, operation, and maintenance of the AETL Project Highway in accordance with the provisions of the AETL Concession Agreement, and includes all works, services, and equipment relating to and in respect of the scope of the project; and

"**Premium**" shall mean an amount paid to the NHAI by AETL in the form of an additional concession fee, as set forth in the bid for each year of the AETL Concession Period.

Grant of Concession

Subject to, and in accordance with the provisions set out in the AETL Concession Agreement, the applicable laws and the applicable permits, the NHAI has granted to AETL, and AETL has accepted the concession, including the exclusive right, license, and authority during the subsistence of the AETL Concession Agreement, to construct, operate and maintain the AETL Project for a period of 24 years from the AETL Appointed Date.

Subject to, and in accordance with the provisions of the AETL Concession Agreement, the concession granted shall oblige or entitle, as the case may be, AETL to:

a) right of way, access and license to the site for the purpose of, and to the extent conferred by the provisions of the AETL Concession Agreement;

b) finance and construct the AETL Project Highway;

c) manage, operate, and maintain the AETL Project Highway and regulate the use thereof by third parties;

d) demand, collect, and appropriate fee from vehicles and persons liable for payment of fee for using the AETL Project Highway or any part thereof and refuse entry of any vehicle if the fee due is not paid;

e) perform and fulfil all of AETL's obligations under and in accordance with the AETL Concession Agreement;

f) bear and pay all costs, expenses, and charges in connection with or incidental to the performance of the obligations of AETL under the AETL Concession Agreement; and

g) neither assign, transfer or sublet, or create any lien or encumbrance on the AETL Concession Agreement, or the concession granted, or on the whole or any part of the AETL Project Highway, nor transfer, lease, or part possession thereof, save and except as expressly permitted by the AETL Concession Agreement or the agreement for the substitution of AETL entered into by AETL, the NHAI, and the lenders' representative on behalf of the senior lenders (the "**Substitution Agreement**").

Fees

On and from the commercial operation date ("**COD**") till the transfer date, AETL shall have the sole and exclusive right to demand, collect, and appropriate fee from the users subject to, and in accordance with the AETL Concession Agreement and the applicable rules and regulations, provided that for ease of payment, such fee shall be rounded off to the nearest five rupees in accordance with the applicable fee rules, as updated from time to time. Further, AETL may determine and collect fee at such lower rates as it may, by public notice to the users, specify in respect of all or any category of users or vehicles. In accordance with the AETL Concession Agreement, AETL shall not collect any fees in relation to exempted vehicles.

AETL shall not collect any fee from a local user for non-commercial use of the AETL Project Highway, and shall issue a pass in respect thereof for commuting on a section of the AETL Project Highway as specified in the pass and for crossing the toll plaza specified therein. For carrying out these provisions, AETL shall formulate, publish and implement an appropriate scheme, and make such modifications to the scheme as may reasonably be suggested by the NHAI or by local users from time to time. For defraying its expenses on issuing of passes and handling of local users, AETL shall be entitled to charge a monthly fee of ₹150, with reference to the base year 2007-08, to be revised annually in accordance with the fee rules to reflect the variation in WPI, and then rounded off to the nearest five rupees; provided that no passes will be required or fee collected from a vehicle that uses part of the AETL Project Highway and does not cross a toll plaza.

Concession Fee

In consideration of the grant of concession, AETL shall pay to the NHAI by way of concession fee a sum of ₹1 per annum.

Additionally, AETL was required to pay to the NHAI on the AETL Appointed Date, a Premium in the form of an additional concession fee equal to ₹810 million as due to the NHAI during that year, due and payable for the period remaining in that year; and for each subsequent year of the AETL Concession Period, the Premium shall be determined by increasing the amount of Premium in the respective year by an additional 5% as compared to the immediately preceding year. The Premium is deemed to be a part of the concession fee.

The concession fee payable under the provisions of the AETL Concession Agreement shall be due and payable in monthly instalments within seven days of the close of each month.

Escrow Account

AETL was required to, prior to the AETL Appointed Date, open and establish an escrow account (the "**Escrow Account**") with a bank (the "**Escrow Bank**") in accordance with the AETL Concession Agreement read with the escrow agreement entered into amongst AETL, the NHAI, the Escrow Bank and the senior lenders through the lenders' representative (the "**Escrow Agreement**").

AETL shall deposit, or cause to be deposited the following inflows and receipts into the Escrow Account:

a) all funds constituting the financial package;

b) all fee and any other revenues from or in respect of the AETL Project Highway, including the proceeds of any deposits, capital receipts or insurance claims; and

c) all payments by the NHAI, after deducting any outstanding concession fee.

The senior lenders may make direct disbursements to the EPC contractor in accordance with the express provisions contained in this behalf in the financing agreements.

Withdrawals during Concession Period

AETL was required to, at the time of opening the Escrow Account, give irrevocable instructions, by way of the Escrow Agreement, to the Escrow Bank instructing, inter alia, that deposits in the Escrow Account shall be appropriated in the following order every month, or at shorter intervals as necessary, and if not due in a month, then appropriated proportionately in such month and retained in the Escrow Account and paid out therefrom in a month when due:

a) all taxes due and payable by AETL for and in respect of the AETL Project Highway;

b) all payments relating to construction of the AETL Project Highway, subject to and in accordance with the conditions, if any, set forth in the financing agreements;

c) Operation and Management ("**O&M**") expenses, subject to the ceiling, if any, set forth in the financing agreements;

d) O&M expenses and other costs and expenses incurred by the NHAI in accordance with the provisions of the AETL Concession Agreement, and certified by the NHAI as due and payable to it;

e) concession fee due and payable to the NHAI;
f) monthly proportionate provision of AETL Debt Service due in an accounting year;

g) premium due and payable to the NHAI;

h) all payments and damages certified by the NHAI as due and payable to it by AETL, including repayment of revenue shortfall loan;

i) monthly proportionate provision of AETL Debt Service payments due in an accounting year in respect of subordinated debt;

j) any reserve requirements set forth in the financing agreements; and

k) balance, if any, in accordance with the instructions of AETL.

AETL shall not, in any manner, modify the order of payment specified except with prior written approval from the NHAI.

Withdrawals upon Termination

Notwithstanding anything to the contrary contained in the AETL Concession Agreement, all amounts standing to the credit of the Escrow Account shall, upon termination, be appropriated in the following order:

a) all taxes due and payable by AETL for and in respect of the AETL Project Highway;

b) 90% of the AETL Debt Due excluding the subordinated debt;

c) outstanding concession fee;

d) all payments and damages certified by the NHAI as due and payable to it by AETL, including the Premium and the repayment of the revenue shortfall loan;

e) retention and payments relating to the liability for defects and deficiencies set forth in the AETL Concession Agreement;

f) outstanding AETL Debt Service including balance of AETL Debt Due;

g) outstanding subordinated debt;

h) incurred or accrued O&M expenses;

i) any other payments required to be made under the AETL Concession Agreement; and

j) balance, if any, in accordance with the instructions of AETL.

No appropriations shall be made until a vesting certificate has been issued by the NHAI.

Change of Scope

The NHAI may, notwithstanding anything to the contrary contained in the AETL Concession Agreement, require the provision of additional works and services which are not included in the scope of the project as contemplated by the AETL Concession Agreement. Any such change of scope shall be made in accordance with the provisions of the AETL Concession Agreement and the costs thereof shall be expended by AETL and reimbursed by the NHAI.

If AETL determines at any time that a change in scope is necessary for providing safer and improved services to the users, it shall, by notice in writing, require the NHAI to consider such change of scope. The NHAI shall, within 15 days of receipt of such notice, either accept the change of scope with modifications, if any, and initiate proceedings thereof in accordance with the provisions of the AETL Concession Agreement, or inform AETL in writing of its reasons for not accepting such change of scope.

Compensation for Breach of Agreement

In the event of AETL being in material default or breach of the AETL Concession Agreement, it shall pay to the NHAI by way of compensation, all direct costs suffered or incurred by the NHAI as a consequence of the material default or breach, within 30 days of the receipt of the demand supported by the necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages are expressly specified and payable under the AETL Concession Agreement.

In the event of the NHAI being in material default of the AETL Concession Agreement at any time after the AETL Appointed Date, it shall pay to AETL by way of compensation, all direct costs suffered or incurred by AETL as a consequence of the material default or breach within 30 days of receipt of the demand supported by necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages have been expressly specified in the AETL Concession Agreement.

In the event that a material default or breach of the AETL Concession Agreement causes a delay in achieving COD or leads to suspension of, or reduction in collection of fee, as the case may be, the NHAI shall, in addition to the payment of compensation, extend the AETL Concession Period as provided in the AETL Concession Agreement. In the event that an additional toll way or a competing road, as the case may be, is opened to traffic in breach of the AETL Concession Agreement, the NHAI shall pay to AETL, for each day of the breach, compensation as provided in the AETL Concession Agreement, until the breach is cured. The payment of compensation by the NHAI shall be deemed to cure the breach of the AETL Concession Agreement so long as the NHAI continues to pay the compensation.

The compensation payable shall be in addition to, and not in substitution for, or derogation of, termination payment, if any.

Effects of Variation in Traffic Growth

Subject to the provisions of the AETL Concession Agreement, in the event actual average traffic shall have fallen short of the target traffic, then for every 1% (one percent) shortfall as compared to the target traffic, the AETL Concession Period shall, subject to payment of concession fee in accordance with the AETL Concession Agreement, be increased by 1.5% (one point five percent) thereof; provided that such increase in AETL Concession Period shall not in any case exceed 20% (twenty percent) of the AETL Concession Period.

Subject to the provisions of the AETL Concession Agreement, in the event actual average traffic shall have exceeded the target traffic, then for every 1% (one percent) excess as compared to the target traffic, the AETL Concession Period shall be reduced by 0.75% (zero point seven five percent) thereof; provided that such reduction in AETL Concession Period shall not in any case exceed 10% (ten percent) thereof.

Provided further that in lieu of a reduction in AETL Concession Period under the AETL Concession Agreement, AETL may elect to pay, in addition to the concession fee that would be due and payable if the AETL Concession Period were not reduced hereunder, a further premium equal to 25% (twenty five percent) of the realizable fee, and upon notice given to this effect by AETL no later than two years prior to the AETL Termination Date contemplated by the AETL Concession Agreement, NHAI shall waive the reduction in AETL Concession Period hereunder forthwith.

Notwithstanding anything to the contrary contained in AETL Concession Agreement, if the average daily traffic of PCUs in any accounting year shall exceed the designed capacity of the AETL Project Highway, the NHAI at its option may cause preparation of detailed project report which will assess the cost that may have to be incurred for augmenting the capacity of the AETL Project Highway so that its capacity is sufficiently increased for carrying the then current traffic in accordance with the corresponding provisions of the Indian Roads Congress publication no. IRC -64, 1990 or any substitute thereof. The AETL Concession Period, may be extended so that it yields for AETL a post-tax return on equity of 16% per annum. This assessment will be made at an assumed debt to equity ratio of 70:30. The extension of the AETL Concession Period shall be however limited to five years. The NHAI may thereafter, at their sole option, issue a notice to AETL, to undertake within six months of such notice, the augmentation so determined by the NHAI. The refusal, non-acceptance, or failure by AETL to undertake such augmentation on the due date so intimated by the NHAI, will be considered an indirect political event and the NHAI may at its discretion terminate this AETL Concession Agreement by issuing a termination notice and making a termination payment in accordance with the provisions of the AETL Concession Agreement without the NHAI being liable to issue any further notice under it.

Termination of the AETL Concession Agreement

Termination by the NHAI

Save as otherwise provided in the AETL Concession Agreement, in the event that any of the defaults specified below shall have occurred, and AETL fails to cure the default within the cure period, or where no cure period is specified, then within a cure period of 60 days, AETL shall be deemed to be in default of the AETL Concession Agreement ("**AETL Default**"), unless the default has occurred solely as a result of any breach of the AETL Concession Agreement by the NHAI or due to force majeure. The defaults referred to herein shall include:

a) the performance security has been encashed and appropriated in accordance with the AETL Concession Agreement and AETL fails to replenish or provide fresh performance security within a cure period of 30 days;

b) subsequent to the replenishment or furnishing of fresh performance security in accordance with the AETL Concession Agreement, AETL fails to cure, within a cure period of 90 days, the AETL Default for which whole or part of the performance security was appropriated;

c) AETL does not achieve the latest outstanding project milestone due in accordance with the AETL Concession Agreement and continues to be in default for 90 days;

d) AETL abandons or manifests intention to abandon the construction or operation of the AETL Project Highway without the prior written consent of the NHAI;

e) project completion date does not occur within the period specified in the AETL Concession Agreement;

f) the punch list items have not been completed within the period set forth in the AETL Concession Agreement;

g) AETL is in breach of the maintenance requirements or the safety requirements as the case may be;

h) AETL has failed to make any payment to the NHAI within the period specified in the AETL Concession Agreement;

i) an escrow default has occurred and AETL fails to cure the default within a cure period of 15 days;

j) upon occurrence of a financial default, the lenders' representative has, by notice, required the NHAI to undertake suspension or termination, as the case may be, in accordance with the Substitution Agreement and AETL fails to cure the default within the cure period specified hereinabove;

k) a breach of the project agreements by AETL has caused a material adverse effect;

l) AETL creates an encumbrance in breach of the AETL Concession Agreement;

m) AETL repudiates the AETL Concession Agreement or otherwise takes any action or evidences or conveys an intention not to be bound by the AETL Concession Agreement;

n) a change in ownership has occurred in breach of the AETL Concession Agreement;

o) there is a transfer, pursuant to law either of (i) the rights and/or obligations of AETL under any of the project agreements, or of (ii) all or part of the assets or undertaking of AETL, and such transfer causes a material adverse effect;

p) an execution levied on any of the assets of AETL has caused a material adverse effect;

q) AETL is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for AETL or for the whole or material part of its assets that has a material bearing on the AETL Project;

r) AETL has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the NHAI, a material adverse effect;

s) a resolution for winding up of AETL is passed, or any petition for winding up of AETL is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 days of the date thereof, or AETL is ordered to be wound up by Court except for the purpose of amalgamation or reconstruction, provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of AETL are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of AETL under the AETL Concession Agreement and the project agreements; provided that:

    i) the amalgamated or reconstructed entity has the capability and operating experience necessary for the performance of its obligations under the AETL Concession Agreement and the project agreements;

ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under the AETL Concession Agreement and the project agreements and has a creditworthiness at least as good as that of AETL as at the AETL Appointed Date; and

iii) each of the project agreements remains in full force and effect;

t) any representation or warranty of AETL which is, as of the date hereof, found to be materially false, incorrect or misleading or AETL is at any time hereafter found to be in breach thereof;

u) AETL submits to the NHAI any statement, notice or other document, in written or electronic form, which has a material effect on the NHAI's rights, obligations or interests and which is false in material particulars;

v) AETL has failed to fulfil any obligation, for which failure termination has been specified in the AETL Concession Agreement; or

w) AETL commits a default in complying with any other provision of the AETL Concession Agreement if such default causes a material adverse effect on the NHAI.

Without prejudice to any other rights or remedies which the NHAI may have under the AETL Concession Agreement, upon the occurrence of an AETL Default, the NHAI shall be entitled to terminate the AETL Concession Agreement by issuing a termination notice to AETL. Before issuing the termination notice, the NHAI shall, by notice, inform AETL of its intention to issue a termination notice and grant 15 days to AETL to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice subject to the provisions of the AETL Concession Agreement.

If there are senior lenders, the NHAI shall send a copy of its notice of intention to issue a termination notice to inform the lenders' representative and grant 15 days to the lenders' representative for making a representation on behalf of the senior lenders stating the intention to substitute AETL in accordance with the Substitution Agreement. If the NHAI receives a representation on behalf of the senior lenders, it shall, in its discretion, either withhold termination for a period not exceeding 180 days from the date of the representation, or exercise its right of suspension, as the case may be, to enable the lenders' representative to exercise the senior lenders' right of substitution in accordance with the Substitution Agreement. The lenders' representative may, instead of exercising the senior lenders' right of substitution, procure that the default specified in the notice is cured within the aforesaid 180 days, and upon the curing, the NHAI shall withdraw its notice and restore the rights of AETL. On a written request from the lenders' representative and AETL, the NHAI shall extend the period of 180 days by a further period not exceeding 90 days as it may deem appropriate.

Termination by AETL

In the event that any of the defaults specified below shall have occurred, and the NHAI fails to cure the default within a cure period of 90 days or such longer period as provided in the AETL Concession Agreement, the NHAI shall be deemed to be in default of the AETL Concession Agreement ("**NHAI Default**"), unless the default has occurred as a result of a breach of the AETL Concession Agreement by AETL, or due to force majeure. The default referred to herein shall include:

a) the NHAI commits a material default in complying with any of the provisions of the AETL Concession Agreement and such default has a material adverse effect on AETL;

b) the NHAI has failed to make any payment to AETL within the period specified in the AETL Concession Agreement;

c) the NHAI repudiates the AETL Concession Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by the AETL Concession Agreement; or

d) the State of Uttar Pradesh commits a material default in complying with the provisions of the state support agreement if such default has a material adverse effect on AETL and the breach continues for a period of 90 days from the date of notice given in this behalf by AETL to the NHAI.

Without prejudice to any other rights or remedies which AETL may have under the AETL Concession Agreement, upon the occurrence of an NHAI Default, AETL shall be entitled to terminate the AETL Concession Agreement by issuing a termination notice to the NHAI. Before issuing the termination notice, AETL shall, by notice, inform the NHAI of its intention to issue a termination notice and grant 15 days to the NHAI to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice.

Termination Payment

Upon termination on account of an AETL Default during the operation period, the NHAI shall pay to AETL, by way of termination payment, an amount equal to 90% of the AETL Debt Due less insurance cover. If any insurance claims forming part of the insurance cover are not admitted and paid, then 80% of such unpaid claims shall be included in the computation of AETL Debt Due.

Upon termination on account of an NHAI Default, the NHAI shall pay to AETL, by way of termination payment, an amount equal to:

a) AETL Debt Due; and
b) 150% of the adjusted equity.

Termination payment shall become due and payable to AETL within 15 days of a demand being made by AETL to the NHAI with the necessary particulars, and in the event of any delay, the NHAI shall pay interest at a rate equal to 3% above the bank rate on the amount of termination payment remaining unpaid. The delay shall not exceed 90 days. The termination payment under the AETL Concession Agreement shall constitute a full and final settlement of all claims of AETL on account of termination of the AETL Concession Agreement for any reason whatsoever and AETL shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

Defects Liability after Termination

AETL shall be responsible for all defects and deficiencies in the AETL Project Highway for a period of 120 days after termination. AETL shall have the obligation to repair or rectify, at its own cost, all defects and deficiencies in the AETL Project Highway as observed by the independent engineer. The repair or rectification of the defect or deficiency shall be done within a period of 15 days from the date of notice issued by the NHAI in this behalf. A sum as specified in the AETL Concession Agreement shall be retained in the Escrow Account for a period of 120 days after termination for meeting the liabilities, if any, arising out of, or in connection with this provision.

1.1. Supplementary Agreement between AETL and the NHAI dated April 7, 2018

AETL has entered into a supplementary agreement (the "**Supplementary Agreement**") to amend the concession agreement dated September 1, 2015 (the "**Concession Agreement**") to provide for the installation of a new electronic toll collection system (the "**Hybrid ETC System**") for electronic payment of user fee using RFID tags or any other such device.

Change of Scope

The NHAI shall provide a change in the scope of work order at prices discovered by the NHAI to AETL to provide for, as per the defined technical specifications, installation, testing, commissioning, operations and maintenance of the Hybrid ETC System in all lanes of the toll plaza. AETL shall ensure that the requisite civil work is completed prior to the installation, integration, testing and commissioning of the Hybrid ETC System. It shall also ensure the smooth flow of traffic during installation, integration, testing and commissioning of the Hybrid ETC System. AETL will have no claim against the NHAI on account of any lane closure, if any, on account of any third party claims.

Scope of Work

AETL shall install, integrate, test, commission, operate and maintain the Hybrid ETC System in all the lanes of the toll plazas. The Hybrid ETC System shall be installed, commissioned, operated and maintained for a period of five years or the end of the Concession Agreement, whichever is earlier, beyond which it will be replaced or renewed, as the case may be, by AETL or the NHAI, at the cost of the NHAI. The cycle shall be maintained till the end of the concession period in accordance with the Concession Agreement.

The provisions of the Concession Agreement relating to change of scope shall not apply to the Supplementary Agreement.

Any permission required by AETL under the applicable laws for the installation of the Hybrid ETC System shall be procured and maintained by AETL. The NHAI shall provide reasonable assistance in this regard.

Timeline

AETL shall complete all responsibilities, obligations and works as described in the Supplementary Agreement within a period of 120 days from the date of issuance of the change of scope work order by the NHAI and the release of advance payment.

Damages for Delay

In case of delay in installation, testing, or commissioning of the Hybrid ETC System at the toll plazas as per the time schedule prescribed on account of reasons attributable to AETL, damages at 0.1% of the cost of installation, testing, or commissioning of the Hybrid ETC System for each day of the delay, subject to a maximum of 10% of the cost of installation, testing, or commissioning of the Hybrid ETC System shall be levied on AETL. Damages for delay will not be applicable in case of a delay in implementation due to delayed payment release by the NHAI.

AETL shall not be entitled to any additional benefit either in monetary terms or on any other account including, but not limited to any extension of time, save on account of and NHAI Default or force majeure.

Compensation

In case of any damage to the Hybrid ETC System due to any act or omission of AETL, the NHAI shall not be liable for any compensation to AETL, and AETL shall bear the cost of repair, replacement or renewal of the damaged Hybrid ETC System equipment or hardware itself.

In case of any damage to the Hybrid ETC System due to the occurrence of any force majeure event, the compensation to AETL shall be derived as per the provisions of the Concession Agreement.

End of the Concession Period

AETL shall hand over all the Hybrid ETC equipment or hardware in an operational condition to the NHAI or a third party as directed by the NHAI at the end of the concession period, beyond which no O&M payment shall be made to AETL. If any Hybrid ETC System equipment or hardware is found to be non-operational, then AETL shall be liable to replace or pay for the replacement of the Hybrid ETC System equipment or hardware required to make the Hybrid ETC System operational on all lanes of the toll plazas to the NHAI promptly.
Upon termination, AETL shall assign warranties received from the original equipment manufacturer and for the components or equipment, and provide the respective warranty assignment agreements and necessary documents. AETL shall ensure that all the warranties are duly assigned in favor of the NHAI and AETL shall bear the cost and expenses towards the assignment.

1.2. Supplementary Agreement between AETL and the NHAI dated May 1, 2017

AETL has entered into a supplementary agreement with the NHAI to amend the concession agreement dated September 1, 2015 (the "**Concession Agreement**") to provide for dispute resolution through the Society for Affordable Redressal of Disputes ("**SAROD**").

Any dispute arising out of the Concession Agreement which is not resolved amicably shall be finally settled by arbitration. The dispute shall be referred to SAROD for resolution by arbitration in accordance with the rules of SAROD and the Arbitration and Conciliation Act, 1996. AETL and the NHAI shall choose the arbitrators from a panel of arbitrators empanelled by SAROD. The arbitral tribunal shall consist of a sole arbitrator in case the total claim of the dispute is ₹30 million or less, and in case the claim is more than ₹30 million, the tribunal shall consist of an odd number of arbitrators to be nominated by the parties.

The arbitral proceedings shall be held at Delhi (India) and the language of the arbitral proceedings, and that of all the correspondence between the parties shall be English. The dispute shall be governed by the substantive law of India.

2. Concession Agreement between CGTL and the NHAI dated December 9, 2016

CGTL has entered into a concession agreement for six-laning of Kishangarh Udaipur Ahmedabad section from km 90.000 (near Gulabpura) to km 214.870 (end of Chittorgarh bypass), of NH-79 in Rajasthan on build, operate and transfer ("**BOT**") basis (the "**CGTL Concession Agreement**"), for a period of 20 years, from November 4, 2017 ("**CGTL Appointed Date**") or until such date on which the CGTL Concession Agreement is terminated by a termination notice ("**CGTL Termination Date**", and the period between the CGTL Appointed Date and the CGTL Termination Date, the "**CGTL Concession Period**").

Certain Definitions

"**CGTL Debt Due**" shall mean the aggregate of the following sums expressed in Indian Rupees outstanding on the transfer date:

a) the principal amount of the debt provided by the senior lenders under the financing agreements for financing the total project cost (the "**Principal**") but excluding any part of the Principal that had fallen due for repayment two years prior to the transfer date;

b) all accrued interest, financing fees and charges payable under the financing agreements on, or in respect of, the debt referred to in the sub-clause above until the transfer date but excluding (i) any interest, fees or charges that had fallen due one year prior to the transfer date, (ii) any penal interest or charges payable under the financing agreements to any senior lender, and (iii) any pre-payment charges in relation to accelerated repayment of debt except where such charges have arisen due to an NHAI Default (as defined below); and

c) any subordinated debt which is included in the financing package and disbursed by lenders for financing the total project cost;

If all, or any part of the CGTL Debt Due is convertible into equity at the option of the senior lenders and/or CGTL, it shall, for the purposes of the CGTL Concession Agreement, be deemed to be CGTL Debt Due even after the conversion and the Principal thereof shall be dealt with as if such conversion had not been undertaken;

"**CGTL Debt Service**" shall mean the sum of all payments on account of Principal, interest, financing fees and charges due and payable in an accounting year to the senior lenders under the financing agreements;

"**CGTL Project Assets**" shall mean all physical and other assets relating to and forming part of the site including (a) rights over the site in the form of licence, right of way or otherwise; (b) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road overbridges, drainage works, traffic signals, sign boards, kilometre-stones, toll plazas, electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; (c) project facilities situated on the site; (d) all rights of CGTL under the project agreements; (e) financial assets, such as receivables, security deposits etc.; (f) insurance proceeds; and (g) applicable permits and authorizations relating to or in respect of the CGTL Project Highway (as defined below), but does not include additional facilities;

"**CGTL Project Highway**" shall mean the site comprising the existing road comprising NH-79 from km 90.000 to km 214.870 and all CGTL Project Assets, and its subsequent development and augmentation in accordance with the CGTL Concession Agreement;

"**CGTL Project**" shall mean the construction, operation, and maintenance of the CGTL Project Highway in accordance with the provisions of the CGTL Concession Agreement, and includes all works, services, and equipment relating to and in respect of the scope of the project; and

"**Premium**" shall mean an amount paid to the NHAI by CGTL in the form of an additional concession fee, as set forth in the bid for each year of the CGTL Concession Period.

Grant of Concession

Subject to, and in accordance with the provisions set out in the CGTL Concession Agreement, the applicable laws and the applicable permits, the NHAI has granted to CGTL, and CGTL has accepted the concession, including the exclusive right, license, and authority during the subsistence of the CGTL Concession Agreement, to construct, operate and maintain the CGTL Project for a period of 20 years from the CGTL Appointed Date.

Subject to, and in accordance with the provisions of the CGTL Concession Agreement, the concession granted shall oblige or entitle, as the case may be, CGTL to:

a) right of way, access and license to the site for the purpose of, and to the extent conferred by the provisions of the CGTL Concession Agreement;

b) finance and construct the CGTL Project Highway;

c) manage, operate, and maintain the CGTL Project Highway and regulate the use thereof by third parties;

d) demand, collect, and appropriate fee from vehicles and persons liable for payment of fee for using the CGTL Project Highway or any part thereof and refuse entry of any vehicle if the fee due is not paid;

e) perform and fulfil all of CGTL's obligations under and in accordance with the CGTL Concession Agreement;

f) bear and pay all costs, expenses, and charges in connection with or incidental to the performance of the obligations of CGTL under the CGTL Concession Agreement; and

g) neither assign, transfer or sublet, or create any lien or encumbrance on the CGTL Concession Agreement, or the concession granted, or on the whole or any part of the CGTL Project Highway, nor transfer, lease, or part possession thereof, save and except as expressly permitted by the CGTL Concession Agreement or the agreement for the substitution of CGTL entered into by CGTL, the NHAI, and the lenders' representative on behalf of the senior lenders (the "**Substitution Agreement**").

Fees

On and from the commercial operation date ("**COD**") till the transfer date, CGTL shall have the sole and exclusive right to demand, collect, and appropriate fee from the users subject to, and in accordance with the CGTL Concession Agreement and the applicable rules and regulations, provided that for ease of payment and collection, such fee shall be rounded off to the nearest five rupees in accordance with the applicable fee rules, as updated from time to time. Further, CGTL may determine and collect fee at such lower rates as it may, by public notice to the users, specify in respect of all or any category of users or vehicles. In accordance with the CGTL Concession Agreement, CGTL shall not collect any fees in relation to exempted vehicles.

CGTL shall not collect any fee from a local user for non-commercial use of the CGTL Project Highway, and shall issue a pass in respect thereof for commuting on a section of the CGTL Project Highway as specified in the pass and for crossing the toll plaza specified therein. For carrying out these provisions, CGTL shall formulate, publish and implement an appropriate scheme, and make such modifications to the scheme as may reasonably be suggested by the NHAI or by local users from time to time. For defraying its expenses on issuing of passes and handling of local users, CGTL shall be entitled to charge a monthly fee of ₹150, with reference to the base year 2007-08, to be revised annually in accordance with the fee rules to reflect the variation in WPI, and then rounded off to the nearest five rupees; provided that no passes will be required or fee collected from a vehicle that uses part of the CGTL Project Highway and does not cross a toll plaza.

Concession Fee

In consideration of the grant of concession, CGTL shall pay to the NHAI by way of concession fee a sum of ₹1 per annum.

Additionally, CGTL was required to pay to the NHAI, immediately after the third anniversary year of the COD, a Premium in the form of an additional concession fee equal to ₹2,286,000,000 as due to the NHAI during that year, due and payable for the period remaining in that year; and for each subsequent year till the ninth anniversary of the COD, the Premium shall be determined by increasing the amount of Premium in the respective year by an additional 3% as compared to the immediately preceding year, and for each subsequent year of the CGTL Concession Period, the Premium shall be determined by increasing the amount of Premium in the respective year by an additional 8% as compared to the immediately preceding year. The Premium is deemed to be a part of the concession fee.

The concession fee payable under the provisions of the CGTL Concession Agreement shall be due and payable in monthly instalments within seven days of the close of each month.

Escrow Account

CGTL was required to, prior to the CGTL Appointed Date, open and establish an escrow account (the "**Escrow Account**") with a bank (the "**Escrow Bank**") in accordance with the CGTL Concession Agreement read with the escrow agreement entered into amongst CGTL, the NHAI, the Escrow Bank and the senior lenders through the lenders' representative (the "**Escrow Agreement**").

CGTL shall deposit, or cause to be deposited the following inflows and receipts into the Escrow Account:

a) all funds constituting the financial package;

b) all fee and any other revenues from or in respect of the CGTL Project Highway, including the proceeds of any deposits, capital receipts or insurance claims; and

c) all payments by the NHAI, after deducting any outstanding concession fee.

The senior lenders may make direct disbursements to the EPC contractor in accordance with the express provisions contained in this behalf in the financing agreements.

Withdrawals during Concession Period

CGTL was required to, at the time of opening the Escrow Account, give irrevocable instructions, by way of the Escrow Agreement, to the Escrow Bank instructing, inter alia, that deposits in the Escrow Account shall be appropriated in the following order every month, or at shorter intervals as necessary, and if not due in a month, then appropriated proportionately in such month and retained in the Escrow Account and paid out therefrom in a month when due:

a) all taxes due and payable by CGTL for and in respect of the CGTL Project Highway;

b) all payments relating to construction of the CGTL Project Highway, subject to and in accordance with the conditions, if any, set forth in the financing agreements;

c) Operation and Management ("**O&M**") expenses, subject to the ceiling, if any, set forth in the financing agreements;

d) O&M expenses and other costs and expenses incurred by the NHAI in accordance with the provisions of the CGTL Concession Agreement, and certified by the NHAI as due and payable to it;

e) concession fee due and payable to the NHAI;

f) monthly proportionate provision of CGTL Debt Service due in an accounting year;

g) premium due and payable to the NHAI;

h) all payments and damages certified by the NHAI as due and payable to it by CGTL, including repayment of revenue shortfall loan. CGTL has agreed to give irrevocable instructions to the Escrow Bank to make payments from the Escrow Account in accordance with the instructions of the NHAI under the CGTL Concession Agreement and debit the payment to O&M expenses;

i) monthly proportionate provision of CGTL Debt Service payments due in an accounting year in respect of subordinated debt;

j) any reserve requirements set forth in the financing agreements; and

k) balance, if any, in accordance with the instructions of CGTL.

CGTL shall not, in any manner, modify the order of payment specified except with prior written approval from the NHAI.

Withdrawals upon Termination

Notwithstanding anything to the contrary contained in the CGTL Concession Agreement, all amounts standing to the credit of the Escrow Account shall, upon termination, be appropriated in the following order:

a) all taxes due and payable by CGTL for and in respect of the CGTL Project Highway;

b) 90% of the CGTL Debt Due excluding the subordinated debt;

c) outstanding concession fee;

d) all payments and damages certified by the NHAI as due and payable to it by CGTL, including the repayment of the revenue shortfall loan. CGTL has agreed to give irrevocable instruction to the Escrow Bank to make payment from the Escrow Account in accordance with the instructions of the NHAI under the CGTL Concession Agreement and debit the payment to O&M expenses.

e) retention and payments relating to the liability for defects and deficiencies set forth in the CGTL Concession Agreement;

f) outstanding CGTL Debt Service including balance of CGTL Debt Due;

g) outstanding subordinated debt;

h) incurred or accrued O&M expenses;

i) any other payments required to be made under the CGTL Concession Agreement; and

j) balance, if any, in accordance with the instructions of CGTL.

No appropriations shall be made until a vesting certificate has been issued by the NHAI.

Change of Scope

The NHAI may, notwithstanding anything to the contrary contained in the CGTL Concession Agreement, require the provision of additional works and services which are not included in the scope of the project as contemplated by the CGTL Concession Agreement. Any such change of scope shall be made in accordance with the provisions of the CGTL Concession Agreement and the costs thereof shall be expended by CGTL and reimbursed by the NHAI.

If CGTL determines at any time that a change in scope is necessary for providing safer and improved services to the users, it shall, by notice in writing, require the NHAI to consider such change of scope. The NHAI shall, within 60 days of receipt of such notice, either accept the change of scope with modifications, if any, and initiate proceedings thereof in accordance with the provisions of the CGTL Concession Agreement, or inform CGTL in writing of its reasons for not accepting such change of scope.

Compensation for Breach of Agreement

In the event of CGTL being in material default or breach of the CGTL Concession Agreement, it shall pay to the NHAI by way of compensation, all direct costs suffered or incurred by the NHAI as a consequence of the material default or breach, within 30 days of the receipt of the demand supported by the necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages are expressly specified and payable under the CGTL Concession Agreement.

In the event of the NHAI being in material default of the CGTL Concession Agreement at any time after the CGTL Appointed Date, it shall pay to CGTL by way of compensation, all direct costs suffered or incurred by

CGTL as a consequence of the material default or breach within 30 days of receipt of the demand supported by necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages have been expressly specified in the CGTL Concession Agreement.

In the event that a material default or breach of the CGTL Concession Agreement causes a delay in achieving COD or leads to suspension of, or reduction in collection of fee, as the case may be, the NHAI shall, in addition to the payment of compensation, extend the CGTL Concession Period as provided in the CGTL Concession Agreement. In the event that an additional toll way or a competing road, as the case may be, is opened to traffic in breach of the CGTL Concession Agreement, the NHAI shall pay to CGTL, for each day of the breach, compensation as provided in the CGTL Concession Agreement, until the breach is cured. The payment of compensation by the NHAI shall be deemed to cure the breach of the CGTL Concession Agreement so long as the NHAI continues to pay the compensation.

The compensation payable shall be in addition to, and not in substitution for, or derogation of, termination payment, if any.

Effects of Variation in Traffic Growth

Subject to the provisions of the CGTL Concession Agreement, in the event actual average traffic shall have fallen short of the target traffic, then for every 1% (one percent) shortfall as compared to the target traffic, the CGTL Concession Period shall, subject to payment of concession fee in accordance with the CGTL Concession Agreement, be increased by 1.5% (one point five percent) thereof; provided that such increase in CGTL Concession Period shall not in any case exceed 20% (twenty percent) of the CGTL Concession Period.

Subject to the provisions of the CGTL Concession Agreement, in the event actual average traffic shall have exceeded the target traffic, then for every 1% (one percent) excess as compared to the target traffic, the CGTL Concession Period shall be reduced by 0.75% (zero point seven five percent) thereof; provided that such reduction in CGTL Concession Period shall not in any case exceed 10% (ten percent) thereof.

Provided further that in lieu of a reduction in CGTL Concession Period under the CGTL Concession Agreement, CGTL may elect to pay, in addition to the concession fee that would be due and payable if the CGTL Concession Period were not reduced hereunder, a further premium equal to 25% (twenty five percent) of the realizable fee, and upon notice given to this effect by CGTL no later than two years prior to the CGTL Termination Date contemplated by the CGTL Concession Agreement, NHAI shall waive the reduction in CGTL Concession Period hereunder forthwith.

Notwithstanding anything to the contrary contained in CGTL Concession Agreement, if the average daily traffic of PCUs in any accounting year shall exceed the designed capacity of the CGTL Project Highway, the NHAI at its option may cause preparation of detailed project report which will assess the cost that may have to be incurred for augmenting the capacity of the CGTL Project Highway so that its capacity is sufficiently increased for carrying the then current traffic in accordance with the corresponding provisions of the Indian Roads Congress publication no. IRC -64, 1990 or any substitute thereof. The CGTL Concession Period, may be extended so that it yields for CGTL a post-tax return on equity of 16% per annum. This assessment will be made at an assumed debt to equity ratio of 70:30. The extension of the CGTL Concession Period shall be however limited to five years. The NHAI may thereafter, at their sole option, issue a notice to CGTL, to undertake within six months of such notice, the augmentation so determined by the NHAI. The refusal, non-acceptance, or failure by CGTL to undertake such augmentation on the due date so intimated by the NHAI, will be considered an indirect political event and the NHAI may at its discretion terminate this CGTL Concession Agreement by issuing a termination notice and making a termination payment in accordance with the provisions of the CGTL Concession Agreement without the NHAI being liable to issue any further notice under it.

Termination of the CGTL Concession Agreement

Termination by the NHAI

Save as otherwise provided in the CGTL Concession Agreement, in the event that any of the defaults specified below shall have occurred, and CGTL fails to cure the default within the cure period, or where no cure period is specified, then within a cure period of 60 days, CGTL shall be deemed to be in default of the CGTL Concession Agreement ("**CGTL Default**"), unless the default has occurred solely as a result of any breach of the CGTL Concession Agreement by the NHAI or due to force majeure. The defaults referred to herein shall include:

a) the performance security has been encashed and appropriated in accordance with the CGTL Concession Agreement and CGTL fails to replenish or provide fresh performance security within a cure period of 30 days;

b) subsequent to the replenishment or furnishing of fresh performance security in accordance with the CGTL Concession Agreement, CGTL fails to cure, within a cure period of 90 days, the CGTL Default for which whole or part of the performance security was appropriated;

c) CGTL does not achieve the latest outstanding project milestone due in accordance with the CGTL Concession Agreement and continues to be in default for 90 days;

d) CGTL abandons or manifests intention to abandon the construction or operation of the CGTL Project Highway without the prior written consent of the NHAI;

e) project completion date does not occur within the period specified in the CGTL Concession Agreement;

f) the punch list items have not been completed within the period set forth in the CGTL Concession Agreement;

g) CGTL is in breach of the maintenance requirements or the safety requirements as the case may be;

h) CGTL has failed to make any payment to the NHAI within the period specified in the CGTL Concession Agreement;

i) an escrow default has occurred and CGTL fails to cure the default within a cure period of 15 days;

j) upon occurrence of a financial default, the lenders' representative has, by notice, required the NHAI to undertake suspension or termination, as the case may be, in accordance with the Substitution Agreement and CGTL fails to cure the default within the cure period specified hereinabove;

k) a breach of the project agreements by CGTL has caused a material adverse effect;

l) CGTL creates an encumbrance in breach of the CGTL Concession Agreement;

m) CGTL repudiates the CGTL Concession Agreement or otherwise takes any action or evidences or conveys an intention not to be bound by the CGTL Concession Agreement;

n) a change in ownership has occurred in breach of the CGTL Concession Agreement;

o) there is a transfer, pursuant to law either of (i) the rights and/or obligations of CGTL under any of the project agreements, or of (ii) all or part of the assets or undertaking of CGTL, and such transfer causes a material adverse effect;

p) an execution levied on any of the assets of CGTL has caused a material adverse effect;

q) CGTL is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for CGTL or for the whole or material part of its assets that has a material bearing on the CGTL Project;

r) CGTL has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the NHAI, a material adverse effect;

s) a resolution for winding up of CGTL is passed, or any petition for winding up of CGTL is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 days of the date thereof, or CGTL is ordered to be wound up by Court except for the purpose of amalgamation or reconstruction, provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of CGTL are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of CGTL under the CGTL Concession Agreement and the project agreements; provided that:

i) the amalgamated or reconstructed entity has the capability and operating experience necessary for the performance of its obligations under the CGTL Concession Agreement and the project agreements;

ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under the CGTL Concession Agreement and the project agreements and has a creditworthiness at least as good as that of CGTL as at the CGTL Appointed Date; and

iii) each of the project agreements remains in full force and effect;

t) any representation or warranty of CGTL which is, as of the date hereof, found to be materially false, incorrect or misleading or CGTL is at any time hereafter found to be in breach thereof;

u) CGTL submits to the NHAI any statement, notice or other document, in written or electronic form, which has a material effect on the NHAI's rights, obligations or interests and which is false in material particulars;

v) CGTL has failed to fulfil any obligation, for which failure termination has been specified in the CGTL Concession Agreement; or

w) CGTL commits a default in complying with any other provision of the CGTL Concession Agreement if such default causes a material adverse effect on the NHAI.

Without prejudice to any other rights or remedies which the NHAI may have under the CGTL Concession Agreement, upon the occurrence of a CGTL Default, the NHAI shall be entitled to terminate the CGTL Concession Agreement by issuing a termination notice to CGTL. Before issuing the termination notice, the NHAI shall, by notice, inform CGTL of its intention to issue a termination notice and grant 15 days to CGTL to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice subject to the provisions of the CGTL Concession Agreement.

If there are senior lenders, the NHAI shall send a copy of its notice of intention to issue a termination notice to inform the lenders' representative and grant 30 days to the lenders' representative for making a representation on behalf of the senior lenders stating the intention to substitute CGTL in accordance with the Substitution Agreement. If the NHAI receives a representation on behalf of the senior lenders, it shall, in its discretion, either withhold termination for a period not exceeding 180 days from the date of the representation, or exercise its right of suspension, as the case may be, to enable the lenders' representative to exercise the senior lenders' right of substitution in accordance with the Substitution Agreement. The lenders' representative may, instead of exercising the senior lenders' right of substitution, procure that the default specified in the notice is cured within the aforesaid 180 days, and upon the curing, the NHAI shall withdraw its notice and restore the rights of CGTL. On a written request from the lenders' representative and CGTL, the NHAI shall extend the period of 180 days by a further period not exceeding 90 days as it may deem appropriate.

Termination by CGTL

In the event that any of the defaults specified below shall have occurred, and the NHAI fails to cure the default within a cure period of 90 days or such longer period as provided in the CGTL Concession Agreement, the NHAI shall be deemed to be in default of the CGTL Concession Agreement ("**NHAI Default**"), unless the default has occurred as a result of a breach of the CGTL Concession Agreement by CGTL, or due to force majeure. The default referred to herein shall include:

a) the NHAI commits a material default in complying with any of the provisions of the CGTL Concession Agreement and such default has a material adverse effect on CGTL;

b) the NHAI has failed to make any payment to CGTL within the period specified in the CGTL Concession Agreement;

c) the NHAI repudiates the CGTL Concession Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by the CGTL Concession Agreement; or

d) the State of Rajasthan commits a material default in complying with the provisions of the state support agreement if such default has a material adverse effect on CGTL and the breach continues for a period of 90 days from the date of notice given in this behalf by CGTL to the NHAI.

Without prejudice to any other rights or remedies which CGTL may have under the CGTL Concession Agreement, upon the occurrence of an NHAI Default, CGTL shall be entitled to terminate the CGTL Concession Agreement by issuing a termination notice to the NHAI. Before issuing the termination notice, CGTL shall, by notice, inform the NHAI of its intention to issue a termination notice and grant 30 days to the NHAI to make a representation, and may, after the expiry of the 30 days, whether or not it is in receipt of such representation, issue the termination notice.

Termination Payment

Upon termination on account of a CGTL Default during the operation period, the NHAI shall pay to CGTL, by way of termination payment, an amount equal to 90% of the CGTL Debt Due less insurance cover. If any insurance claims forming part of the insurance cover are not admitted and paid, then 80% of such unpaid claims shall be included in the computation of CGTL Debt Due.

Upon termination on account of an NHAI Default, the NHAI shall pay to CGTL, by way of termination payment, an amount equal to:

a) CGTL Debt Due; and
b) 150% of the adjusted equity.

The termination payment shall not be less than an amount equal to the product of six and the average monthly fee actually realized 12 months prior to the transfer date.

Termination payment shall become due and payable to CGTL within 30 days of a demand being made by CGTL to the NHAI with the necessary particulars, and in the event of any delay, the NHAI shall pay interest at a rate equal to 3% above the bank rate on the amount of termination payment remaining unpaid. The delay shall not exceed 90 days. The termination payment under the CGTL Concession Agreement shall constitute a full and final settlement of all claims of CGTL on account of termination of the CGTL Concession Agreement for any reason whatsoever and CGTL shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

Defects Liability after Termination

CGTL shall be responsible for all defects and deficiencies in the CGTL Project Highway for a period of 120 days after termination. CGTL shall have the obligation to repair or rectify, at its own cost, all defects and deficiencies in the CGTL Project Highway as observed by the independent engineer. The repair or rectification of the defect or deficiency shall be done within a period of 15 days from the date of notice issued by the NHAI in this behalf. A sum as specified in the CGTL Concession Agreement shall be retained in the Escrow Account for a period of 120 days after termination for meeting the liabilities, if any, arising out of, or in connection with this provision.

3. Concession Agreement between IRB HMTL and the NHAI dated May 29, 2018

IRB HMTL has entered into a concession agreement for six-laning of Hapur Bypass to Moradabad section including Hapur Bypass from km 50.000 (design chainage 50.000) to km 148.277 (design chainage 149.867) of NH-24 (new NH-9) in Uttar Pradesh on design, build, finance, operate and transfer ("**DBFOT**") basis (the "**IRB HMTL Concession Agreement**"), for a period of 22 years, from May 28, 2019 ("**IRB HMTL Appointed Date**") or until such date on which the IRB HMTL Concession Agreement is terminated by a termination notice ("**IRB HMTL Termination Date**", and the period between the IRB HMTL Appointed Date and the IRB HMTL Termination Date, the "**IRB HMTL Concession Period**").

Certain Definitions

"**IRB HMTL Debt Due**" shall mean the aggregate of the following sums expressed in Indian Rupees outstanding on the transfer date:

a) the principal amount of the debt provided by the senior lenders under the financing agreements for financing the total project cost (the "**Principal**") but excluding any part of the Principal that had fallen due for repayment two years prior to the transfer date;

b) all accrued interest, financing fees and charges payable under the financing agreements on, or in respect of, the debt referred to in the sub-clause above until the transfer date but excluding (i) any interest, fees or charges that had fallen due one year prior to the transfer date, (ii) any penal interest or charges payable under the financing agreements to any senior lender, and (iii) any pre-payment charges in relation to accelerated repayment of debt except where such charges have arisen due to an NHAI Default (as defined below); and

c) any subordinated debt which is included in the financing package and disbursed by lenders for financing the total project cost;

If all, or any part of the IRB HMTL Debt Due is convertible into equity at the option of the senior lenders and/or IRB HMTL, it shall, for the purposes of the IRB HMTL Concession Agreement, be deemed to be IRB HMTL Debt Due even after the conversion and the Principal thereof shall be dealt with as if such conversion had not been undertaken;

"**IRB HMTL Debt Service**" shall mean the sum of all payments on account of Principal, interest, financing fees and charges due and payable in an accounting year to the senior lenders under the financing agreements;

"**IRB HMTL Project Assets**" shall mean all physical and other assets relating to and forming part of the site including (a) rights over the site in the form of licence, right of way or otherwise; (b) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road overbridges, drainage works, traffic signals, sign boards, kilometre-stones, toll plazas, electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; (c) project facilities situated on the site; (d) all rights of IRB HMTL under the project agreements; (e) financial assets, such as receivables, security deposits etc.; (f) insurance proceeds; and (g) applicable permits and authorizations relating to or in respect of the IRB HMTL Project Highway (as defined below), but does not include additional facilities;

"**IRB HMTL Project Highway**" shall mean the site comprising the existing road comprising Hapur Bypass to Moradabad section including Hapur Bypass from km 50.000 (design chainage km 50.000) to km 148.277 (design chainage km 149.867) of NH-24 (new NH-9) and all IRB HMTL Project Assets, and its subsequent development and augmentation in accordance with the IRB HMTL Concession Agreement;

"**IRB HMTL Project**" shall mean the construction, operation, and maintenance of the IRB HMTL Project Highway in accordance with the provisions of the IRB HMTL Concession Agreement, and includes all works, services, and equipment relating to and in respect of the scope of the project; and

"**Premium**" shall mean an amount paid to the NHAI by IRB HMTL in the form of an additional concession fee, as set forth in the bid for each year of the IRB HMTL Concession Period.

Grant of Concession

Subject to, and in accordance with the provisions set out in the IRB HMTL Concession Agreement, the applicable laws and the applicable permits, the NHAI has granted to IRB HMTL, and IRB HMTL has accepted the concession, including the exclusive right, license, and authority during the subsistence of the IRB HMTL Concession Agreement, to construct, operate and maintain the IRB HMTL Project for a period of 22 years from the IRB HMTL Appointed Date.

Subject to, and in accordance with the provisions of the IRB HMTL Concession Agreement, the concession granted shall oblige or entitle, as the case may be, IRB HMTL to:

a) right of way, access and license to the site for the purpose of, and to the extent conferred by the provisions of the IRB HMTL Concession Agreement;

b) finance and construct the IRB HMTL Project Highway;

c) manage, operate, and maintain the IRB HMTL Project Highway and regulate the use thereof by third parties;

d) demand, collect, and appropriate fee from vehicles and persons liable for payment of fee for using the IRB HMTL Project Highway or any part thereof and refuse entry of any vehicle if the fee due is not paid;

e) perform and fulfil all of IRB HMTL's obligations under and in accordance with the IRB HMTL Concession Agreement;

f) bear and pay all costs, expenses, and charges in connection with or incidental to the performance of the obligations of IRB HMTL under the IRB HMTL Concession Agreement; and

g) neither assign, transfer or sublet, or create any lien or encumbrance on the IRB HMTL Concession Agreement, or the concession granted, or on the whole or any part of the IRB HMTL Project Highway, nor transfer, lease, or part possession thereof, save and except as expressly permitted by the IRB HMTL Concession Agreement or the agreement for the substitution of IRB HMTL entered into by IRB HMTL, the NHAI, and the lenders' representative on behalf of the senior lenders (the "**Substitution Agreement**").

Fees

On and from the commercial operation date ("**COD**") till the transfer date, IRB HMTL shall have the sole and exclusive right to demand, collect, and appropriate fee from the users subject to, and in accordance with the IRB HMTL Concession Agreement and the applicable rules and regulations, provided that for ease of payment and collection, such fee shall be rounded off to the nearest five rupees in accordance with the applicable fee rules, as updated from time to time. Further, IRB HMTL may determine and collect fee at such lower rates as it may, by public notice to the users, specify in respect of all or any category of users or vehicles. In accordance with the IRB HMTL Concession Agreement, IRB HMTL shall not collect any fees in relation to exempted vehicles.

IRB HMTL shall not collect any fee from a local user for non-commercial use of the IRB HMTL Project Highway, and shall issue a pass in respect thereof for commuting on a section of the IRB HMTL Project Highway as specified in the pass and for crossing the toll plaza specified therein. For carrying out these provisions, IRB HMTL shall formulate, publish and implement an appropriate scheme, and make such modifications to the scheme as may reasonably be suggested by the NHAI or by local users from time to time. For defraying its expenses on issuing of passes and handling of local users, IRB HMTL shall be entitled to charge a monthly fee of ₹150, with reference to the base year 2007-08, to be revised annually in accordance with the fee rules to reflect the variation in WPI, and then rounded off to the nearest five rupees; provided that no passes will be required or fee collected from a vehicle that uses part of the IRB HMTL Project Highway and does not cross a toll plaza.

Concession Fee

In consideration of the grant of concession, IRB HMTL shall pay to the NHAI by way of concession fee a sum of ₹1 per annum.

Additionally, IRB HMTL was required to pay to the NHAI, immediately after the third anniversary year of the COD, a Premium in the form of an additional concession fee equal to ₹315 million as due to the NHAI during that year, due and payable for the period remaining in that year; and for each subsequent year till the ninth anniversary of the COD, the Premium shall be determined by increasing the amount of Premium in the respective year by an additional 3% as compared to the immediately preceding year and for each subsequent year of the IRB HMTL Concession Period, the Premium shall be determined by increasing the amount of Premium in the respective year by an additional 8% as compared to the immediately preceding year. The Premium is deemed to be a part of the concession fee.

The concession fee payable under the provisions of the IRB HMTL Concession Agreement shall be due and payable in monthly instalments within seven days of the close of each month.

Escrow Account

IRB HMTL was required to, prior to the IRB HMTL Appointed Date, open and establish an escrow account (the "**Escrow Account**") with a bank (the "**Escrow Bank**") in accordance with the IRB HMTL Concession Agreement read with the escrow agreement entered into amongst IRB HMTL, the NHAI, the Escrow Bank and the senior lenders through the lenders' representative (the "**Escrow Agreement**").

IRB HMTL shall deposit, or cause to be deposited the following inflows and receipts into the Escrow Account:

a) all funds constituting the financial package;
b) all fee and any other revenues from or in respect of the IRB HMTL Project Highway, including the proceeds

of any deposits, capital receipts or insurance claims; and

c) all payments by the NHAI, after deducting any outstanding concession fee.

The senior lenders may make direct disbursements to the EPC contractor in accordance with the express provisions contained in this behalf in the financing agreements.

Withdrawals during Concession Period

IRB HMTL was required to, at the time of opening the Escrow Account, give irrevocable instructions, by way of the Escrow Agreement, to the Escrow Bank instructing, inter alia, that deposits in the Escrow Account shall be appropriated in the following order every month, or at shorter intervals as necessary, and if not due in a month, then appropriated proportionately in such month and retained in the Escrow Account and paid out therefrom in a month when due:

a) all taxes due and payable by IRB HMTL for and in respect of the IRB HMTL Project Highway;

b) all payments relating to construction of the IRB HMTL Project Highway, subject to and in accordance with the conditions, if any, set forth in the financing agreements;

c) Operation and Management ("**O&M**") expenses, subject to the ceiling, if any, set forth in the financing agreements;

d) O&M expenses and other costs and expenses incurred by the NHAI in accordance with the provisions of the IRB HMTL Concession Agreement, and certified by the NHAI as due and payable to it;

e) concession fee due and payable to the NHAI;

f) monthly proportionate provision of IRB HMTL Debt Service due in an accounting year;

g) premium due and payable to the NHAI;

h) all payments and damages certified by the NHAI as due and payable to it by IRB HMTL, including repayment of revenue shortfall loan. IRB HMTL has agreed to give irrevocable instructions to the Escrow Bank to make payments from the Escrow Account in accordance with the instructions of the NHAI under the IRB HMTL Concession Agreement and debit the payment to O&M expenses;

i) monthly proportionate provision of IRB HMTL Debt Service payments due in an accounting year in respect of subordinated debt;

j) any reserve requirements set forth in the financing agreements; and

k) balance, if any, in accordance with the instructions of IRB HMTL.

IRB HMTL shall not, in any manner, modify the order of payment specified except with prior written approval from the NHAI.

Withdrawals upon Termination

Notwithstanding anything to the contrary contained in the IRB HMTL Concession Agreement, all amounts standing to the credit of the Escrow Account shall, upon termination, be appropriated in the following order:

a) all taxes due and payable by IRB HMTL for and in respect of the IRB HMTL Project Highway;

b) 90% of the IRB HMTL Debt Due excluding the subordinated debt;
c) outstanding concession fee;

d) all payments and damages certified by the NHAI as due and payable to it by IRB HMTL, including the repayment of the revenue shortfall loan. IRB HMTL has agreed to give irrevocable instruction to the Escrow

Bank to make payment from the Escrow Account in accordance with the instructions of the NHAI under the IRB HMTL Concession Agreement and debit the payment to O&M expenses.

e) retention and payments relating to the liability for defects and deficiencies set forth in the IRB HMTL Concession Agreement;

f) outstanding IRB HMTL Debt Service including balance of IRB HMTL Debt Due;

g) outstanding subordinated debt;

h) incurred or accrued O&M expenses;

i) any other payments required to be made under the IRB HMTL Concession Agreement; and

j) balance, if any, in accordance with the instructions of IRB HMTL.

No appropriations shall be made until a vesting certificate has been issued by the NHAI.

Change of Scope

The NHAI may, notwithstanding anything to the contrary contained in the IRB HMTL Concession Agreement, require the provision of additional works and services which are not included in the scope of the project as contemplated by the IRB HMTL Concession Agreement. Any such change of scope shall be made in accordance with the provisions of the IRB HMTL Concession Agreement and the costs thereof shall be expended by IRB HMTL and reimbursed by the NHAI.

If IRB HMTL determines at any time that a change in scope is necessary for providing safer and improved services to the users, it shall, by notice in writing, require the NHAI to consider such change of scope. The NHAI shall, within 60 days of receipt of such notice, either accept the change of scope with modifications, if any, and initiate proceedings thereof in accordance with the provisions of the IRB HMTL Concession Agreement, or inform IRB HMTL in writing of its reasons for not accepting such change of scope.

Compensation for Breach of Agreement

In the event of IRB HMTL being in material default or breach of the IRB HMTL Concession Agreement, it shall pay to the NHAI by way of compensation, all direct costs suffered or incurred by the NHAI as a consequence of the material default or breach, within 30 days of the receipt of the demand supported by the necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages are expressly specified and payable under the IRB HMTL Concession Agreement.

In the event of the NHAI being in material default of the IRB HMTL Concession Agreement at any time after the IRB HMTL Appointed Date, it shall pay to IRB HMTL by way of compensation, all direct costs suffered or incurred by IRB HMTL as a consequence of the material default or breach within 30 days of receipt of the demand supported by necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages have been expressly specified in the IRB HMTL Concession Agreement.

In the event that a material default or breach of the IRB HMTL Concession Agreement causes a delay in achieving COD or leads to suspension of, or reduction in collection of fee, as the case may be, the NHAI shall, in addition to the payment of compensation, extend the IRB HMTL Concession Period as provided in the IRB HMTL Concession Agreement. In the event that an additional toll way or a competing road, as the case may be, is opened to traffic in breach of the IRB HMTL Concession Agreement, the NHAI shall pay to IRB HMTL, for each day of the breach, compensation as provided in the IRB HMTL Concession Agreement, until the breach is cured. The payment of compensation by the NHAI shall be deemed to cure the breach of the IRB HMTL Concession Agreement so long as the NHAI continues to pay the compensation.

The compensation payable shall be in addition to, and not in substitution for, or derogation of, termination payment, if any.

Effects of Variation in Traffic Growth

Subject to the provisions of the IRB HMTL Concession Agreement, in the event actual average traffic shall have fallen short of the target traffic, then for every 1% (one percent) shortfall as compared to the target traffic, the IRB HMTL Concession Period shall, subject to payment of concession fee in accordance with the IRB HMTL Concession Agreement, be increased by 1.5% (one point five percent) thereof; provided that such increase in IRB HMTL Concession Period shall not in any case exceed 20% (twenty percent) of the IRB HMTL Concession Period.

Subject to the provisions of the IRB HMTL Concession Agreement, in the event actual average traffic shall have exceeded the target traffic, then for every 1% (one percent) excess as compared to the target traffic, the IRB HMTL Concession Period shall be reduced by 0.75% (zero point seven five percent) thereof; provided that such reduction in IRB HMTL Concession Period shall not in any case exceed 10% (ten percent) thereof.

Provided further that in lieu of a reduction in IRB HMTL Concession Period under the IRB HMTL Concession Agreement, IRB HMTL may elect to pay, in addition to the concession fee that would be due and payable if the IRB HMTL Concession Period were not reduced hereunder, a further premium equal to 25% (twenty five percent) of the realizable fee, and upon notice given to this effect by IRB HMTL no later than two years prior to the IRB HMTL Termination Date contemplated by the IRB HMTL Concession Agreement, NHAI shall waive the reduction in IRB HMTL Concession Period hereunder forthwith.

Notwithstanding anything to the contrary contained in IRB HMTL Concession Agreement, if the average daily traffic of PCUs in any accounting year shall exceed the designed capacity of the IRB HMTL Project Highway, the NHAI at its option may cause preparation of detailed project report which will assess the cost that may have to be incurred for augmenting the capacity of the IRB HMTL Project Highway so that its capacity is sufficiently increased for carrying the then current traffic in accordance with the corresponding provisions of the Indian Roads Congress publication no. IRC -64, 1990 or any substitute thereof. The IRB HMTL Concession Period, may be extended so that it yields for IRB HMTL a post-tax return on equity of 16% per annum. This assessment will be made at an assumed debt to equity ratio of 70:30. The extension of the IRB HMTL Concession Period shall be however limited to five years. The NHAI may thereafter, at their sole option, issue a notice to IRB HMTL, to undertake within six months of such notice, the augmentation so determined by the NHAI. The refusal, non-acceptance, or failure by IRB HMTL to undertake such augmentation on the due date so intimated by the NHAI, will be considered an indirect political event and the NHAI may at its discretion terminate this IRB HMTL Concession Agreement by issuing a termination notice and making a termination payment in accordance with the provisions of the IRB HMTL Concession Agreement without the NHAI being liable to issue any further notice under it.

Termination of the IRB HMTL Concession Agreement

Termination by the NHAI

Save as otherwise provided in the IRB HMTL Concession Agreement, in the event that any of the defaults specified below shall have occurred, and IRB HMTL fails to cure the default within the cure period, or where no cure period is specified, then within a cure period of 60 days, IRB HMTL shall be deemed to be in default of the IRB HMTL Concession Agreement ("**IRB HMTL Default**"), unless the default has occurred solely as a result of any breach of the IRB HMTL Concession Agreement by the NHAI or due to force majeure. The defaults referred to herein shall include:

a) the performance security has been encashed and appropriated in accordance with the IRB HMTL Concession Agreement and IRB HMTL fails to replenish or provide fresh performance security within a cure period of 30 days;

b) subsequent to the replenishment or furnishing of fresh performance security in accordance with the IRB HMTL Concession Agreement, IRB HMTL fails to cure, within a cure period of 90 days, the IRB HMTL Default for which whole or part of the performance security was appropriated;

c) IRB HMTL does not achieve the latest outstanding project milestone due in accordance with the IRB HMTL Concession Agreement and continues to be in default for 90 days;

d) IRB HMTL abandons or manifests intention to abandon the construction or operation of the IRB HMTL Project Highway without the prior written consent of the NHAI;

e) project completion date does not occur within the period specified in the IRB HMTL Concession Agreement;

f) the punch list items have not been completed within the period set forth in the IRB HMTL Concession Agreement;

g) IRB HMTL is in breach of the maintenance requirements or the safety requirements as the case may be;

h) IRB HMTL has failed to make any payment to the NHAI within the period specified in the IRB HMTL Concession Agreement;

i) an escrow default has occurred and IRB HMTL fails to cure the default within a cure period of 15 days;

j) upon occurrence of a financial default, the lenders' representative has, by notice, required the NHAI to undertake suspension or termination, as the case may be, in accordance with the Substitution Agreement and IRB HMTL fails to cure the default within the cure period specified hereinabove;

k) a breach of the project agreements by IRB HMTL has caused a material adverse effect;

l) IRB HMTL creates an encumbrance in breach of the IRB HMTL Concession Agreement;

m) IRB HMTL repudiates the IRB HMTL Concession Agreement or otherwise takes any action or evidences or conveys an intention not to be bound by the IRB HMTL Concession Agreement;

n) a change in ownership has occurred in breach of the IRB HMTL Concession Agreement;

o) there is a transfer, pursuant to law either of (i) the rights and/or obligations of IRB HMTL under any of the project agreements, or of (ii) all or part of the assets or undertaking of IRB HMTL, and such transfer causes a material adverse effect;

p) an execution levied on any of the assets of IRB HMTL has caused a material adverse effect;

q) IRB HMTL is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for IRB HMTL or for the whole or material part of its assets that has a material bearing on the IRB HMTL Project;

r) IRB HMTL has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the NHAI, a material adverse effect;

s) a resolution for winding up of IRB HMTL is passed, or any petition for winding up of IRB HMTL is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 days of the date thereof, or IRB HMTL is ordered to be wound up by Court except for the purpose of amalgamation or reconstruction, provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of IRB HMTL are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of IRB HMTL under the IRB HMTL Concession Agreement and the project agreements; provided that:

    i) the amalgamated or reconstructed entity has the capability and operating experience necessary for the performance of its obligations under the IRB HMTL Concession Agreement and the project agreements;

    ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under the IRB HMTL Concession Agreement and the project agreements and has a creditworthiness at least as good as that of IRB HMTL as at the IRB HMTL Appointed Date; and

    iii) each of the project agreements remains in full force and effect;

t) any representation or warranty of IRB HMTL which is, as of the date hereof, found to be materially false, incorrect or misleading or IRB HMTL is at any time hereafter found to be in breach thereof;

u) IRB HMTL submits to the NHAI any statement, notice or other document, in written or electronic form, which has a material effect on the NHAI's rights, obligations or interests and which is false in material particulars;

v) IRB HMTL has failed to fulfil any obligation, for which failure termination has been specified in the IRB HMTL Concession Agreement; or

w) IRB HMTL commits a default in complying with any other provision of the IRB HMTL Concession Agreement if such default causes a material adverse effect on the NHAI.

Without prejudice to any other rights or remedies which the NHAI may have under the IRB HMTL Concession Agreement, upon the occurrence of an IRB HMTL Default, the NHAI shall be entitled to terminate the IRB HMTL Concession Agreement by issuing a termination notice to IRB HMTL. Before issuing the termination notice, the NHAI shall, by notice, inform IRB HMTL of its intention to issue a termination notice and grant 15 days to IRB HMTL to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice subject to the provisions of the IRB HMTL Concession Agreement.

If there are senior lenders, the NHAI shall send a copy of its notice of intention to issue a termination notice to inform the lenders' representative and grant 30 days to the lenders' representative for making a representation on behalf of the senior lenders stating the intention to substitute IRB HMTL in accordance with the Substitution Agreement. If the NHAI receives a representation on behalf of the senior lenders, it shall, in its discretion, either withhold termination for a period not exceeding 180 days from the date of the representation, or exercise its right of suspension, as the case may be, to enable the lenders' representative to exercise the senior lenders' right of substitution in accordance with the Substitution Agreement. The lenders' representative may, instead of exercising the senior lenders' right of substitution, procure that the default specified in the notice is cured within the aforesaid 180 days, and upon the curing, the NHAI shall withdraw its notice and restore the rights of IRB HMTL. On a written request from the lenders' representative and IRB HMTL, the NHAI shall extend the period of 180 days by a further period not exceeding 90 days as it may deem appropriate.

Termination by IRB HMTL

In the event that any of the defaults specified below shall have occurred, and the NHAI fails to cure the default within a cure period of 90 days or such longer period as provided in the IRB HMTL Concession Agreement, the NHAI shall be deemed to be in default of the IRB HMTL Concession Agreement ("**NHAI Default**"), unless the default has occurred as a result of a breach of the IRB HMTL Concession Agreement by IRB HMTL, or due to force majeure. The default referred to herein shall include:

a) the NHAI commits a material default in complying with any of the provisions of the IRB HMTL Concession Agreement and such default has a material adverse effect on IRB HMTL;

b) the NHAI has failed to make any payment to IRB HMTL within the period specified in the IRB HMTL Concession Agreement;

c) the NHAI repudiates the IRB HMTL Concession Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by the IRB HMTL Concession Agreement; or

d) the State of Uttar Pradesh commits a material default in complying with the provisions of the state support agreement if such default has a material adverse effect on IRB HMTL and the breach continues for a period of 90 days from the date of notice given in this behalf by IRB HMTL to the NHAI.

Without prejudice to any other rights or remedies which IRB HMTL may have under the IRB HMTL Concession Agreement, upon the occurrence of an NHAI Default, IRB HMTL shall be entitled to terminate the IRB HMTL Concession Agreement by issuing a termination notice to the NHAI. Before issuing the termination notice, IRB HMTL shall, by notice, inform the NHAI of its intention to issue a termination notice and grant 30 days to the NHAI to make a representation, and may, after the expiry of the 30 days, whether or not it is in receipt of such representation, issue the termination notice.

Termination Payment

Upon termination on account of an IRB HMTL Default during the operation period, the NHAI shall pay to IRB HMTL, by way of termination payment, an amount equal to 90% of the IRB HMTL Debt Due less insurance cover. If any insurance claims forming part of the insurance cover are not admitted and paid, then 80% of such unpaid claims shall be included in the computation of IRB HMTL Debt Due.

Upon termination on account of an NHAI Default, the NHAI shall pay to IRB HMTL, by way of termination payment, an amount equal to:

a) IRB HMTL Debt Due; and
b) 150% of the adjusted equity.

The termination payment shall not be less than an amount equal to the product of six and the average monthly fee actually realized 12 months prior to the transfer date.

Termination payment shall become due and payable to IRB HMTL within 30 days of a demand being made by IRB HMTL to the NHAI with the necessary particulars, and in the event of any delay, the NHAI shall pay interest at a rate equal to 3% above the bank rate on the amount of termination payment remaining unpaid. The delay shall not exceed 90 days. The termination payment under the IRB HMTL Concession Agreement shall constitute a full and final settlement of all claims of IRB HMTL on account of termination of the IRB HMTL Concession Agreement for any reason whatsoever and IRB HMTL shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

Defects Liability after Termination

IRB HMTL shall be responsible for all defects and deficiencies in the IRB HMTL Project Highway for a period of 120 days after termination. IRB HMTL shall have the obligation to repair or rectify, at its own cost, all defects and deficiencies in the IRB HMTL Project Highway as observed by the independent engineer. The repair or rectification of the defect or deficiency shall be done within a period of 15 days from the date of notice issued by the NHAI in this behalf. A sum as specified in the IRB HMTL Concession Agreement shall be retained in the Escrow Account for a period of 120 days after termination for meeting the liabilities, if any, arising out of, or in connection with this provision.

4. Concession Agreement between IRB WTL and the NHAI dated March 25, 2013

IRB WTL has entered into a concession agreement for four-laning of Goa/Karnataka Border to Kundapur section from km 93.700 to km 283.300 of NH-17 in Karnataka on design, build, finance, operate and transfer ("**DBFOT**") basis (the "**IRB WTL Concession Agreement**"), for a period of 28 years, from March 3, 2014 ("**IRB WTL Appointed Date**") or until such date on which the IRB WTL Concession Agreement is terminated by a termination notice ("**IRB WTL Termination Date**", and the period between the IRB WTL Appointed Date and the IRB WTL Termination Date, the "**IRB WTL Concession Period**").

Certain Definitions

"**IRB WTL Debt Due**" shall mean the aggregate of the following sums expressed in Indian Rupees outstanding on the transfer date:

a) the principal amount of the debt provided by the senior lenders under the financing agreements for financing the total project cost (the "**Principa**l") but excluding any part of the Principal that had fallen due for repayment two years prior to the transfer date;

b) all accrued interest, financing fees and charges payable under the financing agreements on, or in respect of, the debt referred to in the sub-clause above until the transfer date but excluding (i) any interest, fees or charges that had fallen due one year prior to the transfer date, (ii) any penal interest or charges payable under the financing agreements to any senior lender, and (iii) any pre-payment charges in relation to accelerated repayment of debt except where such charges have arisen due to an NHAI Default (as defined below); and

c) any subordinated debt which is included in the financing package and disbursed by lenders for financing the total project cost;

If all, or any part of the IRB WTL Debt Due is convertible into equity at the option of the senior lenders and/or IRB WTL, it shall, for the purposes of the IRB WTL Concession Agreement, be deemed to be IRB WTL Debt Due even after the conversion and the Principal thereof shall be dealt with as if such conversion had not been undertaken;

"**IRB WTL Debt Service**" shall mean the sum of all payments on account of Principal, interest, financing fees and charges due and payable in an accounting year to the senior lenders under the financing agreements;

"**IRB WTL Project Assets**" shall mean all physical and other assets relating to and forming part of the site including (a) rights over the site in the form of licence, right of way or otherwise; (b) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road overbridges, drainage works, traffic signals, sign boards, kilometre-stones, toll plazas, electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; (c) project facilities situated on the site; (d) all rights of IRB WTL under the project agreements; (e) financial assets, such as receivables, security deposits etc.; (f) insurance proceeds; and (g) applicable permits and authorizations relating to or in respect of the IRB WTL Project Highway (as defined below), but does not include additional facilities;

"**IRB WTL Project Highway**" shall mean the site comprising the existing road comprising NH-17 from km 93.700 to km 283.300 and all IRB WTL Project Assets, and its subsequent development and augmentation in accordance with the IRB WTL Concession Agreement;

"**IRB WTL Project**" shall mean the construction, operation, and maintenance of the IRB WTL Project Highway in accordance with the provisions of the IRB WTL Concession Agreement, and includes all works, services, and equipment relating to and in respect of the scope of the project; and

"**Grant**" shall mean the cash support provided to IRB WTL by the NHAI which is equal to the sum set forth in the bid.

Grant of Concession

Subject to, and in accordance with the provisions set out in the IRB WTL Concession Agreement, the applicable laws and the applicable permits, the NHAI has granted to IRB WTL, and IRB WTL has accepted the concession, including the exclusive right, license, and authority to construct, operate and maintain the IRB WTL Project for a period of 28 years from the IRB WTL Appointed Date.

Subject to, and in accordance with the provisions of the IRB WTL Concession Agreement, the concession granted shall oblige or entitle, as the case may be, IRB WTL to:

a) right of way, access and license to the site for the purpose of, and to the extent conferred by the provisions of the IRB WTL Concession Agreement;

b) finance and construct the IRB WTL Project Highway;

c) manage, operate, and maintain the IRB WTL Project Highway and regulate the use thereof by third parties;

d) demand, collect, and appropriate fee from vehicles and users liable for payment of fee for using the IRB WTL Project Highway or any part thereof and refuse entry of any vehicle if the fee due is not paid;

e) perform and fulfil all of IRB WTL's obligations under and in accordance with the IRB WTL Concession Agreement;

f) bear and pay all costs, expenses, and charges in connection with or incidental to the performance of the obligations of IRB WTL under the IRB WTL Concession Agreement; and

g) neither assign, transfer or sublet, or create any lien or encumbrance on the IRB WTL Concession Agreement, or the concession granted, or on the whole or any part of the IRB WTL Project Highway, nor transfer, lease, or part possession thereof, save and except as expressly permitted by the IRB WTL Concession Agreement or the agreement for the substitution of IRB WTL entered into by IRB WTL, the NHAI, and the lenders' representative on behalf of the senior lenders (the "**Substitution Agreement**").

Fees

On and from the commercial operation date ("**COD**") till the transfer date, IRB WTL shall have the sole and exclusive right to demand, collect, and appropriate fee from the users subject to, and in accordance with the IRB WTL Concession Agreement and the applicable rules and regulations, provided that for ease of payment and collection, such fee shall be rounded off to the nearest five rupees in accordance with the applicable fee rules, as updated from time to time. In accordance with the IRB WTL Concession Agreement, IRB WTL shall not collect any fees in relation to exempted vehicles.

IRB WTL shall not collect any fee from a local user for non-commercial use of the IRB WTL Project Highway, and shall issue a pass in respect thereof for commuting on a section of the IRB WTL Project Highway as specified in the pass and for crossing the toll plaza specified therein. For carrying out these provisions, IRB WTL shall formulate, publish and implement an appropriate scheme, and make such modifications to the scheme as may reasonably be suggested by the NHAI or by local users from time to time. For defraying its expenses on issuing of passes and handling of local users, IRB WTL shall be entitled to charge a monthly fee of ₹150, with reference to the base year 2007-08, to be revised annually in accordance with the fee rules to reflect the variation in WPI, and then rounded off to the nearest five rupees; provided that no passes will be required or fee collected from a vehicle that uses part of the IRB WTL Project Highway and does not cross a toll plaza.

Grant

The NHAI has agreed to pay to IRB WTL cash support by way of an outright grant equal to ₹5,362.2 million as set out in the bid. The grant shall be disbursed to IRB WTL by way of equity support. It shall be credited to the Escrow Account (as defined below) and shall be applied by IRB WTL for meeting the total project cost. The equity support shall not exceed the sum specified, but shall in no case be greater than twice the equity, and shall be further restricted to a sum not exceeding 40% of the total project cost.

The equity support shall be due and payable to IRB WTL after it has expended the equity, and shall be disbursed proportionately along with the loan funds thereafter remaining to be disbursed by the senior lenders under the financing agreements. The NHAI shall disburse each tranche of the equity support as and when due, but no later than 15 days of receiving a request from IRB WTL along with necessary particulars. In the event of the occurrence of an IRB WTL Default (as defined below), disbursement of equity support shall be suspended till the IRB WTL Default has been cured.

Concession Fee

In consideration of the grant of concession, IRB WTL shall pay to the NHAI by way of concession fee a sum of ₹1.00 per annum.

The concession fee payable under the provisions of the IRB WTL Concession Agreement shall be due and payable in monthly instalments within seven days of the close of each month.

Escrow Account

IRB WTL was required to, prior to the IRB WTL Appointed Date, open and establish an escrow account (the "**Escrow Account**") with a bank (the "**Escrow Bank**") in accordance with the IRB WTL Concession Agreement read with the escrow agreement entered into amongst IRB WTL, the NHAI, the Escrow Bank and the senior lenders through the lenders' representative (the "**Escrow Agreement**").

IRB WTL shall deposit, or cause to be deposited the following inflows and receipts into the Escrow Account:

a) all funds constituting the financial package;

b) all fee and any other revenues from or in respect of the IRB WTL Project Highway, including the proceeds of any deposits, capital receipts or insurance claims; and

c) all payments by the NHAI, after deducting any outstanding concession fee.

The senior lenders may make direct disbursements to the EPC contractor in accordance with the express provisions contained in this behalf in the financing agreements.

Withdrawals during Concession Period

IRB WTL was required to, at the time of opening the Escrow Account, give irrevocable instructions, by way of the Escrow Agreement, to the Escrow Bank instructing, inter alia, that deposits in the Escrow Account shall be appropriated in the following order every month, or at shorter intervals as necessary, and if not due in a month, then appropriated proportionately in such month and retained in the Escrow Account and paid out therefrom in a month when due:

a) all taxes due and payable by IRB WTL for and in respect of the IRB WTL Project Highway;

b) all payments relating to construction of the IRB WTL Project Highway, subject to and in accordance with the conditions, if any, set forth in the financing agreements;

c) Operation and Management ("**O&M**") expenses, subject to the ceiling, if any, set forth in the financing agreements;

d) O&M expenses and other costs and expenses incurred by the NHAI in accordance with the provisions of the IRB WTL Concession Agreement, and certified by the NHAI as due and payable to it;

e) concession fee due and payable to the NHAI;

f) monthly proportionate provision of IRB WTL Debt Service due in an accounting year;

g) all payments and damages certified by the NHAI as due and payable to it by IRB WTL, including repayment of revenue shortfall loan.

h) monthly proportionate provision of IRB WTL Debt Service payments due in an accounting year in respect of subordinated debt;

i) any reserve requirements set forth in the financing agreements; and

j) balance, if any, in accordance with the instructions of IRB WTL.

IRB WTL shall not, in any manner, modify the order of payment specified except with prior written approval from the NHAI.

Withdrawals upon Termination

Notwithstanding anything to the contrary contained in the IRB WTL Concession Agreement, all amounts standing to the credit of the Escrow Account shall, upon termination, be appropriated in the following order:

a) all taxes due and payable by IRB WTL for and in respect of the IRB WTL Project Highway;

b) 90% of the IRB WTL Debt Due excluding the subordinated debt;

c) outstanding concession fee;

d) all payments and damages certified by the NHAI as due and payable to it by IRB WTL, including the repayment of the revenue shortfall loan. retention and payments relating to the liability for defects and deficiencies set forth in the IRB WTL Concession Agreement;

e) outstanding IRB WTL Debt Service including balance of IRB WTL Debt Due;

f) outstanding subordinated debt;

g) incurred or accrued O&M expenses;

h) any other payments required to be made under the IRB WTL Concession Agreement; and

i) balance, if any, in accordance with the instructions of IRB WTL.

No appropriations shall be made until a vesting certificate has been issued by the NHAI.

Change of Scope

The NHAI may, notwithstanding anything to the contrary contained in the IRB WTL Concession Agreement, require the provision of additional works and services which are not included in the scope of the project as contemplated by the IRB WTL Concession Agreement. Any such change of scope shall be made in accordance with the provisions of the IRB WTL Concession Agreement and the costs thereof shall be expended by IRB WTL and reimbursed by the NHAI.

If IRB WTL determines at any time that a change in scope is necessary for providing safer and improved services to the users, it shall, by notice in writing, require the NHAI to consider such change of scope. The NHAI shall, within 15 days of receipt of such notice, either accept the change of scope with modifications, if any, and initiate proceedings thereof in accordance with the provisions of the IRB WTL Concession Agreement, or inform IRB WTL in writing of its reasons for not accepting such change of scope.

Compensation for Breach of Agreement

In the event of IRB WTL being in material default or breach of the IRB WTL Concession Agreement, it shall pay to the NHAI by way of compensation, all direct costs suffered or incurred by the NHAI as a consequence of the material default or breach, within 30 days of the receipt of the demand supported by the necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages are expressly specified and payable under the IRB WTL Concession Agreement.

In the event of the NHAI being in material default of the IRB WTL Concession Agreement at any time after the IRB WTL Appointed Date, it shall pay to IRB WTL by way of compensation, all direct costs suffered or incurred by IRB WTL as a consequence of the material default or breach within 30 days of receipt of the demand supported by necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages have been expressly specified in the IRB WTL Concession Agreement.

In the event that a material default or breach of the IRB WTL Concession Agreement causes a delay in achieving COD or leads to suspension of, or reduction in collection of fee, as the case may be, the NHAI shall, in addition to the payment of compensation, extend the IRB WTL Concession Period as provided in the IRB WTL Concession Agreement. In the event that an additional toll way or a competing road, as the case may be, is opened to traffic in breach of the IRB WTL Concession Agreement, the NHAI shall pay to IRB WTL, for each day of the breach, compensation as provided in the IRB WTL Concession Agreement, until the breach is cured. The payment of compensation by the NHAI shall be deemed to cure the breach of the IRB WTL Concession Agreement so long as the NHAI continues to pay the compensation.

The compensation payable shall be in addition to, and not in substitution for, or derogation of, termination payment, if any.

Effects of Variation in Traffic Growth

Subject to the provisions of the IRB WTL Concession Agreement, in the event actual average traffic shall have fallen short of the target traffic, then for every 1% (one percent) shortfall as compared to the target traffic, the IRB WTL Concession Period shall, subject to payment of concession fee in accordance with the IRB WTL Concession Agreement, be increased by 1.5% (one point five percent) thereof; provided that such increase in IRB WTL Concession Period shall not in any case exceed 20% (twenty percent) of the IRB WTL Concession Period.

Subject to the provisions of the IRB WTL Concession Agreement, in the event actual average traffic shall have exceeded the target traffic, then for every 1% (one percent) excess as compared to the target traffic, the IRB WTL Concession Period shall be reduced by 0.75% (zero point seven five percent) thereof; provided that such reduction in IRB WTL Concession Period shall not in any case exceed 10% (ten percent) thereof.

Provided further that in lieu of a reduction in IRB WTL Concession Period under the IRB WTL Concession Agreement, IRB WTL may elect to pay, in addition to the concession fee that would be due and payable if the IRB WTL Concession Period were not reduced hereunder, a further premium equal to 25% (twenty five percent) of the realizable fee, and upon notice given to this effect by IRB WTL no later than two years prior to the IRB WTL Termination Date contemplated by the IRB WTL Concession Agreement, NHAI shall waive the reduction in IRB WTL Concession Period hereunder forthwith.

Notwithstanding anything to the contrary contained in IRB WTL Concession Agreement, if the average daily traffic of PCUs in any accounting year shall exceed the designed capacity of the IRB WTL Project Highway, the NHAI at its option may cause preparation of detailed project report which will assess the cost that may have to be incurred for augmenting the capacity of the IRB WTL Project Highway so that its capacity is sufficiently increased for carrying the then current traffic in accordance with the corresponding provisions of the Indian Roads Congress publication no. IRC -64, 1990 or any substitute thereof. The IRB WTL Concession Period, may be extended so that it yields for IRB WTL a post-tax return on equity of 16% per annum. This assessment will be made at an assumed debt to equity ratio of 70:30. The extension of the IRB WTL Concession Period shall be however limited to five years. The NHAI may thereafter, at their sole option, issue a notice to IRB WTL, to undertake within six months of such notice, the augmentation so determined by the NHAI. The refusal, non-acceptance, or failure by IRB WTL to undertake such augmentation on the due date so intimated by the NHAI, will be considered an indirect political event and the NHAI may at its discretion terminate this IRB WTL Concession Agreement by issuing a termination notice and making a termination payment in accordance with the provisions of the IRB WTL Concession Agreement without the NHAI being liable to issue any further notice under it.

Termination of the IRB WTL Concession Agreement

Termination by the NHAI

Save as otherwise provided in the IRB WTL Concession Agreement, in the event that any of the defaults specified below shall have occurred, and IRB WTL fails to cure the default within the cure period, or where no cure period is specified, then within a cure period of 60 days, IRB WTL shall be deemed to be in default of the IRB WTL Concession Agreement ("**IRB WTL Default**"), unless the default has occurred solely as a result of any breach of the IRB WTL Concession Agreement by the NHAI or due to force majeure. The defaults referred to herein shall include:

a) the performance security has been encashed and appropriated in accordance with the IRB WTL Concession Agreement and IRB WTL fails to replenish or provide fresh performance security within a cure period of 30 days;

b) subsequent to the replenishment or furnishing of fresh performance security in accordance with the IRB WTL Concession Agreement, IRB WTL fails to cure, within a cure period of 90 days, the IRB WTL Default for which whole or part of the performance security was appropriated;

c) IRB WTL does not achieve the latest outstanding project milestone due in accordance with the IRB WTL Concession Agreement and continues to be in default for 120 days;

d) IRB WTL abandons or manifests intention to abandon the construction or operation of the IRB WTL Project Highway without the prior written consent of the NHAI;

e) project completion date does not occur within the period specified in the IRB WTL Concession Agreement;

f) the punch list items have not been completed within the period set forth in the IRB WTL Concession Agreement;

g) IRB WTL is in breach of the maintenance requirements or the safety requirements as the case may be;

h) IRB WTL has failed to make any payment to the NHAI within the period specified in the IRB WTL Concession Agreement;

i) an escrow default has occurred and IRB WTL fails to cure the default within a cure period of 15 days;

j) upon occurrence of a financial default, the lenders' representative has, by notice, required the NHAI to undertake suspension or termination, as the case may be, in accordance with the Substitution Agreement and IRB WTL fails to cure the default within the cure period specified hereinabove;

k) a breach of the project agreements by IRB WTL has caused a material adverse effect;

l) IRB WTL creates an encumbrance in breach of the IRB WTL Concession Agreement;

m) IRB WTL repudiates the IRB WTL Concession Agreement or otherwise takes any action or evidences or conveys an intention not to be bound by the IRB WTL Concession Agreement;

n) a change in ownership has occurred in breach of the IRB WTL Concession Agreement;

o) there is a transfer, pursuant to law either of (i) the rights and/or obligations of IRB WTL under any of the project agreements, or of (ii) all or part of the assets or undertaking of IRB WTL, and such transfer causes a material adverse effect;

p) an execution levied on any of the assets of IRB WTL has caused a material adverse effect;

q) IRB WTL is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for IRB WTL or for the whole or material part of its assets that has a material bearing on the IRB WTL Project;

r) IRB WTL has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the NHAI, a material adverse effect;

s) a resolution for winding up of IRB WTL is passed, or any petition for winding up of IRB WTL is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 days of the date thereof, or IRB WTL is ordered to be wound up by Court except for the purpose of amalgamation or reconstruction, provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of IRB WTL are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of IRB WTL under the IRB WTL Concession Agreement and the project agreements; provided that:

    i) the amalgamated or reconstructed entity has the capability and operating experience necessary for the performance of its obligations under the IRB WTL Concession Agreement and the project agreements;

    ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under the IRB WTL Concession Agreement and the project agreements and has a creditworthiness at least as good as that of IRB WTL as at the IRB WTL Appointed Date; and

    iii) each of the project agreements remains in full force and effect;

t) any representation or warranty of IRB WTL which is, as of the date hereof, found to be materially false, incorrect or misleading or IRB WTL is at any time hereafter found to be in breach thereof;

u) IRB WTL submits to the NHAI any statement, notice or other document, in written or electronic form, which has a material effect on the NHAI's rights, obligations or interests and which is false in material particulars;

v) IRB WTL has failed to fulfil any obligation, for which failure termination has been specified in the IRB WTL Concession Agreement; or

w) IRB WTL commits a default in complying with any other provision of the IRB WTL Concession Agreement if such default causes a material adverse effect on the NHAI.

Without prejudice to any other rights or remedies which the NHAI may have under the IRB WTL Concession Agreement, upon the occurrence of an IRB WTL Default, the NHAI shall be entitled to terminate the IRB WTL Concession Agreement by issuing a termination notice to IRB WTL. Before issuing the termination notice, the NHAI shall, by notice, inform IRB WTL of its intention to issue a termination notice and grant 15 days to IRB

WTL to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice subject to the provisions of the IRB WTL Concession Agreement.

If there are senior lenders, the NHAI shall send a copy of its notice of intention to issue a termination notice to inform the lenders' representative and grant 15 days to the lenders' representative for making a representation on behalf of the senior lenders stating the intention to substitute IRB WTL in accordance with the Substitution Agreement. If the NHAI receives a representation on behalf of the senior lenders, it shall, in its discretion, either withhold termination for a period not exceeding 180 days from the date of the representation, or exercise its right of suspension, as the case may be, to enable the lenders' representative to exercise the senior lenders' right of substitution in accordance with the Substitution Agreement. The lenders' representative may, instead of exercising the senior lenders' right of substitution, procure that the default specified in the notice is cured within the aforesaid 180 days, and upon the curing, the NHAI shall withdraw its notice and restore the rights of IRB WTL. On a written request from the lenders' representative and IRB WTL, the NHAI shall extend the period of 180 days by a further period not exceeding 90 days as it may deem appropriate.

Termination by IRB WTL

In the event that any of the defaults specified below shall have occurred, and the NHAI fails to cure the default within a cure period of 90 days or such longer period as provided in the IRB WTL Concession Agreement, the NHAI shall be deemed to be in default of the IRB WTL Concession Agreement ("**NHAI Default**"), unless the default has occurred as a result of a breach of the IRB WTL Concession Agreement by IRB WTL, or due to force majeure. The default referred to herein shall include:

a) the NHAI commits a material default in complying with any of the provisions of the IRB WTL Concession Agreement and such default has a material adverse effect on IRB WTL;

b) the NHAI has failed to make any payment to IRB WTL within the period specified in the IRB WTL Concession Agreement;

c) the NHAI repudiates the IRB WTL Concession Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by the IRB WTL Concession Agreement; or

d) the State of Karnataka commits a material default in complying with the provisions of the state support agreement if such default has a material adverse effect on IRB WTL and the breach continues for a period of 90 days from the date of notice given in this behalf by IRB WTL to the NHAI.

Without prejudice to any other rights or remedies which IRB WTL may have under the IRB WTL Concession Agreement, upon the occurrence of an NHAI Default, IRB WTL shall be entitled to terminate the IRB WTL Concession Agreement by issuing a termination notice to the NHAI. Before issuing the termination notice, IRB WTL shall, by notice, inform the NHAI of its intention to issue a termination notice and grant 15 days to the NHAI to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice.

Termination Payment

Upon termination on account of an IRB WTL Default during the operation period, the NHAI shall pay to IRB WTL, by way of termination payment, an amount equal to 90% of the IRB WTL Debt Due less insurance cover. If any insurance claims forming part of the insurance cover are not admitted and paid, then 80% of such unpaid claims shall be included in the computation of IRB WTL Debt Due.

Upon termination on account of an NHAI Default, the NHAI shall pay to IRB WTL, by way of termination payment, an amount equal to:

a) IRB WTL Debt Due; and
b) 150% of the adjusted equity.

Termination payment shall become due and payable to IRB WTL within 15 days of a demand being made by IRB WTL to the NHAI with the necessary particulars, and in the event of any delay, the NHAI shall pay interest at a rate equal to 3% above the bank rate on the amount of termination payment remaining unpaid. The delay shall not exceed 90 days. The termination payment under the IRB WTL Concession Agreement shall constitute a full and final settlement of all claims of IRB WTL on account of termination of the IRB WTL Concession Agreement for any reason whatsoever and IRB WTL, or any shareholder thereof, shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

Defects Liability after Termination

IRB WTL shall be responsible for all defects and deficiencies in the IRB WTL Project Highway for a period of 120 days after termination. IRB WTL shall have the obligation to repair or rectify, at its own cost, all defects and deficiencies in the IRB WTL Project Highway as observed by the independent engineer. The repair or rectification of the defect or deficiency shall be done within a period of 15 days from the date of notice issued by the NHAI in this behalf. A sum as specified in the IRB WTL Concession Agreement shall be retained in the Escrow Account for a period of 120 days after termination for meeting the liabilities, if any, arising out of, or in connection with this provision.

5. Concession Agreement between KGTL and the NHAI dated February 22, 2017

KGTL has entered into a concession agreement for six-laning of Kishangarh to Gulabpura section of NH-79A and NH-79 in Rajasthan with a length of 90.000 km on design, build, finance, operate and transfer ("D**BFOT**") basis (the "**KGTL Concession Agreement**"), for a period of 20 years, from February 21, 2018 ("**KGTL Appointed Date**") or until such date on which the KGTL Concession Agreement is terminated by a termination notice ("**KGTL Termination Date**", and the period between the KGTL Appointed Date and the KGTL Termination Date, the "**KGTL Concession Period**").

Certain Definitions

"**KGTL Debt Due**" shall mean the aggregate of the following sums expressed in Indian Rupees outstanding on the transfer date:

a) the principal amount of the debt provided by the senior lenders under the financing agreements for financing the total project cost (the "**Principa**l") but excluding any part of the Principal that had fallen due for repayment two years prior to the transfer date;

b) all accrued interest, financing fees and charges payable under the financing agreements on, or in respect of, the debt referred to in the sub-clause above until the transfer date but excluding (i) any interest, fees or charges that had fallen due one year prior to the transfer date, (ii) any penal interest or charges payable under the financing agreements to any senior lender, and (iii) any pre-payment charges in relation to accelerated repayment of debt except where such charges have arisen due to an NHAI Default (as defined below); and

c) any subordinated debt which is included in the financing package and disbursed by lenders for financing the total project cost;

If all, or any part of the KGTL Debt Due is convertible into equity at the option of the senior lenders and/or KGTL, it shall, for the purposes of the KGTL Concession Agreement, be deemed to be KGTL Debt Due even after the conversion and the Principal thereof shall be dealt with as if such conversion had not been undertaken;

"**KGTL Debt Service**" shall mean the sum of all payments on account of Principal, interest, financing fees and charges due and payable in an accounting year to the senior lenders under the financing agreements;

"**KGTL Project Assets**" shall mean all physical and other assets relating to and forming part of the site including (a) rights over the site in the form of licence, right of way or otherwise; (b) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road overbridges, drainage works, traffic signals, sign boards, kilometre-stones, toll plazas, electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; (c) project facilities situated on the site; (d) all rights of KGTL under the project agreements; (e) financial assets, such as receivables, security deposits etc.; (f) insurance proceeds; and (g) applicable permits and authorizations relating to or in respect of the KGTL Project Highway (as defined below), but does not include additional facilities;

"**KGTL Project Highway**" shall mean the site comprising the existing road comprising NH-79A and 79 from km 0.000 to km 90.000 and all KGTL Project Assets, and its subsequent development and augmentation in accordance with the KGTL Concession Agreement;

"**KGTL Project**" shall mean the construction, operation, and maintenance of the KGTL Project Highway in accordance with the provisions of the KGTL Concession Agreement, and includes all works, services, and equipment relating to and in respect of the scope of the project;

"**Premium**" shall mean an amount paid to the NHAI by KGTL in the form of an additional concession fee, as set forth in the bid for each year of the KGTL Concession Period.

Grant of Concession

Subject to, and in accordance with the provisions set out in the KGTL Concession Agreement, the applicable laws and the applicable permits, the NHAI has granted to KGTL, and KGTL has accepted the concession, including the exclusive right, license, and authority during the subsistence of the KGTL Concession Agreement, to construct, operate and maintain the KGTL Project for a period of 20 years from the KGTL Appointed Date.

Subject to, and in accordance with the provisions of the KGTL Concession Agreement, the concession granted shall oblige or entitle, as the case may be, KGTL to:

a) right of way, access and license to the site for the purpose of, and to the extent conferred by the provisions of the KGTL Concession Agreement;

b) finance and construct the KGTL Project Highway;

c) manage, operate, and maintain the KGTL Project Highway and regulate the use thereof by third parties;

d) demand, collect, and appropriate fee from vehicles and persons liable for payment of fee for using the KGTL Project Highway or any part thereof and refuse entry of any vehicle if the fee due is not paid;

e) perform and fulfil all of KGTL's obligations under and in accordance with the KGTL Concession Agreement;
f) bear and pay all costs, expenses, and charges in connection with or incidental to the performance of the obligations of KGTL under the KGTL Concession Agreement; and

g) neither assign, transfer or sublet, or create any lien or encumbrance on the KGTL Concession Agreement, or the concession granted, or on the whole or any part of the KGTL Project Highway, nor transfer, lease, or part possession thereof, save and except as expressly permitted by the KGTL Concession Agreement or the agreement for the substitution of KGTL entered into by KGTL, the NHAI, and the lenders' representative on behalf of the senior lenders (the "**Substitution Agreement**").

Fees
On and from the commercial operation date ("**COD**") till the transfer date, KGTL shall have the sole and exclusive right to demand, collect, and appropriate fee from the users subject to, and in accordance with the KGTL Concession Agreement and the applicable rules and regulations, provided that for ease of payment and collection, such fee shall be rounded off to the nearest five rupees in accordance with the applicable fee rules, as updated from time to time. Further, KGTL may determine and collect fee at such lower rates as it may, by public notice to the users, specify in respect of all or any category of users or vehicles. In accordance with the KGTL Concession Agreement, KGTL shall not collect any fees in relation to exempted vehicles.

KGTL shall not collect any fee from a local user for non-commercial use of the KGTL Project Highway, and shall issue a pass in respect thereof for commuting on a section of the KGTL Project Highway as specified in the pass and for crossing the toll plaza specified therein. For carrying out these provisions, KGTL shall formulate, publish and implement an appropriate scheme, and make such modifications to the scheme as may reasonably be suggested by the NHAI or by local users from time to time. For defraying its expenses on issuing of passes and handling of local users, KGTL shall be entitled to charge a monthly fee of ₹150, with reference to the base year 2007-08, to be revised annually in accordance with the fee rules to reflect the variation in WPI, and then rounded off to the nearest five rupees; provided that no passes will be required or fee collected from a vehicle that uses part of the KGTL Project Highway and does not cross a toll plaza.

Concession Fee

In consideration of the grant of concession, KGTL shall pay to the NHAI by way of concession fee a sum of ₹1 per annum.

Additionally, KGTL was required to pay to the NHAI, immediately after the third anniversary year of the COD, a Premium in the form of an additional concession fee equal to ₹1,863 million as due to the NHAI during that year, due and payable for the period remaining in that year; and for each subsequent year till the ninth anniversary of the COD, the Premium shall be determined by increasing the amount of Premium in the respective year by an additional 3% as compared to the immediately preceding year and for each subsequent year of the KGTL Concession Period, the Premium shall be determined by increasing the amount of Premium in the respective year by an additional 8% as compared to the immediately preceding year. The Premium is deemed to be a part of the concession fee.

The concession fee payable under the provisions of the KGTL Concession Agreement shall be due and payable in monthly instalments within seven days of the close of each month.

Escrow Account

KGTL was required to, prior to the KGTL Appointed Date, open and establish an escrow account (the "**Escrow Account**") with a bank (the "**Escrow Bank**") in accordance with the KGTL Concession Agreement read with the escrow agreement entered into amongst KGTL, the NHAI, the Escrow Bank and the senior lenders through the lenders' representative (the "**Escrow Agreement**").

KGTL shall deposit, or cause to be deposited the following inflows and receipts into the Escrow Account:

a) all funds constituting the financial package;
b) all fee and any other revenues from or in respect of the KGTL Project Highway, including the proceeds of any deposits, capital receipts or insurance claims; and
c) all payments by the NHAI, after deducting any outstanding concession fee.

The senior lenders may make direct disbursements to the EPC contractor in accordance with the express provisions contained in this behalf in the financing agreements.

Withdrawals during Concession Period

KGTL was required to, at the time of opening the Escrow Account, give irrevocable instructions, by way of the Escrow Agreement, to the Escrow Bank instructing, inter alia, that deposits in the Escrow Account shall be appropriated in the following order every month, or at shorter intervals as necessary, and if not due in a month, then appropriated proportionately in such month and retained in the Escrow Account and paid out therefrom in a month when due:

a) all taxes due and payable by KGTL for and in respect of the KGTL Project Highway;

b) all payments relating to construction of the KGTL Project Highway, subject to and in accordance with the conditions, if any, set forth in the financing agreements;

c) Operation and Management ("**O&M**") expenses, subject to the ceiling, if any, set forth in the financing agreements;

d) O&M expenses and other costs and expenses incurred by the NHAI in accordance with the provisions of the KGTL Concession Agreement, and certified by the NHAI as due and payable to it;

e) concession fee due and payable to the NHAI;

f) monthly proportionate provision of KGTL Debt Service due in an accounting year;

g) premium due and payable to the NHAI;

h) all payments and damages certified by the NHAI as due and payable to it by KGTL, including repayment of revenue shortfall loan. KGTL has agreed to give irrevocable instructions to the Escrow Bank to make payments from the Escrow Account in accordance with the instructions of the NHAI under the KGTL Concession Agreement and debit the payment to O&M expenses;

i) monthly proportionate provision of KGTL Debt Service payments due in an accounting year in respect of subordinated debt;

j) any reserve requirements set forth in the financing agreements; and

k) balance, if any, in accordance with the instructions of KGTL.

KGTL shall not, in any manner, modify the order of payment specified except with prior written approval from the NHAI.

Withdrawals upon Termination

Notwithstanding anything to the contrary contained in the KGTL Concession Agreement, all amounts standing to the credit of the Escrow Account shall, upon termination, be appropriated in the following order:

a) all taxes due and payable by KGTL for and in respect of the KGTL Project Highway;

b) 90% of the KGTL Debt Due excluding the subordinated debt;
c) outstanding concession fee;

d) all payments and damages certified by the NHAI as due and payable to it by KGTL, including the repayment of the revenue shortfall loan. KGTL has agreed to give irrevocable instruction to the Escrow Bank to make payment from the Escrow Account in accordance with the instructions of the NHAI under the KGTL Concession Agreement and debit the payment to O&M expenses.

e) retention and payments relating to the liability for defects and deficiencies set forth in the KGTL Concession Agreement;

f) outstanding KGTL Debt Service including balance of KGTL Debt Due;

g) outstanding subordinated debt;

h) incurred or accrued O&M expenses;

i) any other payments required to be made under the KGTL Concession Agreement; and

j) balance, if any, in accordance with the instructions of KGTL.

No appropriations shall be made until a vesting certificate has been issued by the NHAI.

Change of Scope

The NHAI may, notwithstanding anything to the contrary contained in the KGTL Concession Agreement, require the provision of additional works and services which are not included in the scope of the project as contemplated by the KGTL Concession Agreement. Any such change of scope shall be made in accordance with the provisions of the KGTL Concession Agreement and the costs thereof shall be expended by KGTL and reimbursed by the NHAI.

If KGTL determines at any time that a change in scope is necessary for providing safer and improved services to the users, it shall, by notice in writing, require the NHAI to consider such change of scope. The NHAI shall, within 60 days of receipt of such notice, either accept the change of scope with modifications, if any, and initiate proceedings thereof in accordance with the provisions of the KGTL Concession Agreement, or inform KGTL in writing of its reasons for not accepting such change of scope.

Compensation for Breach of Agreement

In the event of KGTL being in material default or breach of the KGTL Concession Agreement, it shall pay to the NHAI by way of compensation, all direct costs suffered or incurred by the NHAI as a consequence of the material default or breach, within 30 days of the receipt of the demand supported by the necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages are expressly specified and payable under the KGTL Concession Agreement.

In the event of the NHAI being in material default of the KGTL Concession Agreement at any time after the KGTL Appointed Date, it shall pay to KGTL by way of compensation, all direct costs suffered or incurred by KGTL as a consequence of the material default or breach within 30 days of receipt of the demand supported by necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages have been expressly specified in the KGTL Concession Agreement.

In the event that a material default or breach of the KGTL Concession Agreement causes a delay in achieving COD or leads to suspension of, or reduction in collection of fee, as the case may be, the NHAI shall, in addition to the payment of compensation, extend the KGTL Concession Period as provided in the KGTL Concession Agreement. In the event that an additional toll way or a competing road, as the case may be, is opened to traffic in breach of the KGTL Concession Agreement, the NHAI shall pay to KGTL, for each day of the breach, compensation as provided in the KGTL Concession Agreement, until the breach is cured. The payment of compensation by the NHAI shall be deemed to cure the breach of the KGTL Concession Agreement so long as the NHAI continues to pay the compensation.

The compensation payable shall be in addition to, and not in substitution for, or derogation of, termination payment, if any.

Effects of Variation in Traffic Growth

Subject to the provisions of the KGTL Concession Agreement, in the event actual average traffic shall have fallen short of the target traffic, then for every 1% (one percent) shortfall as compared to the target traffic, the KGTL Concession Period shall, subject to payment of concession fee in accordance with the KGTL Concession Agreement, be increased by 1.5% (one point five percent) thereof; provided that such increase in KGTL Concession Period shall not in any case exceed 20% (twenty percent) of the KGTL Concession Period.

Subject to the provisions of the KGTL Concession Agreement, in the event actual average traffic shall have exceeded the target traffic, then for every 1% (one percent) excess as compared to the target traffic, the KGTL Concession Period shall be reduced by 0.75% (zero point seven five percent) thereof; provided that such reduction in KGTL Concession Period shall not in any case exceed 10% (ten percent) thereof.

Provided further that in lieu of a reduction in KGTL Concession Period under the KGTL Concession Agreement, KGTL may elect to pay, in addition to the concession fee that would be due and payable if the KGTL Concession Period were not reduced hereunder, a further premium equal to 25% (twenty five percent) of the realizable fee, and upon notice given to this effect by KGTL no later than two years prior to the KGTL Termination Date contemplated by the KGTL Concession Agreement, NHAI shall waive the reduction in KGTL Concession Period hereunder forthwith.

Notwithstanding anything to the contrary contained in KGTL Concession Agreement, if the average daily traffic of PCUs in any accounting year shall exceed the designed capacity of the KGTL Project Highway, the NHAI at its option may cause preparation of detailed project report which will assess the cost that may have to be incurred for augmenting the capacity of the KGTL Project Highway so that its capacity is sufficiently increased for carrying the then current traffic in accordance with the corresponding provisions of the Indian Roads Congress publication no. IRC -64, 1990 or any substitute thereof. The KGTL Concession Period, may be extended so that it yields for KGTL a post-tax return on equity of 16% per annum. This assessment will be made at an assumed debt to equity ratio of 70:30. The extension of the KGTL Concession Period shall be however limited to five years. The NHAI may thereafter, at their sole option, issue a notice to KGTL, to undertake within six months of such notice, the augmentation so determined by the NHAI. The refusal, non-acceptance, or failure by KGTL to undertake such augmentation on the due date so intimated by the NHAI, will be considered an indirect political event and the NHAI may at its discretion terminate this KGTL Concession Agreement by issuing a termination notice and making a termination payment in accordance with the provisions of the KGTL Concession Agreement without the NHAI being liable to issue any further notice under it.

Termination of the KGTL Concession Agreement

Termination by the NHAI

Save as otherwise provided in the KGTL Concession Agreement, in the event that any of the defaults specified below shall have occurred, and KGTL fails to cure the default within the cure period, or where no cure period is specified, then within a cure period of 60 days, KGTL shall be deemed to be in default of the KGTL Concession Agreement ("**KGTL Default**"), unless the default has occurred solely as a result of any breach of the KGTL Concession Agreement by the NHAI or due to force majeure. The defaults referred to herein shall include:

a) the performance security has been encashed and appropriated in accordance with the KGTL Concession Agreement and KGTL fails to replenish or provide fresh performance security within a cure period of 30 days;

b) subsequent to the replenishment or furnishing of fresh performance security in accordance with the KGTL Concession Agreement, KGTL fails to cure, within a cure period of 90 days, the KGTL Default for which whole or part of the performance security was appropriated;

c) KGTL does not achieve the latest outstanding project milestone due in accordance with the KGTL Concession Agreement and continues to be in default for 90 days;

d) KGTL abandons or manifests intention to abandon the construction or operation of the KGTL Project Highway without the prior written consent of the NHAI;

e) project completion date does not occur within the period specified in the KGTL Concession Agreement;

f) the punch list items have not been completed within the period set forth in the KGTL Concession Agreement;

g) KGTL is in breach of the maintenance requirements or the safety requirements as the case may be;

h) KGTL has failed to make any payment to the NHAI within the period specified in the KGTL Concession Agreement;

i) an escrow default has occurred and KGTL fails to cure the default within a cure period of 15 days;

j) upon occurrence of a financial default, the lenders' representative has, by notice, required the NHAI to undertake suspension or termination, as the case may be, in accordance with the Substitution Agreement and KGTL fails to cure the default within the cure period specified hereinabove;

k) a breach of the project agreements by KGTL has caused a material adverse effect;

l) KGTL creates an encumbrance in breach of the KGTL Concession Agreement;

m) KGTL repudiates the KGTL Concession Agreement or otherwise takes any action or evidences or conveys an intention not to be bound by the KGTL Concession Agreement;

n) a change in ownership has occurred in breach of the KGTL Concession Agreement;

o) there is a transfer, pursuant to law either of (i) the rights and/or obligations of KGTL under any of the project agreements, or of (ii) all or part of the assets or undertaking of KGTL, and such transfer causes a material adverse effect;

p) an execution levied on any of the assets of KGTL has caused a material adverse effect;

q) KGTL is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for KGTL or for the whole or material part of its assets that has a material bearing on the KGTL Project;

r) KGTL has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the NHAI, a material adverse effect;

s) a resolution for winding up of KGTL is passed, or any petition for winding up of KGTL is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 days of the date thereof, or KGTL is ordered to be wound up by Court except for the purpose of amalgamation or reconstruction, provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of KGTL are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of KGTL under the KGTL Concession Agreement and the project agreements; provided that:

i) the amalgamated or reconstructed entity has the capability and operating experience necessary for the performance of its obligations under the KGTL Concession Agreement and the project agreements;

ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under the KGTL Concession Agreement and the project agreements and has a creditworthiness at least as good as that of KGTL as at the KGTL Appointed Date; and

iii) each of the project agreements remains in full force and effect;

t) any representation or warranty of KGTL which is, as of the date hereof, found to be materially false, incorrect or misleading or KGTL is at any time hereafter found to be in breach thereof;

u) KGTL submits to the NHAI any statement, notice or other document, in written or electronic form, which has a material effect on the NHAI's rights, obligations or interests and which is false in material particulars;

v) KGTL has failed to fulfil any obligation, for which failure termination has been specified in the KGTL Concession Agreement; or

w) KGTL commits a default in complying with any other provision of the KGTL Concession Agreement if such default causes a material adverse effect on the NHAI.

Without prejudice to any other rights or remedies which the NHAI may have under the KGTL Concession Agreement, upon the occurrence of a KGTL Default, the NHAI shall be entitled to terminate the KGTL Concession Agreement by issuing a termination notice to KGTL. Before issuing the termination notice, the NHAI shall, by notice, inform KGTL of its intention to issue a termination notice and grant 15 days to KGTL to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice subject to the provisions of the KGTL Concession Agreement.

If there are senior lenders, the NHAI shall send a copy of its notice of intention to issue a termination notice to inform the lenders' representative and grant 30 days to the lenders' representative for making a representation on behalf of the senior lenders stating the intention to substitute KGTL in accordance with the Substitution Agreement. If the NHAI receives a representation on behalf of the senior lenders, it shall, in its discretion, either withhold termination for a period not exceeding 180 days from the date of the representation, or exercise its right of suspension, as the case may be, to enable the lenders' representative to exercise the senior lenders' right of substitution in accordance with the Substitution Agreement. The lenders' representative may, instead of exercising the senior lenders' right of substitution, procure that the default specified in the notice is cured within the aforesaid 180 days, and upon the curing, the NHAI shall withdraw its notice and restore the rights of KGTL. On a written request from the lenders' representative and KGTL, the NHAI shall extend the period of 180 days by a further period not exceeding 90 days as it may deem appropriate.

Termination by KGTL

In the event that any of the defaults specified below shall have occurred, and the NHAI fails to cure the default within a cure period of 90 days or such longer period as provided in the KGTL Concession Agreement, the NHAI shall be deemed to be in default of the KGTL Concession Agreement ("**NHAI Default**"), unless the default has occurred as a result of a breach of the KGTL Concession Agreement by KGTL, or due to force majeure. The default referred to herein shall include:

a) the NHAI commits a material default in complying with any of the provisions of the KGTL Concession Agreement and such default has a material adverse effect on KGTL;

b) the NHAI has failed to make any payment to KGTL within the period specified in the KGTL Concession Agreement;

c) the NHAI repudiates the KGTL Concession Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by the KGTL Concession Agreement; or

d) the State of Rajasthan commits a material default in complying with the provisions of the state support agreement if such default has a material adverse effect on KGTL and the breach continues for a period of 90 days from the date of notice given in this behalf by KGTL to the NHAI.

Without prejudice to any other rights or remedies which KGTL may have under the KGTL Concession Agreement, upon the occurrence of an NHAI Default, KGTL shall be entitled to terminate the KGTL Concession Agreement by issuing a termination notice to the NHAI. Before issuing the termination notice, KGTL shall, by notice, inform the NHAI of its intention to issue a termination notice and grant 30 days to the NHAI to make a representation, and may, after the expiry of the 30 days, whether or not it is in receipt of such representation, issue the termination notice.

Termination Payment

Upon termination on account of a KGTL Default during the operation period, the NHAI shall pay to KGTL, by way of termination payment, an amount equal to 90% of the KGTL Debt Due less insurance cover. If any insurance claims forming part of the insurance cover are not admitted and paid, then 80% of such unpaid claims shall be included in the computation of KGTL Debt Due.

Upon termination on account of an NHAI Default, the NHAI shall pay to KGTL, by way of termination payment, an amount equal to:

a) KGTL Debt Due; and
b) 150% of the adjusted equity.

The termination payment shall not be less than an amount equal to the product of six and the average monthly fee actually realized 12 months prior to the transfer date.

Termination payment shall become due and payable to KGTL within 30 days of a demand being made by KGTL to the NHAI with the necessary particulars, and in the event of any delay, the NHAI shall pay interest at a rate equal to 3% above the bank rate on the amount of termination payment remaining unpaid. The delay shall not exceed 90 days. The termination payment under the KGTL Concession Agreement shall constitute a full and final settlement of all claims of KGTL on account of termination of the KGTL Concession Agreement for any reason whatsoever and KGTL shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

Defects Liability after Termination

KGTL shall be responsible for all defects and deficiencies in the KGTL Project Highway for a period of 120 days after termination. KGTL shall have the obligation to repair or rectify, at its own cost, all defects and deficiencies in the KGTL Project Highway as observed by the independent engineer. The repair or rectification of the defect or deficiency shall be done within a period of 15 days from the date of notice issued by the NHAI in this behalf. A sum as specified in the KGTL Concession Agreement shall be retained in the Escrow Account for a period of 120 days after termination for meeting the liabilities, if any, arising out of, or in connection with this provision.

6. Concession Agreement between KTL and the NHAI dated June 23, 2014

KTL has entered into a concession agreement for four-laning of Kaithal – Rajasthan border section of NH-152/65 in Haryana from km 33+250 (design km -0.500) to km 241+580 (design km 165.759) on design, build, finance, operate and transfer ("**DBFOT**") basis (the "**KTL Concession Agreement**"), for a period of 27 years, from July 15, 2015 ("**KTL Appointed Date**") or until such date on which the KTL Concession Agreement is terminated by a termination notice ("**KTL Termination Date**", and the period between the KTL Appointed Date and the KTL Termination Date, the "**KTL Concession Period**").

Certain Definitions

"**KTL Debt Due**" shall mean the aggregate of the following sums expressed in Indian Rupees outstanding on the transfer date:

a) the principal amount of the debt provided by the senior lenders under the financing agreements for financing the total project cost (the "**Principal**") but excluding any part of the Principal that had fallen due for repayment two years prior to the transfer date;

b) all accrued interest, financing fees and charges payable under the financing agreements on, or in respect of, the debt referred to in the sub-clause above until the transfer date but excluding (i) any interest, fees or charges that had fallen due one year prior to the transfer date, (ii) any penal interest or charges payable under the financing agreements to any senior lender, and (iii) any pre-payment charges in relation to accelerated repayment of debt except where such charges have arisen due to an NHAI Default (as defined below); and

c) any subordinated debt which is included in the financing package and disbursed by lenders for financing the total project cost;

If all, or any part of the KTL Debt Due is convertible into equity at the option of the senior lenders and/or KTL, it shall, for the purposes of the KTL Concession Agreement, be deemed to be KTL Debt Due even after the conversion and the Principal thereof shall be dealt with as if such conversion had not been undertaken;

"**KTL Debt Service**" shall mean the sum of all payments on account of Principal, interest, financing fees and charges due and payable in an accounting year to the senior lenders under the financing agreements;

"**KTL Project Assets**" shall mean all physical and other assets relating to and forming part of the site including (a) rights over the site in the form of licence, right of way or otherwise; (b) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road overbridges, drainage works, traffic signals, sign boards, kilometre-stones, toll plazas, electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; (c) project facilities situated on the site; (d) all rights of KTL under the project agreements; (e) financial assets, such as receivables, security deposits etc.; (f) insurance proceeds; and (g) applicable permits and authorizations relating to or in respect of the KTL Project Highway (as defined below), but does not include additional facilities;

"**KTL Project Highway**" shall mean the site comprising the existing road comprising NH-152/65 from km 33.250 to km 241.580 and all KTL Project Assets, and its subsequent development and augmentation in accordance with the KTL Concession Agreement;

"**KTL Project**" shall mean the construction, operation, and maintenance of the KTL Project Highway in accordance with the provisions of the KTL Concession Agreement, and includes all works, services, and equipment relating to and in respect of the scope of the project; and

"**Grant**" shall mean the cash support provided to KTL by the NHAI which is equal to the sum set forth in the bid.

Grant of Concession

Subject to, and in accordance with the provisions set out in the KTL Concession Agreement, the applicable laws and the applicable permits, the NHAI has granted to KTL, and KTL has accepted the concession, including the exclusive right, license, and authority to construct, operate and maintain the KTL Project for a period of 27 years from the KTL Appointed Date.

Subject to, and in accordance with the provisions of the KTL Concession Agreement, the concession granted shall oblige or entitle, as the case may be, KTL to:

a) right of way, access and license to the site for the purpose of, and to the extent conferred by the provisions of the KTL Concession Agreement;

b) finance and construct the KTL Project Highway;

c) manage, operate, and maintain the KTL Project Highway and regulate the use thereof by third parties;

d) demand, collect, and appropriate fee from vehicles and users liable for payment of fee for using the KTL Project Highway or any part thereof and refuse entry of any vehicle if the fee due is not paid;

e) perform and fulfil all of KTL's obligations under and in accordance with the KTL Concession Agreement;

f) bear and pay all costs, expenses, and charges in connection with or incidental to the performance of the obligations of KTL under the KTL Concession Agreement; and

g) neither assign, transfer or sublet, or create any lien or encumbrance on the KTL Concession Agreement, or the concession granted, or on the whole or any part of the KTL Project Highway, nor transfer, lease, or part possession thereof, save and except as expressly permitted by the KTL Concession Agreement or the agreement for the substitution of KTL entered into by KTL, the NHAI, and the lenders' representative on behalf of the senior lenders (the "**Substitution Agreement**").

Fees

On and from the commercial operation date ("**COD**") till the transfer date, KTL shall have the sole and exclusive right to demand, collect, and appropriate fee from the users subject to, and in accordance with the KTL Concession Agreement and the applicable rules and regulations, provided that for ease of payment and collection, such fee shall be rounded off to the nearest five rupees in accordance with the applicable fee rules, as updated from time to time. Further, KTL may determine and collect fee at such lower rates as it may, by public notice to the users, specify in respect of all or any category of users or vehicles. In accordance with the KTL Concession Agreement, KTL shall not collect any fees in relation to exempted vehicles.

KTL shall not collect any fee from a local user for non-commercial use of the KTL Project Highway, and shall issue a pass in respect thereof for commuting on a section of the KTL Project Highway as specified in the pass and for crossing the toll plaza specified therein. For carrying out these provisions, KTL shall formulate, publish and implement an appropriate scheme, and make such modifications to the scheme as may reasonably be suggested by the NHAI or by local users from time to time. For defraying its expenses on issuing of passes and handling of local users, KTL shall be entitled to charge a monthly fee of ₹150, with reference to the base year 2007-08, to be revised annually in accordance with the fee rules to reflect the variation in WPI, and then rounded off to the nearest five rupees; provided that no passes will be required or fee collected from a vehicle that uses part of the KTL Project Highway and does not cross a toll plaza.

Grant

The NHAI has agreed to pay to KTL cash support by way of an outright grant equal to ₹2340 million as set out in the bid. The grant shall be disbursed to KTL by way of equity support. It shall be credited to the Escrow Account (as defined below) and shall be applied by KTL for meeting the total project cost. The equity support shall not exceed the sum specified, but shall in no case be greater than twice the equity, and shall be further restricted to a sum not exceeding 40% of the total project cost.

The equity support shall be due and payable to KTL after it has expended the equity, and shall be disbursed proportionately along with the loan funds thereafter remaining to be disbursed by the senior lenders under the financing agreements. The NHAI shall disburse each tranche of the equity support as and when due, but no later than 15 days of receiving a request from KTL along with necessary particulars. In the event of the occurrence of a KTL Default (as defined below), disbursement of equity support shall be suspended till the KTL Default has been cured.

Concession Fee

In consideration of the grant of concession, KTL shall pay to the NHAI by way of concession fee a sum of ₹1 per annum.

Escrow Account

KTL was required to, prior to the KTL Appointed Date, open and establish an escrow account (the "**Escrow Account**") with a bank (the "**Escrow Bank**") in accordance with the KTL Concession Agreement read with the escrow agreement entered into amongst KTL, the NHAI, the Escrow Bank and the senior lenders through the lenders' representative (the "**Escrow Agreement**").

KTL shall deposit, or cause to be deposited the following inflows and receipts into the Escrow Account:

a) all funds constituting the financial package;

b) all fee and any other revenues from or in respect of the KTL Project Highway, including the proceeds of any deposits, capital receipts or insurance claims; and

c) all payments by the NHAI, after deducting any outstanding concession fee.

The senior lenders may make direct disbursements to the EPC contractor in accordance with the express provisions contained in this behalf in the financing agreements.

Withdrawals during Concession Period

KTL was required to, at the time of opening the Escrow Account, give irrevocable instructions, by way of the Escrow Agreement, to the Escrow Bank instructing, inter alia, that deposits in the Escrow Account shall be appropriated in the following order every month, or at shorter intervals as necessary, and if not due in a month, then appropriated proportionately in such month and retained in the Escrow Account and paid out therefrom in a month when due:

a) all taxes due and payable by KTL for and in respect of the KTL Project Highway;

b) all payments relating to construction of the KTL Project Highway, subject to and in accordance with the conditions, if any, set forth in the financing agreements;

c) Operation and Management ("**O&M**") expenses, subject to the ceiling, if any, set forth in the financing agreements;

d) O&M expenses and other costs and expenses incurred by the NHAI in accordance with the provisions of the KTL Concession Agreement, and certified by the NHAI as due and payable to it;

e) concession fee due and payable to the NHAI;

f) monthly proportionate provision of KTL Debt Service due in an accounting year;

g) all payments and damages certified by the NHAI as due and payable to it by KTL, including repayment of revenue shortfall loan.

h) monthly proportionate provision of KTL Debt Service payments due in an accounting year in respect of subordinated debt;

i) any reserve requirements set forth in the financing agreements; and

j) balance, if any, in accordance with the instructions of KTL.

KTL shall not, in any manner, modify the order of payment specified except with prior written approval from the NHAI.

Withdrawals upon Termination

Notwithstanding anything to the contrary contained in the KTL Concession Agreement, all amounts standing to the credit of the Escrow Account shall, upon termination, be appropriated in the following order:

a) all taxes due and payable by KTL for and in respect of the KTL Project Highway;

b) 90% of the KTL Debt Due excluding the subordinated debt;

c) outstanding concession fee;

d) all payments and damages certified by the NHAI as due and payable to it by KTL, including the repayment of the revenue shortfall loan.

e) retention and payments relating to the liability for defects and deficiencies set forth in the KTL Concession Agreement;

f) outstanding KTL Debt Service including balance of KTL Debt Due;

g) outstanding subordinated debt;

h) incurred or accrued O&M expenses;

i) any other payments required to be made under the KTL Concession Agreement; and

j) balance, if any, in accordance with the instructions of KTL.

No appropriations shall be made until a vesting certificate has been issued by the NHAI.

Change of Scope

The NHAI may, notwithstanding anything to the contrary contained in the KTL Concession Agreement, require the provision of additional works and services which are not included in the scope of the project as contemplated by the KTL Concession Agreement. Any such change of scope shall be made in accordance with the provisions of the KTL Concession Agreement and the costs thereof shall be expended by KTL and reimbursed by the NHAI.

If KTL determines at any time that a change in scope is necessary for providing safer and improved services to the users, it shall, by notice in writing, require the NHAI to consider such change of scope. The NHAI shall, within 15 days of receipt of such notice, either accept the change of scope with modifications, if any, and initiate proceedings thereof in accordance with the provisions of the KTL Concession Agreement, or inform KTL in writing of its reasons for not accepting such change of scope.

Compensation for Breach of Agreement

In the event of KTL being in material default or breach of the KTL Concession Agreement, it shall pay to the NHAI by way of compensation, all direct costs suffered or incurred by the NHAI as a consequence of the material default or breach, within 30 days of the receipt of the demand supported by the necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages are expressly specified and payable under the KTL Concession Agreement.

In the event of the NHAI being in material default of the KTL Concession Agreement at any time after the KTL Appointed Date, it shall pay to KTL by way of compensation, all direct costs suffered or incurred by KTL as a consequence of the material default or breach within 30 days of receipt of the demand supported by necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages have been expressly specified in the KTL Concession Agreement.

In the event that a material default or breach of the KTL Concession Agreement causes a delay in achieving COD or leads to suspension of, or reduction in collection of fee, as the case may be, the NHAI shall, in addition to the payment of compensation, extend the KTL Concession Period as provided in the KTL Concession Agreement. In the event that an additional toll way or a competing road, as the case may be, is opened to traffic in breach of the KTL Concession Agreement, the NHAI shall pay to KTL, for each day of the breach, compensation as provided in the KTL Concession Agreement, until the breach is cured. The payment of compensation by the NHAI shall be deemed to cure the breach of the KTL Concession Agreement so long as the NHAI continues to pay the compensation.

The compensation payable shall be in addition to, and not in substitution for, or derogation of, termination payment, if any.

Effects of Variation in Traffic Growth

Subject to the provisions of the KTL Concession Agreement, in the event actual average traffic shall have fallen short of the target traffic, then for every 1% (one percent) shortfall as compared to the target traffic, the KTL Concession Period shall, subject to payment of concession fee in accordance with the KTL Concession

Agreement, be increased by 1.5% (one point five percent) thereof; provided that such increase in KTL Concession Period shall not in any case exceed 20% (twenty percent) of the KTL Concession Period.

Subject to the provisions of the KTL Concession Agreement, in the event actual average traffic shall have exceeded the target traffic, then for every 1% (one percent) excess as compared to the target traffic, the KTL Concession Period shall be reduced by 0.75% (zero point seven five percent) thereof; provided that such reduction in KTL Concession Period shall not in any case exceed 10% (ten percent) thereof.

Provided further that in lieu of a reduction in KTL Concession Period under the KTL Concession Agreement, KTL may elect to pay, in addition to the concession fee that would be due and payable if the KTL Concession Period were not reduced hereunder, a further premium equal to 25% (twenty five percent) of the realizable fee, and upon notice given to this effect by KTL no later than two years prior to the KTL Termination Date contemplated by the KTL Concession Agreement, NHAI shall waive the reduction in KTL Concession Period hereunder forthwith.

Notwithstanding anything to the contrary contained in KTL Concession Agreement, if the average daily traffic of PCUs in any accounting year shall exceed the designed capacity of the KTL Project Highway, the NHAI at its option may cause preparation of detailed project report which will assess the cost that may have to be incurred for augmenting the capacity of the KTL Project Highway so that its capacity is sufficiently increased for carrying the then current traffic in accordance with the corresponding provisions of the Indian Roads Congress publication no. IRC -64, 1990 or any substitute thereof. The KTL Concession Period, may be extended so that it yields for KTL a post-tax return on equity of 16% per annum. This assessment will be made at an assumed debt to equity ratio of 70:30. The extension of the KTL Concession Period shall be however limited to five years. The NHAI may thereafter, at their sole option, issue a notice to KTL, to undertake within six months of such notice, the augmentation so determined by the NHAI. The refusal, non-acceptance, or failure by KTL to undertake such augmentation on the due date so intimated by the NHAI, will be considered an indirect political event and the NHAI may at its discretion terminate this KTL Concession Agreement by issuing a termination notice and making a termination payment in accordance with the provisions of the KTL Concession Agreement without the NHAI being liable to issue any further notice under it.

Termination of the KTL Concession Agreement

Termination by the NHAI

Save as otherwise provided in the KTL Concession Agreement, in the event that any of the defaults specified below shall have occurred, and KTL fails to cure the default within the cure period, or where no cure period is specified, then within a cure period of 60 days, KTL shall be deemed to be in default of the KTL Concession Agreement ("**KTL Default**"), unless the default has occurred solely as a result of any breach of the KTL Concession Agreement by the NHAI or due to force majeure. The defaults referred to herein shall include:

a) the performance security has been encashed and appropriated in accordance with the KTL Concession Agreement and KTL fails to replenish or provide fresh performance security within a cure period of 30 days;

b) subsequent to the replenishment or furnishing of fresh performance security in accordance with the KTL Concession Agreement, KTL fails to cure, within a cure period of 90 days, the KTL Default for which whole or part of the performance security was appropriated;

c) KTL does not achieve the latest outstanding project milestone due in accordance with the KTL Concession Agreement and continues to be in default for 120 days;

d) KTL abandons or manifests intention to abandon the construction or operation of the KTL Project Highway without the prior written consent of the NHAI;

e) project completion date does not occur within the period specified in the KTL Concession Agreement;

f) the punch list items have not been completed within the period set forth in the KTL Concession Agreement;

g) KTL is in breach of the maintenance requirements or the safety requirements as the case may be;

h) KTL has failed to make any payment to the NHAI within the period specified in the KTL Concession Agreement;

i) an escrow default has occurred and KTL fails to cure the default within a cure period of 15 days;

j) upon occurrence of a financial default, the lenders' representative has, by notice, required the NHAI to undertake suspension or termination, as the case may be, in accordance with the Substitution Agreement and KTL fails to cure the default within the cure period specified hereinabove;

k) a breach of the project agreements by KTL has caused a material adverse effect;

l) KTL creates an encumbrance in breach of the KTL Concession Agreement;

m) KTL repudiates the KTL Concession Agreement or otherwise takes any action or evidences or conveys an intention not to be bound by the KTL Concession Agreement;

n) a change in ownership has occurred in breach of the KTL Concession Agreement;

o) there is a transfer, pursuant to law either of (i) the rights and/or obligations of KTL under any of the project agreements, or of (ii) all or part of the assets or undertaking of KTL, and such transfer causes a material adverse effect;

p) an execution levied on any of the assets of KTL has caused a material adverse effect;

q) KTL is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for KTL or for the whole or material part of its assets that has a material bearing on the KTL Project;

r) KTL has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the NHAI, a material adverse effect;

s) a resolution for winding up of KTL is passed, or any petition for winding up of KTL is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 days of the date thereof, or KTL is ordered to be wound up by Court except for the purpose of amalgamation or reconstruction, provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of KTL are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of KTL under the KTL Concession Agreement and the project agreements; provided that:

    i) the amalgamated or reconstructed entity has the capability and operating experience necessary for the performance of its obligations under the KTL Concession Agreement and the project agreements;

    ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under the KTL Concession Agreement and the project agreements and has a creditworthiness at least as good as that of KTL as at the KTL Appointed Date; and

    iii) each of the project agreements remains in full force and effect;

t) any representation or warranty of KTL which is, as of the date hereof, found to be materially false, incorrect or misleading or KTL is at any time hereafter found to be in breach thereof;

u) KTL submits to the NHAI any statement, notice or other document, in written or electronic form, which has a material effect on the NHAI's rights, obligations or interests and which is false in material particulars;

v) KTL has failed to fulfil any obligation, for which failure termination has been specified in the KTL Concession Agreement; or

w) KTL commits a default in complying with any other provision of the KTL Concession Agreement if such default causes a material adverse effect on the NHAI.

Without prejudice to any other rights or remedies which the NHAI may have under the KTL Concession Agreement, upon the occurrence of a KTL Default, the NHAI shall be entitled to terminate the KTL Concession Agreement by issuing a termination notice to KTL. Before issuing the termination notice, the NHAI shall, by notice, inform KTL of its intention to issue a termination notice and grant 15 days to KTL to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice subject to the provisions of the KTL Concession Agreement.

If there are senior lenders, the NHAI shall send a copy of its notice of intention to issue a termination notice to inform the lenders' representative and grant 15 days to the lenders' representative for making a representation on behalf of the senior lenders stating the intention to substitute KTL in accordance with the Substitution Agreement. If the NHAI receives a representation on behalf of the senior lenders, it shall, in its discretion, either withhold termination for a period not exceeding 180 days from the date of the representation, or exercise its right of suspension, as the case may be, to enable the lenders' representative to exercise the senior lenders' right of substitution in accordance with the Substitution Agreement. The lenders' representative may, instead of exercising the senior lenders' right of substitution, procure that the default specified in the notice is cured within the aforesaid 180 days, and upon the curing, the NHAI shall withdraw its notice and restore the rights of KTL. On a written request from the lenders' representative and KTL, the NHAI shall extend the period of 180 days by a further period not exceeding 90 days as it may deem appropriate.

Termination by KTL

In the event that any of the defaults specified below shall have occurred, and the NHAI fails to cure the default within a cure period of 90 days or such longer period as provided in the KTL Concession Agreement, the NHAI shall be deemed to be in default of the KTL Concession Agreement ("**NHAI Default**"), unless the default has occurred as a result of a breach of the KTL Concession Agreement by KTL, or due to force majeure. The default referred to herein shall include:

a) the NHAI commits a material default in complying with any of the provisions of the KTL Concession Agreement and such default has a material adverse effect on KTL;

b) the NHAI has failed to make any payment to KTL within the period specified in the KTL Concession Agreement;

c) the NHAI repudiates the KTL Concession Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by the KTL Concession Agreement; or

d) the State of Haryana commits a material default in complying with the provisions of the state support agreement if such default has a material adverse effect on KTL and the breach continues for a period of 90 days from the date of notice given in this behalf by KTL to the NHAI.

Without prejudice to any other rights or remedies which KTL may have under the KTL Concession Agreement, upon the occurrence of an NHAI Default, KTL shall be entitled to terminate the KTL Concession Agreement by issuing a termination notice to the NHAI. Before issuing the termination notice, KTL shall, by notice, inform the NHAI of its intention to issue a termination notice and grant 15 days to the NHAI to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice.

Termination Payment

Upon termination on account of a KTL Default during the operation period, the NHAI shall pay to KTL, by way of termination payment, an amount equal to 90% of the KTL Debt Due less insurance cover. If any insurance claims forming part of the insurance cover are not admitted and paid, then 80% of such unpaid claims shall be included in the computation of KTL Debt Due.

Upon termination on account of an NHAI Default, the NHAI shall pay to KTL, by way of termination payment, an amount equal to:

a) KTL Debt Due; and
b) 150% of the adjusted equity.

Termination payment shall become due and payable to KTL within 15 days of a demand being made by KTL to the NHAI with the necessary particulars, and in the event of any delay, the NHAI shall pay interest at a rate equal to 3% above the bank rate on the amount of termination payment remaining unpaid. The delay shall not exceed 90 days. The termination payment under the KTL Concession Agreement shall constitute a full and final settlement of all claims of KTL on account of termination of the KTL Concession Agreement for any reason whatsoever and KTL, or any shareholder thereof, shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

Defects Liability after Termination

KTL shall be responsible for all defects and deficiencies in the KTL Project Highway for a period of 120 days after termination. KTL shall have the obligation to repair or rectify, at its own cost, all defects and deficiencies in the KTL Project Highway as observed by the independent engineer. The repair or rectification of the defect or deficiency shall be done within a period of 15 days from the date of notice issued by the NHAI in this behalf. A sum as specified in the KTL Concession Agreement shall be retained in the Escrow Account for a period of 120 days after termination for meeting the liabilities, if any, arising out of, or in connection with this provision.

6.1. Supplementary Agreement between KTL and the NHAI dated April 5, 2018

KTL has entered into a supplementary agreement (the "**Supplementary Agreement**") to amend the concession agreement dated June 23, 2014 (the "**Concession Agreement**") to provide for the installation of a new electronic toll collection system (the "**Hybrid ETC System**") for electronic payment of user fee using RFID tags or any other such device.

Change of Scope

The NHAI shall provide a change in the scope of work order at prices discovered by the NHAI to KTL to provide for, as per the defined technical specifications, installation, testing, commissioning, operations and maintenance of the Hybrid ETC System in all lanes of the toll plaza. KTL shall ensure that the requisite civil work is completed prior to the installation, integration, testing and commissioning of the Hybrid ETC System. It shall also ensure the smooth flow of traffic during installation, integration, testing and commissioning of the Hybrid ETC System. KTL will have no claim against the NHAI on account of any lane closure, if any, on account of any third party claims.

Scope of Work

KTL shall install, integrate, test, commission, operate and maintain the Hybrid ETC System in all the lanes of the toll plazas. The Hybrid ETC System shall be installed, commissioned, operated and maintained for a period of five years or the end of the Concession Agreement, whichever is earlier, beyond which it will be replaced or renewed, as the case may be, by KTL or the NHAI, at the cost of the NHAI. The cycle shall be maintained till the end of the concession period in accordance with the Concession Agreement.

The provisions of the Concession Agreement relating to change of scope shall not apply to the Supplementary Agreement.

Any permission required by KTL under the applicable laws for the installation of the Hybrid ETC System shall be procured and maintained by KTL. The NHAI shall provide reasonable assistance in this regard.

Timeline

KTL shall complete all responsibilities, obligations and works as described in the Supplementary Agreement within a period of 120 days from the date of signing the Supplementary Agreement.

Damages for Delay

In case of delay in installation, testing, or commissioning of the Hybrid ETC System at the toll plazas as per the time schedule prescribed on account of reasons attributable to KTL, damages at 0.1% of the cost of installation, testing, or commissioning of the Hybrid ETC System for each day of the delay, subject to a maximum of 10% of the cost of installation, testing, or commissioning of the Hybrid ETC System shall be levied on KTL. Damages for delay will not be applicable in case of a delay in implementation due to delayed payment release by the NHAI.

KTL shall not be entitled to any additional benefit either in monetary terms or on any other account including, but not limited to any extension of time, save on account of and NHAI Default or force majeure.

Compensation

In case of any damage to the Hybrid ETC System due to any act or omission of KTL, the NHAI shall not be liable for any compensation to KTL, and KTL shall bear the cost of repair, replacement or renewal of the damaged Hybrid ETC System equipment or hardware itself.

In case of any damage to the Hybrid ETC System due to the occurrence of any force majeure event, the compensation to KTL shall be derived as per the provisions of the Concession Agreement.

End of the Concession Period

KTL shall hand over all the Hybrid ETC equipment or hardware in an operational condition to the NHAI or a third party as directed by the NHAI at the end of the concession period, beyond which no O&M payment shall be made to KTL. If any Hybrid ETC System equipment or hardware is found to be non-operational, then KTL shall be liable to replace or pay for the replacement of the Hybrid ETC System equipment or hardware required to make the Hybrid ETC System operational on all lanes of the toll plazas to the NHAI promptly.

Upon termination, KTL shall assign warranties received from the original equipment manufacturer and for the components or equipment, and provide the respective warranty assignment agreements and necessary documents. KTL shall ensure that all the warranties are duly assigned in favor of the NHAI and KTL shall bear the cost and expenses towards the assignment.

7. Concession Agreement between SYTL and the NHAI dated March 3, 2014

SYTL has entered into a concession agreement for four-laning of Solapur to Yedeshi section of NH-211 in Maharashtra from km 0.000 to km 100.000 (design length – 98.717 km) on build, operate and transfer ("**BOT**") basis (the "**SYTL Concession Agreement**"), for a period of 29 years, from January 21, 2015 ("**SYTL Appointed Date**") or until such date on which the SYTL Concession Agreement is terminated by a termination notice ("**SYTL Termination Date**", and the period between the SYTL Appointed Date and the SYTL Termination Date, the "**SYTL Concession Period**").

Certain Definitions

"**SYTL Debt Due**" shall mean the aggregate of the following sums expressed in Indian Rupees outstanding on the transfer date:

a) the principal amount of the debt provided by the senior lenders under the financing agreements for financing the total project cost (the "**Principa**l") but excluding any part of the Principal that had fallen due for repayment two years prior to the transfer date;

b) all accrued interest, financing fees and charges payable under the financing agreements on, or in respect of, the debt referred to in the sub-clause above until the transfer date but excluding (i) any interest, fees or charges that had fallen due one year prior to the transfer date, (ii) any penal interest or charges payable under the financing agreements to any senior lender, and (iii) any pre-payment charges in relation to accelerated repayment of debt except where such charges have arisen due to an NHAI Default (as defined below); and

c) any subordinated debt which is included in the financing package and disbursed by lenders for financing the total project cost;

If all, or any part of the SYTL Debt Due is convertible into equity at the option of the senior lenders and/or SYTL, it shall, for the purposes of the SYTL Concession Agreement, be deemed to be SYTL Debt Due even after the conversion and the Principal thereof shall be dealt with as if such conversion had not been undertaken;

"**SYTL Debt Service**" shall mean the sum of all payments on account of Principal, interest, financing fees and charges due and payable in an accounting year to the senior lenders under the financing agreements;

"**SYTL Project Assets**" shall mean all physical and other assets relating to and forming part of the site including (a) rights over the site in the form of licence, right of way or otherwise; (b) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road overbridges, drainage works, traffic signals, sign boards, kilometre-stones, toll plazas, electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; (c) project facilities situated on the site; (d) all rights of SYTL under the project agreements; (e) financial assets, such as receivables, security deposits etc.; (f) insurance proceeds; and (g) applicable permits and authorizations relating to or in respect of the SYTL Project Highway (as defined below), but does not include additional facilities;

"**SYTL Project Highway**" shall mean the site comprising the existing road comprising NH-211 from km 0.000 to km 100.000 and all SYTL Project Assets, and its subsequent development and augmentation in accordance with the SYTL Concession Agreement;

"**SYTL Project**" shall mean the construction, operation, and maintenance of the SYTL Project Highway in accordance with the provisions of the SYTL Concession Agreement, and includes all works, services, and equipment relating to and in respect of the scope of the project; and

"**Grant**" shall mean the cash support provided to SYTL by the NHAI which is equal to the sum set forth in the bid.

Grant of Concession

Subject to, and in accordance with the provisions set out in the SYTL Concession Agreement, the applicable laws and the applicable permits, the NHAI has granted to SYTL, and SYTL has accepted the concession, including the exclusive right, license, and authority to construct, operate and maintain the SYTL Project for a period of 29 years from the SYTL Appointed Date.

Subject to, and in accordance with the provisions of the SYTL Concession Agreement, the concession granted shall oblige or entitle, as the case may be, SYTL to:

a) right of way, access and license to the site for the purpose of, and to the extent conferred by the provisions of the SYTL Concession Agreement;

b) finance and construct the SYTL Project Highway;

c) manage, operate, and maintain the SYTL Project Highway and regulate the use thereof by third parties;

d) demand, collect, and appropriate fee from vehicles and users liable for payment of fee for using the SYTL Project Highway or any part thereof and refuse entry of any vehicle if the fee due is not paid;

e) perform and fulfil all of SYTL's obligations under and in accordance with the SYTL Concession Agreement;

f) bear and pay all costs, expenses, and charges in connection with or incidental to the performance of the obligations of SYTL under the SYTL Concession Agreement; and

g) neither assign, transfer or sublet, or create any lien or encumbrance on the SYTL Concession Agreement, or the concession granted, or on the whole or any part of the SYTL Project Highway, nor transfer, lease, or part possession thereof, save and except as expressly permitted by the SYTL Concession Agreement or the agreement for the substitution of SYTL entered into by SYTL, the NHAI, and the lenders' representative on behalf of the senior lenders (the "**Substitution Agreement**").

Fees

On and from the commercial operation date ("**COD**") till the transfer date, SYTL shall have the sole and exclusive right to demand, collect, and appropriate fee from the users subject to, and in accordance with the SYTL Concession Agreement and the applicable rules and regulations, provided that for ease of payment and collection, such fee shall be rounded off to the nearest five rupees in accordance with the applicable fee rules, as updated from time to time. Further, SYTL may determine and collect fee at such lower rates as it may, by public notice to the users, specify in respect of all or any category of users or vehicles. In accordance with the SYTL Concession Agreement, SYTL shall not collect any fees in relation to exempted vehicles.

SYTL shall not collect any fee from a local user for non-commercial use of the SYTL Project Highway, and shall issue a pass in respect thereof for commuting on a section of the SYTL Project Highway as specified in the pass and for crossing the toll plaza specified therein. For carrying out these provisions, SYTL shall formulate, publish and implement an appropriate scheme, and make such modifications to the scheme as may reasonably be suggested by the NHAI or by local users from time to time. For defraying its expenses on issuing of passes and handling of local users, SYTL shall be entitled to charge a monthly fee of ₹150, with reference to the base year 2007-08, to be revised annually in accordance with the fee rules to reflect the variation in WPI, and then rounded off to the nearest five rupees; provided that no passes will be required or fee collected from a vehicle that uses part of the SYTL Project Highway and does not cross a toll plaza.

Grant

The NHAI has agreed to pay to SYTL cash support by way of an outright grant equal to ₹1,890 million as set out in the bid. The grant shall be disbursed to SYTL by way of equity support. It shall be credited to the Escrow Account (as defined below) and shall be applied by SYTL for meeting the total project cost. The equity support shall not exceed the sum specified, but shall in no case be greater than twice the equity, and shall be further restricted to a sum not exceeding 40% of the total project cost.

The equity support shall be due and payable to SYTL after it has expended the equity, and shall be disbursed proportionately along with the loan funds thereafter remaining to be disbursed by the senior lenders under the financing agreements. The NHAI shall disburse each tranche of the equity support as and when due, but no later than 15 days of receiving a request from SYTL along with necessary particulars. In the event of the occurrence of an SYTL Default (as defined below), disbursement of equity support shall be suspended till the SYTL Default has been cured.

Concession Fee

In consideration of the grant of concession, SYTL shall pay to the NHAI by way of concession fee a sum of ₹1 per annum.

Escrow Account

SYTL was required to, prior to the SYTL Appointed Date, open and establish an escrow account (the "**Escrow Account**") with a bank (the "**Escrow Bank**") in accordance with the SYTL Concession Agreement read with the escrow agreement entered into amongst SYTL, the NHAI, the Escrow Bank and the senior lenders through the lenders' representative (the "**Escrow Agreement**").

SYTL shall deposit, or cause to be deposited the following inflows and receipts into the Escrow Account:

a) all funds constituting the financial package;

b) all fee and any other revenues from or in respect of the SYTL Project Highway, including the proceeds of any deposits, capital receipts or insurance claims; and

c) all payments by the NHAI, after deducting any outstanding concession fee.

The senior lenders may make direct disbursements to the EPC contractor in accordance with the express provisions contained in this behalf in the financing agreements.

Withdrawals during Concession Period

SYTL was required to, at the time of opening the Escrow Account, give irrevocable instructions, by way of the Escrow Agreement, to the Escrow Bank instructing, inter alia, that deposits in the Escrow Account shall be appropriated in the following order every month, or at shorter intervals as necessary, and if not due in a month, then appropriated proportionately in such month and retained in the Escrow Account and paid out therefrom in a month when due:

a) all taxes due and payable by SYTL for and in respect of the SYTL Project Highway;

b) all payments relating to construction of the SYTL Project Highway, subject to and in accordance with the conditions, if any, set forth in the financing agreements;

c) Operation and Management ("**O&M**") expenses, subject to the ceiling, if any, set forth in the financing agreements;

d) O&M expenses and other costs and expenses incurred by the NHAI in accordance with the provisions of the SYTL Concession Agreement, and certified by the NHAI as due and payable to it;

e) concession fee due and payable to the NHAI;

f) monthly proportionate provision of SYTL Debt Service due in an accounting year;

g) all payments and damages certified by the NHAI as due and payable to it by SYTL, including repayment of revenue shortfall loan.

h) monthly proportionate provision of SYTL Debt Service payments due in an accounting year in respect of subordinated debt;

i) any reserve requirements set forth in the financing agreements; and

j) balance, if any, in accordance with the instructions of SYTL.

SYTL shall not, in any manner, modify the order of payment specified except with prior written approval from the NHAI.

Withdrawals upon Termination

Notwithstanding anything to the contrary contained in the SYTL Concession Agreement, all amounts standing to the credit of the Escrow Account shall, upon termination, be appropriated in the following order:

a) all taxes due and payable by SYTL for and in respect of the SYTL Project Highway;

b) 90% of the SYTL Debt Due excluding the subordinated debt;

c) outstanding concession fee;

d) all payments and damages certified by the NHAI as due and payable to it by SYTL, including the repayment of the revenue shortfall loan.

e) retention and payments relating to the liability for defects and deficiencies set forth in the SYTL Concession Agreement;

f) outstanding SYTL Debt Service including balance of SYTL Debt Due;

g) outstanding subordinated debt;

h) incurred or accrued O&M expenses;

i) any other payments required to be made under the SYTL Concession Agreement; and

j) balance, if any, in accordance with the instructions of SYTL.

No appropriations shall be made until a vesting certificate has been issued by the NHAI.

Change of Scope

The NHAI may, notwithstanding anything to the contrary contained in the SYTL Concession Agreement, require the provision of additional works and services which are not included in the scope of the project as contemplated by the SYTL Concession Agreement. Any such change of scope shall be made in accordance with the provisions of the SYTL Concession Agreement and the costs thereof shall be expended by SYTL and reimbursed by the NHAI.

If SYTL determines at any time that a change in scope is necessary for providing safer and improved services to the users, it shall, by notice in writing, require the NHAI to consider such change of scope. The NHAI shall, within 15 days of receipt of such notice, either accept the change of scope with modifications, if any, and initiate proceedings thereof in accordance with the provisions of the SYTL Concession Agreement, or inform SYTL in writing of its reasons for not accepting such change of scope.

Compensation for Breach of Agreement

In the event of SYTL being in material default or breach of the SYTL Concession Agreement, it shall pay to the NHAI by way of compensation, all direct costs suffered or incurred by the NHAI as a consequence of the material default or breach, within 30 days of the receipt of the demand supported by the necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages are expressly specified and payable under the SYTL Concession Agreement.

In the event of the NHAI being in material default of the SYTL Concession Agreement at any time after the SYTL Appointed Date, it shall pay to SYTL by way of compensation, all direct costs suffered or incurred by SYTL as a consequence of the material default or breach within 30 days of receipt of the demand supported by necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages have been expressly specified in the SYTL Concession Agreement.

In the event that a material default or breach of the SYTL Concession Agreement causes a delay in achieving COD or leads to suspension of, or reduction in collection of fee, as the case may be, the NHAI shall, in addition to the payment of compensation, extend the SYTL Concession Period as provided in the SYTL Concession Agreement. In the event that an additional toll way or a competing road, as the case may be, is opened to traffic in breach of the SYTL Concession Agreement, the NHAI shall pay to SYTL, for each day of the breach, compensation as provided in the SYTL Concession Agreement, until the breach is cured. The payment of compensation by the NHAI shall be deemed to cure the breach of the SYTL Concession Agreement so long as the NHAI continues to pay the compensation.

The compensation payable shall be in addition to, and not in substitution for, or derogation of, termination payment, if any.

Effects of Variation in Traffic Growth

Subject to the provisions of the SYTL Concession Agreement, in the event actual average traffic shall have fallen short of the target traffic, then for every 1% (one percent) shortfall as compared to the target traffic, the SYTL Concession Period shall, subject to payment of concession fee in accordance with the SYTL Concession Agreement, be increased by 1.5% (one point five percent) thereof; provided that such increase in SYTL Concession Period shall not in any case exceed 20% (twenty percent) of the SYTL Concession Period.

Subject to the provisions of the SYTL Concession Agreement, in the event actual average traffic shall have exceeded the target traffic, then for every 1% (one percent) excess as compared to the target traffic, the SYTL Concession Period shall be reduced by 0.75% (zero point seven five percent) thereof; provided that such reduction in SYTL Concession Period shall not in any case exceed 10% (ten percent) thereof.

Provided further that in lieu of a reduction in SYTL Concession Period under the SYTL Concession Agreement, SYTL may elect to pay, in addition to the concession fee that would be due and payable if the SYTL Concession Period were not reduced hereunder, a further premium equal to 25% (twenty five percent) of the realizable fee, and upon notice given to this effect by SYTL no later than two years prior to the SYTL Termination Date contemplated by the SYTL Concession Agreement, NHAI shall waive the reduction in SYTL Concession Period hereunder forthwith.

Notwithstanding anything to the contrary contained in SYTL Concession Agreement, if the average daily traffic of PCUs in any accounting year shall exceed the designed capacity of the SYTL Project Highway, the NHAI at its option may cause preparation of detailed project report which will assess the cost that may have to be incurred for augmenting the capacity of the SYTL Project Highway so that its capacity is sufficiently increased for carrying the then current traffic in accordance with the corresponding provisions of the Indian Roads Congress publication no. IRC -64, 1990 or any substitute thereof. The SYTL Concession Period, may be extended so that it yields for SYTL a post-tax return on equity of 16% per annum. This assessment will be made at an assumed debt to equity ratio of 70:30. The extension of the SYTL Concession Period shall be however limited to five years. The NHAI may thereafter, at their sole option, issue a notice to SYTL, to undertake within six months of such notice, the augmentation so determined by the NHAI. The refusal, non-acceptance, or failure by SYTL to undertake such augmentation on the due date so intimated by the NHAI, will be considered an indirect political event and the NHAI may at its discretion terminate this SYTL Concession Agreement by issuing a termination notice and making a termination payment in accordance with the provisions of the SYTL Concession Agreement without the NHAI being liable to issue any further notice under it.

Termination of the SYTL Concession Agreement

Termination by the NHAI

Save as otherwise provided in the SYTL Concession Agreement, in the event that any of the defaults specified below shall have occurred, and SYTL fails to cure the default within the cure period, or where no cure period is specified, then within a cure period of 60 days, SYTL shall be deemed to be in default of the SYTL Concession Agreement ("**SYTL Default**"), unless the default has occurred solely as a result of any breach of the SYTL Concession Agreement by the NHAI or due to force majeure. The defaults referred to herein shall include:

a) the performance security has been encashed and appropriated in accordance with the SYTL Concession Agreement and SYTL fails to replenish or provide fresh performance security within a cure period of 30 days;

b) subsequent to the replenishment or furnishing of fresh performance security in accordance with the SYTL Concession Agreement, SYTL fails to cure, within a cure period of 90 days, the SYTL Default for which whole or part of the performance security was appropriated;

c) SYTL does not achieve the latest outstanding project milestone due in accordance with the SYTL Concession Agreement and continues to be in default for 120 days;

d) SYTL abandons or manifests intention to abandon the construction or operation of the SYTL Project Highway without the prior written consent of the NHAI;

e) project completion date does not occur within the period specified in the SYTL Concession Agreement;

f) the punch list items have not been completed within the period set forth in the SYTL Concession Agreement;

g) SYTL is in breach of the maintenance requirements or the safety requirements as the case may be;

h) SYTL has failed to make any payment to the NHAI within the period specified in the SYTL Concession Agreement;

i) an escrow default has occurred and SYTL fails to cure the default within a cure period of 15 days;

j) upon occurrence of a financial default, the lenders' representative has, by notice, required the NHAI to undertake suspension or termination, as the case may be, in accordance with the Substitution Agreement and SYTL fails to cure the default within the cure period specified hereinabove;

k) a breach of the project agreements by SYTL has caused a material adverse effect;

l) SYTL creates an encumbrance in breach of the SYTL Concession Agreement;

m) SYTL repudiates the SYTL Concession Agreement or otherwise takes any action or evidences or conveys an intention not to be bound by the SYTL Concession Agreement;

n) a change in ownership has occurred in breach of the SYTL Concession Agreement;

o) there is a transfer, pursuant to law either of (i) the rights and/or obligations of SYTL under any of the project agreements, or of (ii) all or part of the assets or undertaking of SYTL, and such transfer causes a material adverse effect;

p) an execution levied on any of the assets of SYTL has caused a material adverse effect;

q) SYTL is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for SYTL or for the whole or material part of its assets that has a material bearing on the SYTL Project;

r) SYTL has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the NHAI, a material adverse effect;

s) a resolution for winding up of SYTL is passed, or any petition for winding up of SYTL is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 days of the date thereof, or SYTL is ordered to be wound up by Court except for the purpose of amalgamation or reconstruction, provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of SYTL are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of SYTL under the SYTL Concession Agreement and the project agreements; provided that:

    i) the amalgamated or reconstructed entity has the capability and operating experience necessary for the performance of its obligations under the SYTL Concession Agreement and the project agreements;

    ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under the SYTL Concession Agreement and the project agreements and has a creditworthiness at least as good as that of SYTL as at the SYTL Appointed Date; and

    iii) each of the project agreements remains in full force and effect;

t) any representation or warranty of SYTL which is, as of the date hereof, found to be materially false, incorrect or misleading or SYTL is at any time hereafter found to be in breach thereof;

u) SYTL submits to the NHAI any statement, notice or other document, in written or electronic form, which has a material effect on the NHAI's rights, obligations or interests and which is false in material particulars;

v) SYTL has failed to fulfil any obligation, for which failure termination has been specified in the SYTL Concession Agreement; or

w) SYTL commits a default in complying with any other provision of the SYTL Concession Agreement if such default causes a material adverse effect on the NHAI.

Without prejudice to any other rights or remedies which the NHAI may have under the SYTL Concession Agreement, upon the occurrence of an SYTL Default, the NHAI shall be entitled to terminate the SYTL Concession Agreement by issuing a termination notice to SYTL. Before issuing the termination notice, the NHAI shall, by notice, inform SYTL of its intention to issue a termination notice and grant 15 days to SYTL to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice subject to the provisions of the SYTL Concession Agreement.

If there are senior lenders, the NHAI shall send a copy of its notice of intention to issue a termination notice to inform the lenders' representative and grant 15 days to the lenders' representative for making a representation on behalf of the senior lenders stating the intention to substitute SYTL in accordance with the Substitution Agreement. If the NHAI receives a representation on behalf of the senior lenders, it shall, in its discretion, either withhold termination for a period not exceeding 180 days from the date of the representation, or exercise its right of suspension, as the case may be, to enable the lenders' representative to exercise the senior lenders' right of substitution in accordance with the Substitution Agreement. The lenders' representative may, instead of exercising the senior lenders' right of substitution, procure that the default specified in the notice is cured within the aforesaid 180 days, and upon the curing, the NHAI shall withdraw its notice and restore the rights of SYTL. On a written request from the lenders' representative and SYTL, the NHAI shall extend the period of 180 days by a further period not exceeding 90 days as it may deem appropriate.

Termination by SYTL

In the event that any of the defaults specified below shall have occurred, and the NHAI fails to cure the default within a cure period of 90 days or such longer period as provided in the SYTL Concession Agreement, the NHAI shall be deemed to be in default of the SYTL Concession Agreement ("**NHAI Default**"), unless the default has occurred as a result of a breach of the SYTL Concession Agreement by SYTL, or due to force majeure. The default referred to herein shall include:

a) the NHAI commits a material default in complying with any of the provisions of the SYTL Concession Agreement and such default has a material adverse effect on SYTL;

b) the NHAI has failed to make any payment to SYTL within the period specified in the SYTL Concession Agreement;

c) the NHAI repudiates the SYTL Concession Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by the SYTL Concession Agreement; or

d) the State of Maharashtra commits a material default in complying with the provisions of the state support agreement if such default has a material adverse effect on SYTL and the breach continues for a period of 90 days from the date of notice given in this behalf by SYTL to the NHAI.

Without prejudice to any other rights or remedies which SYTL may have under the SYTL Concession Agreement, upon the occurrence of an NHAI Default, SYTL shall be entitled to terminate the SYTL Concession Agreement by issuing a termination notice to the NHAI. Before issuing the termination notice, SYTL shall, by notice, inform the NHAI of its intention to issue a termination notice and grant 15 days to the NHAI to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice.

Termination Payment

Upon termination on account of an SYTL Default during the operation period, the NHAI shall pay to SYTL, by way of termination payment, an amount equal to 90% of the SYTL Debt Due less insurance cover. If any insurance claims forming part of the insurance cover are not admitted and paid, then 80% of such unpaid claims shall be included in the computation of SYTL Debt Due.

Upon termination on account of an NHAI Default, the NHAI shall pay to SYTL, by way of termination payment, an amount equal to:

a) SYTL Debt Due; and
b) 150% of the adjusted equity.

Termination payment shall become due and payable to SYTL within 15 days of a demand being made by SYTL to the NHAI with the necessary particulars, and in the event of any delay, the NHAI shall pay interest at a rate equal to 3% above the bank rate on the amount of termination payment remaining unpaid. The delay shall not exceed 90 days. The termination payment under the SYTL Concession Agreement shall constitute a full and final settlement of all claims of SYTL on account of termination of the SYTL Concession Agreement for any reason whatsoever and SYTL, or any shareholder thereof, shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

Defects Liability after Termination

SYTL shall be responsible for all defects and deficiencies in the SYTL Project Highway for a period of 120 days after termination. SYTL shall have the obligation to repair or rectify, at its own cost, all defects and deficiencies in the SYTL Project Highway as observed by the independent engineer. The repair or rectification of the defect or deficiency shall be done within a period of 15 days from the date of notice issued by the NHAI in this behalf. A sum as specified in the SYTL Concession Agreement shall be retained in the Escrow Account for a period of 120 days after termination for meeting the liabilities, if any, arising out of, or in connection with this provision.

7.1. Supplementary Agreement between SYTL and the NHAI dated April 12, 2018

SYTL has entered into a supplementary agreement (the "**Supplementary Agreement**") to amend the concession agreement dated March 3, 2014 (the "**Concession Agreement**") to provide for the installation of a new electronic toll collection system (the "**Hybrid ETC System**") for electronic payment of user fee using RFID tags or any other such device.

Change of Scope

The NHAI shall provide a change in the scope of work order at prices discovered by the NHAI to SYTL to provide for, as per the defined technical specifications, installation, testing, commissioning, operations and maintenance of the Hybrid ETC System in all lanes of the toll plaza. SYTL shall ensure that the requisite civil work is completed prior to the installation, integration, testing and commissioning of the Hybrid ETC System. It shall also ensure the smooth flow of traffic during installation, integration, testing and commissioning of the Hybrid ETC System. SYTL will have no claim against the NHAI on account of any lane closure, if any, on account of any third party claims.

Scope of Work

SYTL shall install, integrate, test, commission, operate and maintain the Hybrid ETC System in all the lanes of the toll plazas. The Hybrid ETC System shall be installed, commissioned, operated and maintained for a period of five years or the end of the Concession Agreement, whichever is earlier, beyond which it will be replaced or renewed, as the case may be, by SYTL or the NHAI, at the cost of the NHAI. The cycle shall be maintained till the end of the concession period in accordance with the Concession Agreement.

The provisions of the Concession Agreement relating to change of scope shall not apply to the Supplementary Agreement.

Any permission required by SYTL under the applicable laws for the installation of the Hybrid ETC System shall be procured and maintained by SYTL. The NHAI shall provide reasonable assistance in this regard.

Timeline

SYTL shall complete all responsibilities, obligations and works as described in the Supplementary Agreement within a period of 120 days from the date of signing the Supplementary Agreement.

Damages for Delay

In case of delay in installation, testing, or commissioning of the Hybrid ETC System at the toll plazas as per the time schedule prescribed on account of reasons attributable to SYTL, damages at 0.1% of the cost of installation, testing, or commissioning of the Hybrid ETC System for each day of the delay, subject to a maximum of 10% of the cost of installation, testing, or commissioning of the Hybrid ETC System shall be levied on SYTL. Damages for delay will not be applicable in case of a delay in implementation due to delayed payment release by the NHAI.

SYTL shall not be entitled to any additional benefit either in monetary terms or on any other account including, but not limited to any extension of time, save on account of and NHAI Default or force majeure.

Compensation

In case of any damage to the Hybrid ETC System due to any act or omission of SYTL, the NHAI shall not be liable for any compensation to SYTL, and SYTL shall bear the cost of repair, replacement or renewal of the damaged Hybrid ETC System equipment or hardware itself.

In case of any damage to the Hybrid ETC System due to the occurrence of any force majeure event, the compensation to SYTL shall be derived as per the provisions of the Concession Agreement.

End of the Concession Period

SYTL shall hand over all the Hybrid ETC equipment or hardware in an operational condition to the NHAI or a third party as directed by the NHAI at the end of the concession period, beyond which no O&M payment shall be made to SYTL. If any Hybrid ETC System equipment or hardware is found to be non-operational, then SYTL shall be liable to replace or pay for the replacement of the Hybrid ETC System equipment or hardware required to make the Hybrid ETC System operational on all lanes of the toll plazas to the NHAI promptly.

Upon termination, SYTL shall assign warranties received from the original equipment manufacturer and for the components or equipment, and provide the respective warranty assignment agreements and necessary documents. SYTL shall ensure that all the warranties are duly assigned in favor of the NHAI and SYTL shall bear the cost and expenses towards the assignment.

8. Concession Agreement between UTL and the NHAI dated December 9, 2016

UTL has entered into a concession agreement for six-laning of NH-8 in Rajasthan and Gujarat from km 287.400 to km 401.200 (approx. length 113.800 km) on design, build, finance, operate and transfer ("D**BFOT**") basis (the "**UTL Concession Agreement**"), for a period of 21 years, from September 3, 2017 ("**UTL Appointed Date**") or until such date on which the UTL Concession Agreement is terminated by a termination notice ("**UTL Termination Date**", and the period between the UTL Appointed Date and the UTL Termination Date, the "**UTL Concession Period**").

Certain Definitions

"**UTL Debt Due**" shall mean the aggregate of the following sums expressed in Indian Rupees outstanding on the transfer date:

a) the principal amount of the debt provided by the senior lenders under the financing agreements for financing the total project cost (the "**Principa**l") but excluding any part of the Principal that had fallen due for repayment two years prior to the transfer date;

b) all accrued interest, financing fees and charges payable under the financing agreements on, or in respect of, the debt referred to in the sub-clause above until the transfer date but excluding (i) any interest, fees or charges that had fallen due one year prior to the transfer date, (ii) any penal interest or charges payable under the financing agreements to any senior lender, and (iii) any pre-payment charges in relation to accelerated repayment of debt except where such charges have arisen due to an NHAI Default (as defined below); and

c) any subordinated debt which is included in the financing package and disbursed by lenders for financing the total project cost;

If all, or any part of the UTL Debt Due is convertible into equity at the option of the senior lenders and/or UTL, it shall, for the purposes of the UTL Concession Agreement, be deemed to be UTL Debt Due even after the conversion and the Principal thereof shall be dealt with as if such conversion had not been undertaken;

"**UTL Debt Service**" shall mean the sum of all payments on account of Principal, interest, financing fees and charges due and payable in an accounting year to the senior lenders under the financing agreements;

"**UTL Project Assets**" shall mean all physical and other assets relating to and forming part of the site including (a) rights over the site in the form of licence, right of way or otherwise; (b) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road overbridges, drainage works, traffic signals, sign boards, kilometre-stones, toll plazas, electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; (c) project facilities situated on the site; (d) all rights of UTL under the project agreements; (e) financial assets, such as receivables, security deposits etc.; (f) insurance proceeds; and (g) applicable permits and authorizations relating to or in respect of the UTL Project Highway (as defined below), but does not include additional facilities;

"**UTL Project Highway**" shall mean the site comprising the existing road comprising NH-8 from km 287.400 to km 401.200 and all UTL Project Assets, and its subsequent development and augmentation in accordance with the UTL Concession Agreement;

"**UTL Project**" shall mean the construction, operation, and maintenance of the UTL Project Highway in accordance with the provisions of the UTL Concession Agreement, and includes all works, services, and equipment relating to and in respect of the scope of the project;

"**Premium**" shall mean an amount paid to the NHAI by UTL in the form of an additional concession fee, as set forth in the bid for each year of the UTL Concession Period.

Grant of Concession

Subject to, and in accordance with the provisions set out in the UTL Concession Agreement, the applicable laws and the applicable permits, the NHAI has granted to UTL, and UTL has accepted the concession, including the exclusive right, license, and authority during the subsistence of the UTL Concession Agreement, to construct, operate and maintain the UTL Project for a period of 21 years from the UTL Appointed Date.

Subject to, and in accordance with the provisions of the UTL Concession Agreement, the concession granted shall oblige or entitle, as the case may be, UTL to:

a) right of way, access and license to the site for the purpose of, and to the extent conferred by the provisions of the UTL Concession Agreement;

b) finance and construct the UTL Project Highway;

c) manage, operate, and maintain the UTL Project Highway and regulate the use thereof by third parties;

d) demand, collect, and appropriate fee from vehicles and persons liable for payment of fee for using the UTL Project Highway or any part thereof and refuse entry of any vehicle if the fee due is not paid;

e) perform and fulfil all of UTL's obligations under and in accordance with the UTL Concession Agreement;

f) bear and pay all costs, expenses, and charges in connection with or incidental to the performance of the obligations of UTL under the UTL Concession Agreement; and

g) neither assign, transfer or sublet, or create any lien or encumbrance on the UTL Concession Agreement, or the concession granted, or on the whole or any part of the UTL Project Highway, nor transfer, lease, or part possession thereof, save and except as expressly permitted by the UTL Concession Agreement or the agreement for the substitution of UTL entered into by UTL, the NHAI, and the lenders' representative on behalf of the senior lenders (the "**Substitution Agreement**").

Fees

On and from the commercial operation date ("**COD**") till the transfer date, UTL shall have the sole and exclusive right to demand, collect, and appropriate fee from the users subject to, and in accordance with the UTL Concession Agreement and the applicable rules and regulations, provided that for ease of payment and collection, such fee shall be rounded off to the nearest five rupees in accordance with the applicable fee rules, as updated from time to time. Further, UTL may determine and collect fee at such lower rates as it may, by public notice to the users, specify in respect of all or any category of users or vehicles. In accordance with the UTL Concession Agreement, UTL shall not collect any fees in relation to exempted vehicles.

UTL shall not collect any fee from a local user for non-commercial use of the UTL Project Highway, and shall issue a pass in respect thereof for commuting on a section of the UTL Project Highway as specified in the pass and for crossing the toll plaza specified therein. For carrying out these provisions, UTL shall formulate, publish and implement an appropriate scheme, and make such modifications to the scheme as may reasonably be suggested by the NHAI or by local users from time to time. For defraying its expenses on issuing of passes and handling of local users, UTL shall be entitled to charge a monthly fee of ₹150, with reference to the base year 2007-08, to be revised annually in accordance with the fee rules to reflect the variation in WPI, and then rounded off to the nearest five rupees; provided that no passes will be required or fee collected from a vehicle that uses part of the UTL Project Highway and does not cross a toll plaza.

Concession Fee

In consideration of the grant of concession, UTL shall pay to the NHAI by way of concession fee a sum of ₹1 per annum.

Additionally, UTL was required to pay to the NHAI, immediately after the third anniversary year of the COD, a Premium in the form of an additional concession fee equal to ₹1,638,000,000 as due to the NHAI during that year, due and payable for the period remaining in that year; and for each subsequent year till the ninth anniversary of the COD, the Premium shall be determined by increasing the amount of Premium in the respective year by an additional 3% as compared to the immediately preceding year and for each subsequent year of the UTL

Concession Period, the Premium shall be determined by increasing the amount of Premium in the respective year by an additional 8% as compared to the immediately preceding year. The Premium is deemed to be a part of the concession fee.

The concession fee payable under the provisions of the UTL Concession Agreement shall be due and payable in monthly instalments within seven days of the close of each month.

Escrow Account

UTL was required to, prior to the UTL Appointed Date, open and establish an escrow account (the "**Escrow Account**") with a bank (the "**Escrow Bank**") in accordance with the UTL Concession Agreement read with the escrow agreement entered into amongst UTL, the NHAI, the Escrow Bank and the senior lenders through the lenders' representative (the "**Escrow Agreement**").

UTL shall deposit, or cause to be deposited the following inflows and receipts into the Escrow Account:

a) all funds constituting the financial package;

b) all fee and any other revenues from or in respect of the UTL Project Highway, including the proceeds of any deposits, capital receipts or insurance claims; and

c) all payments by the NHAI, after deducting any outstanding concession fee.

The senior lenders may make direct disbursements to the EPC contractor in accordance with the express provisions contained in this behalf in the financing agreements.

Withdrawals during Concession Period

UTL was required to, at the time of opening the Escrow Account, give irrevocable instructions, by way of the Escrow Agreement, to the Escrow Bank instructing, inter alia, that deposits in the Escrow Account shall be appropriated in the following order every month, or at shorter intervals as necessary, and if not due in a month, then appropriated proportionately in such month and retained in the Escrow Account and paid out therefrom in a month when due:

a) all taxes due and payable by UTL for and in respect of the UTL Project Highway;

b) all payments relating to construction of the UTL Project Highway, subject to and in accordance with the conditions, if any, set forth in the financing agreements;

c) Operation and Management ("**O&M**") expenses, subject to the ceiling, if any, set forth in the financing agreements;

d) O&M expenses and other costs and expenses incurred by the NHAI in accordance with the provisions of the UTL Concession Agreement, and certified by the NHAI as due and payable to it;

e) concession fee due and payable to the NHAI;

f) monthly proportionate provision of UTL Debt Service due in an accounting year;

g) premium due and payable to the NHAI;

h) all payments and damages certified by the NHAI as due and payable to it by UTL, including repayment of revenue shortfall loan. UTL has agreed to give irrevocable instructions to the Escrow Bank to make payments from the Escrow Account in accordance with the instructions of the NHAI under the UTL Concession Agreement and debit the payment to O&M expenses;

i) monthly proportionate provision of UTL Debt Service payments due in an accounting year in respect of subordinated debt;

j) any reserve requirements set forth in the financing agreements; and

k) balance, if any, in accordance with the instructions of UTL.

UTL shall not, in any manner, modify the order of payment specified except with prior written approval from the NHAI.

Withdrawals upon Termination

Notwithstanding anything to the contrary contained in the UTL Concession Agreement, all amounts standing to the credit of the Escrow Account shall, upon termination, be appropriated in the following order:

a) all taxes due and payable by UTL for and in respect of the UTL Project Highway;

b) 90% of the UTL Debt Due excluding the subordinated debt;

c) outstanding concession fee;

d) all payments and damages certified by the NHAI as due and payable to it by UTL, including the repayment of the revenue shortfall loan. UTL has agreed to give irrevocable instruction to the Escrow Bank to make payment from the Escrow Account in accordance with the instructions of the NHAI under the UTL Concession Agreement and debit the payment to O&M expenses.

e) retention and payments relating to the liability for defects and deficiencies set forth in the UTL Concession Agreement;

f) outstanding UTL Debt Service including balance of UTL Debt Due;

g) outstanding subordinated debt;

h) incurred or accrued O&M expenses;

i) any other payments required to be made under the UTL Concession Agreement; and

j) balance, if any, in accordance with the instructions of UTL.

No appropriations shall be made until a vesting certificate has been issued by the NHAI.

Change of Scope

The NHAI may, notwithstanding anything to the contrary contained in the UTL Concession Agreement, require the provision of additional works and services which are not included in the scope of the project as contemplated by the UTL Concession Agreement. Any such change of scope shall be made in accordance with the provisions of the UTL Concession Agreement and the costs thereof shall be expended by UTL and reimbursed by the NHAI.

If UTL determines at any time that a change in scope is necessary for providing safer and improved services to the users, it shall, by notice in writing, require the NHAI to consider such change of scope. The NHAI shall, within 60 days of receipt of such notice, either accept the change of scope with modifications, if any, and initiate proceedings thereof in accordance with the provisions of the UTL Concession Agreement, or inform UTL in writing of its reasons for not accepting such change of scope.

Compensation for Breach of Agreement

In the event of UTL being in material default or breach of the UTL Concession Agreement, it shall pay to the NHAI by way of compensation, all direct costs suffered or incurred by the NHAI as a consequence of the material default or breach, within 30 days of the receipt of the demand supported by the necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages are expressly specified and payable under the UTL Concession Agreement.

In the event of the NHAI being in material default of the UTL Concession Agreement at any time after the UTL Appointed Date, it shall pay to UTL by way of compensation, all direct costs suffered or incurred by UTL as a consequence of the material default or breach within 30 days of receipt of the demand supported by necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages have been expressly specified in the UTL Concession Agreement.

In the event that a material default or breach of the UTL Concession Agreement causes a delay in achieving COD or leads to suspension of, or reduction in collection of fee, as the case may be, the NHAI shall, in addition to the payment of compensation, extend the UTL Concession Period as provided in the UTL Concession Agreement. In the event that an additional toll way or a competing road, as the case may be, is opened to traffic in breach of the UTL Concession Agreement, the NHAI shall pay to UTL, for each day of the breach, compensation as provided in the UTL Concession Agreement, until the breach is cured. The payment of compensation by the NHAI shall be deemed to cure the breach of the UTL Concession Agreement so long as the NHAI continues to pay the compensation.

The compensation payable shall be in addition to, and not in substitution for, or derogation of, termination payment, if any.

Effects of Variation in Traffic Growth

Subject to the provisions of the UTL Concession Agreement, in the event actual average traffic shall have fallen short of the target traffic, then for every 1% (one percent) shortfall as compared to the target traffic, the UTL Concession Period shall, subject to payment of concession fee in accordance with the UTL Concession Agreement, be increased by 1.5% (one point five percent) thereof; provided that such increase in UTL Concession Period shall not in any case exceed 20% (twenty percent) of the UTL Concession Period.

Subject to the provisions of the UTL Concession Agreement, in the event actual average traffic shall have exceeded the target traffic, then for every 1% (one percent) excess as compared to the target traffic, the UTL Concession Period shall be reduced by 0.75% (zero point seven five percent) thereof; provided that such reduction in UTL Concession Period shall not in any case exceed 10% (ten percent) thereof.

Provided further that in lieu of a reduction in UTL Concession Period under the UTL Concession Agreement, UTL may elect to pay, in addition to the concession fee that would be due and payable if the UTL Concession Period were not reduced hereunder, a further premium equal to 25% (twenty five percent) of the realizable fee, and upon notice given to this effect by UTL no later than two years prior to the UTL Termination Date contemplated by the UTL Concession Agreement, NHAI shall waive the reduction in UTL Concession Period hereunder forthwith.

Notwithstanding anything to the contrary contained in UTL Concession Agreement, if the average daily traffic of PCUs in any accounting year shall exceed the designed capacity of the UTL Project Highway, the NHAI at its option may cause preparation of detailed project report which will assess the cost that may have to be incurred for augmenting the capacity of the UTL Project Highway so that its capacity is sufficiently increased for carrying the then current traffic in accordance with the corresponding provisions of the Indian Roads Congress publication no. IRC -64, 1990 or any substitute thereof. The UTL Concession Period, may be extended so that it yields for UTL a post-tax return on equity of 16% per annum. This assessment will be made at an assumed debt to equity ratio of 70:30. The extension of the UTL Concession Period shall be however limited to five years. The NHAI may thereafter, at their sole option, issue a notice to UTL, to undertake within six months of such notice, the augmentation so determined by the NHAI. The refusal, non-acceptance, or failure by UTL to undertake such augmentation on the due date so intimated by the NHAI, will be considered an indirect political event and the NHAI may at its discretion terminate this UTL Concession Agreement by issuing a termination notice and making a termination payment in accordance with the provisions of the UTL Concession Agreement without the NHAI being liable to issue any further notice under it.

Termination of the UTL Concession Agreement

Termination by the NHAI

Save as otherwise provided in the UTL Concession Agreement, in the event that any of the defaults specified below shall have occurred, and UTL fails to cure the default within the cure period, or where no cure period is specified, then within a cure period of 60 days, UTL shall be deemed to be in default of the UTL Concession Agreement ("**UTL Default**"), unless the default has occurred solely as a result of any breach of the UTL Concession Agreement by the NHAI or due to force majeure. The defaults referred to herein shall include:

a) the performance security has been encashed and appropriated in accordance with the UTL Concession Agreement and UTL fails to replenish or provide fresh performance security within a cure period of 30 days;

b) subsequent to the replenishment or furnishing of fresh performance security in accordance with the UTL Concession Agreement, UTL fails to cure, within a cure period of 90 days, the UTL Default for which whole or part of the performance security was appropriated;

c) UTL does not achieve the latest outstanding project milestone due in accordance with the UTL Concession Agreement and continues to be in default for 90 days;

d) UTL abandons or manifests intention to abandon the construction or operation of the UTL Project Highway without the prior written consent of the NHAI;

e) project completion date does not occur within the period specified in the UTL Concession Agreement;

f) the punch list items have not been completed within the period set forth in the UTL Concession Agreement;

g) UTL is in breach of the maintenance requirements or the safety requirements as the case may be;

h) UTL has failed to make any payment to the NHAI within the period specified in the UTL Concession Agreement;

i) an escrow default has occurred and UTL fails to cure the default within a cure period of 15 days;

j) upon occurrence of a financial default, the lenders' representative has, by notice, required the NHAI to undertake suspension or termination, as the case may be, in accordance with the Substitution Agreement and UTL fails to cure the default within the cure period specified hereinabove;

k) a breach of the project agreements by UTL has caused a material adverse effect;

l) UTL creates an encumbrance in breach of the UTL Concession Agreement;

m) UTL repudiates the UTL Concession Agreement or otherwise takes any action or evidences or conveys an intention not to be bound by the UTL Concession Agreement;

n) a change in ownership has occurred in breach of the UTL Concession Agreement;

o) there is a transfer, pursuant to law either of (i) the rights and/or obligations of UTL under any of the project agreements, or of (ii) all or part of the assets or undertaking of UTL, and such transfer causes a material adverse effect;

p) an execution levied on any of the assets of UTL has caused a material adverse effect;

q) UTL is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for UTL or for the whole or material part of its assets that has a material bearing on the UTL Project;

r) UTL has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the NHAI, a material adverse effect;

s) a resolution for winding up of UTL is passed, or any petition for winding up of UTL is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 days of the date thereof, or UTL is ordered to be wound up by Court except for the purpose of amalgamation or reconstruction, provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of UTL are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of UTL under the UTL Concession Agreement and the project agreements; provided that:

    i) the amalgamated or reconstructed entity has the capability and operating experience necessary for the performance of its obligations under the UTL Concession Agreement and the project agreements;

ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under the UTL Concession Agreement and the project agreements and has a creditworthiness at least as good as that of UTL as at the UTL Appointed Date; and

iii) each of the project agreements remains in full force and effect;

t) any representation or warranty of UTL which is, as of the date hereof, found to be materially false, incorrect or misleading or UTL is at any time hereafter found to be in breach thereof;

u) UTL submits to the NHAI any statement, notice or other document, in written or electronic form, which has a material effect on the NHAI's rights, obligations or interests and which is false in material particulars;

v) UTL has failed to fulfil any obligation, for which failure termination has been specified in the UTL Concession Agreement; or

w) UTL commits a default in complying with any other provision of the UTL Concession Agreement if such default causes a material adverse effect on the NHAI.

Without prejudice to any other rights or remedies which the NHAI may have under the UTL Concession Agreement, upon the occurrence of a UTL Default, the NHAI shall be entitled to terminate the UTL Concession Agreement by issuing a termination notice to UTL. Before issuing the termination notice, the NHAI shall, by notice, inform UTL of its intention to issue a termination notice and grant 15 days to UTL to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice subject to the provisions of the UTL Concession Agreement.

If there are senior lenders, the NHAI shall send a copy of its notice of intention to issue a termination notice to inform the lenders' representative and grant 30 days to the lenders' representative for making a representation on behalf of the senior lenders stating the intention to substitute UTL in accordance with the Substitution Agreement. If the NHAI receives a representation on behalf of the senior lenders, it shall, in its discretion, either withhold termination for a period not exceeding 180 days from the date of the representation, or exercise its right of suspension, as the case may be, to enable the lenders' representative to exercise the senior lenders' right of substitution in accordance with the Substitution Agreement. The lenders' representative may, instead of exercising the senior lenders' right of substitution, procure that the default specified in the notice is cured within the aforesaid 180 days, and upon the curing, the NHAI shall withdraw its notice and restore the rights of UTL. On a written request from the lenders' representative and UTL, the NHAI shall extend the period of 180 days by a further period not exceeding 90 days as it may deem appropriate.

Termination by UTL

In the event that any of the defaults specified below shall have occurred, and the NHAI fails to cure the default within a cure period of 90 days or such longer period as provided in the UTL Concession Agreement, the NHAI shall be deemed to be in default of the UTL Concession Agreement ("**NHAI Default**"), unless the default has occurred as a result of a breach of the UTL Concession Agreement by UTL, or due to force majeure. The default referred to herein shall include:

a) the NHAI commits a material default in complying with any of the provisions of the UTL Concession Agreement and such default has a material adverse effect on UTL;

b) the NHAI has failed to make any payment to UTL within the period specified in the UTL Concession Agreement;

c) the NHAI repudiates the UTL Concession Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by the UTL Concession Agreement; or

d) the State of Rajasthan or Gujarat commits a material default in complying with the provisions of the state support agreement if such default has a material adverse effect on UTL and the breach continues for a period of 90 days from the date of notice given in this behalf by UTL to the NHAI.

Without prejudice to any other rights or remedies which UTL may have under the UTL Concession Agreement, upon the occurrence of an NHAI Default, UTL shall be entitled to terminate the UTL Concession Agreement by issuing a termination notice to the NHAI. Before issuing the termination notice, UTL shall, by notice, inform the NHAI of its intention to issue a termination notice and grant 30 days to the NHAI to make a representation, and may, after the expiry of the 30 days, whether or not it is in receipt of such representation, issue the termination notice.

Termination Payment

Upon termination on account of a UTL Default during the operation period, the NHAI shall pay to UTL, by way of termination payment, an amount equal to 90% of the UTL Debt Due less insurance cover. If any insurance claims forming part of the insurance cover are not admitted and paid, then 80% of such unpaid claims shall be included in the computation of UTL Debt Due.

Upon termination on account of an NHAI Default, the NHAI shall pay to UTL, by way of termination payment, an amount equal to:

a) UTL Debt Due; and
b) 150% of the adjusted equity.

The termination payment shall not be less than an amount equal to the product of six and the average monthly fee actually realized 12 months prior to the transfer date.

Termination payment shall become due and payable to UTL within 30 days of a demand being made by UTL to the NHAI with the necessary particulars, and in the event of any delay, the NHAI shall pay interest at a rate equal to 3% above the bank rate on the amount of termination payment remaining unpaid. The delay shall not exceed 90 days. The termination payment under the UTL Concession Agreement shall constitute a full and final settlement of all claims of UTL on account of termination of the UTL Concession Agreement for any reason whatsoever and UTL shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

Defects Liability after Termination

UTL shall be responsible for all defects and deficiencies in the UTL Project Highway for a period of 120 days after termination. UTL shall have the obligation to repair or rectify, at its own cost, all defects and deficiencies in the UTL Project Highway as observed by the independent engineer. The repair or rectification of the defect or deficiency shall be done within a period of 15 days from the date of notice issued by the NHAI in this behalf. A sum as specified in the UTL Concession Agreement shall be retained in the Escrow Account for a period of 120 days after termination for meeting the liabilities, if any, arising out of, or in connection with this provision.

9. Concession Agreement between YATL and the NHAI dated May 30, 2014

YATL has entered into a concession agreement for four-laning of Yedeshi-Aurangabad section of NH-211 in Maharashtra from km 100.000 to km 290.200 on design, build, finance, operate and transfer ("**DBFOT**") basis (the "**YATL Concession Agreement**"), for a period of 26 years, from July 1, 2015 ("**YATL Appointed Date**") or until such date on which the YATL Concession Agreement is terminated by a termination notice ("**YATL Termination Date**", and the period between the YATL Appointed Date and the YATL Termination Date, the "**YATL Concession Period**").

Certain Definitions

"**YATL Debt Due**" shall mean the aggregate of the following sums expressed in Indian Rupees outstanding on the transfer date:

a) the principal amount of the debt provided by the senior lenders under the financing agreements for financing the total project cost (the "**Principal**") but excluding any part of the Principal that had fallen due for repayment two years prior to the transfer date;

b) all accrued interest, financing fees and charges payable under the financing agreements on, or in respect of, the debt referred to in the sub-clause above until the transfer date but excluding (i) any interest, fees or charges that had fallen due one year prior to the transfer date, (ii) any penal interest or charges payable under the financing agreements to any senior lender, and (iii) any pre-payment charges in relation to accelerated repayment of debt except where such charges have arisen due to an NHAI Default (as defined below); and

c) any subordinated debt which is included in the financing package and disbursed by lenders for financing the total project cost;

If all, or any part of the YATL Debt Due is convertible into equity at the option of the senior lenders and/or YATL, it shall, for the purposes of the YATL Concession Agreement, be deemed to be YATL Debt Due even after the conversion and the Principal thereof shall be dealt with as if such conversion had not been undertaken;

"**YATL Debt Service**" shall mean the sum of all payments on account of Principal, interest, financing fees and charges due and payable in an accounting year to the senior lenders under the financing agreements;

"**YATL Project Assets**" shall mean all physical and other assets relating to and forming part of the site including (a) rights over the site in the form of licence, right of way or otherwise; (b) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road overbridges, drainage works, traffic signals, sign boards, kilometre-stones, toll plazas, electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; (c) project facilities situated on the site; (d) all rights of YATL under the project agreements; (e) financial assets, such as receivables, security deposits etc.; (f) insurance proceeds; and (g) applicable permits and authorizations relating to or in respect of the YATL Project Highway (as defined below), but does not include additional facilities;

"**YATL Project Highway**" shall mean the site comprising the existing road comprising NH-211 from km 100.000 to km 290.200 and all YATL Project Assets, and its subsequent development and augmentation in accordance with the YATL Concession Agreement;

"**YATL Project**" shall mean the construction, operation, and maintenance of the YATL Project Highway in accordance with the provisions of the YATL Concession Agreement, and includes all works, services, and equipment relating to and in respect of the scope of the project; and

"**Grant**" shall mean the cash support provided to YATL by the NHAI which is equal to the sum set forth in the bid.

Grant of Concession

Subject to, and in accordance with the provisions set out in the YATL Concession Agreement, the applicable laws and the applicable permits, the NHAI has granted to YATL, and YATL has accepted the concession, including the exclusive right, license, and authority to construct, operate and maintain the YATL Project for a period of 26 years from the YATL Appointed Date.

Subject to, and in accordance with the provisions of the YATL Concession Agreement, the concession granted shall oblige or entitle, as the case may be, YATL to:

a) right of way, access and license to the site for the purpose of, and to the extent conferred by the provisions of the YATL Concession Agreement;

b) finance and construct the YATL Project Highway;

c) manage, operate, and maintain the YATL Project Highway and regulate the use thereof by third parties;

d) demand, collect, and appropriate fee from vehicles and users liable for payment of fee for using the YATL Project Highway or any part thereof and refuse entry of any vehicle if the fee due is not paid;

e) perform and fulfil all of YATL's obligations under and in accordance with the YATL Concession Agreement;
f) bear and pay all costs, expenses, and charges in connection with or incidental to the performance of the obligations of YATL under the YATL Concession Agreement; and

g) neither assign, transfer or sublet, or create any lien or encumbrance on the YATL Concession Agreement, or the concession granted, or on the whole or any part of the YATL Project Highway, nor transfer, lease, or part possession thereof, save and except as expressly permitted by the YATL Concession Agreement or the agreement for the substitution of YATL entered into by YATL, the NHAI, and the lenders' representative on behalf of the senior lenders (the "**Substitution Agreement**").

Fees

On and from the commercial operation date ("**COD**") till the transfer date, YATL shall have the sole and exclusive right to demand, collect, and appropriate fee from the users subject to, and in accordance with the YATL Concession Agreement and the applicable rules and regulations, provided that for ease of payment and collection, such fee shall be rounded off to the nearest five rupees in accordance with the applicable fee rules, as updated from time to time. Further, YATL may determine and collect fee at such lower rates as it may, by public notice to the users, specify in respect of all or any category of users or vehicles. In accordance with the YATL Concession Agreement, YATL shall not collect any fees in relation to exempted vehicles.

YATL shall not collect any fee from a local user for non-commercial use of the YATL Project Highway, and shall issue a pass in respect thereof for commuting on a section of the YATL Project Highway as specified in the pass and for crossing the toll plaza specified therein. For carrying out these provisions, YATL shall formulate, publish and implement an appropriate scheme, and make such modifications to the scheme as may reasonably be suggested by the NHAI or by local users from time to time. For defraying its expenses on issuing of passes and handling of local users, YATL shall be entitled to charge a monthly fee of ₹150, with reference to the base year 2007-08, to be revised annually in accordance with the fee rules to reflect the variation in WPI, and then rounded off to the nearest five rupees; provided that no passes will be required or fee collected from a vehicle that uses part of the YATL Project Highway and does not cross a toll plaza.

Grant

The NHAI has agreed to pay to YATL cash support by way of an outright grant equal to ₹5,580 million as set out in the bid. The grant shall be disbursed to YATL by way of equity support. It shall be credited to the Escrow Account (as defined below) and shall be applied by YATL for meeting the total project cost. The equity support shall not exceed the sum specified, but shall in no case be greater than twice the equity, and shall be further restricted to a sum not exceeding 40% of the total project cost.

The equity support shall be due and payable to YATL after it has expended the equity, and shall be disbursed proportionately along with the loan funds thereafter remaining to be disbursed by the senior lenders under the financing agreements. The NHAI shall disburse each tranche of the equity support as and when due, but no later than 15 days of receiving a request from YATL along with necessary particulars. In the event of the occurrence of a YATL Default (as defined below), disbursement of equity support shall be suspended till the YATL Default has been cured.

Concession Fee

In consideration of the grant of concession, YATL shall pay to the NHAI by way of concession fee a sum of ₹1 per annum.

Escrow Account

YATL was required to, prior to the YATL Appointed Date, open and establish an escrow account (the "**Escrow Account**") with a bank (the "**Escrow Bank**") in accordance with the YATL Concession Agreement read with the escrow agreement entered into amongst YATL, the NHAI, the Escrow Bank and the senior lenders through the lenders' representative (the "**Escrow Agreement**").

YATL shall deposit, or cause to be deposited the following inflows and receipts into the Escrow Account:

a) all funds constituting the financial package;

b) all fee and any other revenues from or in respect of the YATL Project Highway, including the proceeds of any deposits, capital receipts or insurance claims; and

c) all payments by the NHAI, after deducting any outstanding concession fee.

The senior lenders may make direct disbursements to the EPC contractor in accordance with the express provisions contained in this behalf in the financing agreements.

Withdrawals during Concession Period

YATL was required to, at the time of opening the Escrow Account, give irrevocable instructions, by way of the Escrow Agreement, to the Escrow Bank instructing, inter alia, that deposits in the Escrow Account shall be appropriated in the following order every month, or at shorter intervals as necessary, and if not due in a month, then appropriated proportionately in such month and retained in the Escrow Account and paid out therefrom in a month when due:

a) all taxes due and payable by YATL for and in respect of the YATL Project Highway;

b) all payments relating to construction of the YATL Project Highway, subject to and in accordance with the conditions, if any, set forth in the financing agreements;

c) Operation and Management ("**O&M**") expenses, subject to the ceiling, if any, set forth in the financing agreements;

d) O&M expenses and other costs and expenses incurred by the NHAI in accordance with the provisions of the YATL Concession Agreement, and certified by the NHAI as due and payable to it;

e) concession fee due and payable to the NHAI;

f) monthly proportionate provision of YATL Debt Service due in an accounting year;

g) all payments and damages certified by the NHAI as due and payable to it by YATL, including repayment of revenue shortfall loan.

h) monthly proportionate provision of YATL Debt Service payments due in an accounting year in respect of subordinated debt;

i) any reserve requirements set forth in the financing agreements; and

j) balance, if any, in accordance with the instructions of YATL.

YATL shall not, in any manner, modify the order of payment specified except with prior written approval from the NHAI.

Withdrawals upon Termination

Notwithstanding anything to the contrary contained in the YATL Concession Agreement, all amounts standing to the credit of the Escrow Account shall, upon termination, be appropriated in the following order:

a) all taxes due and payable by YATL for and in respect of the YATL Project Highway;

b) 90% of the YATL Debt Due excluding the subordinated debt;

c) outstanding concession fee;

d) all payments and damages certified by the NHAI as due and payable to it by YATL, including the repayment of the revenue shortfall loan.

e) retention and payments relating to the liability for defects and deficiencies set forth in the YATL Concession Agreement;

f) outstanding YATL Debt Service including balance of YATL Debt Due;

g) outstanding subordinated debt;

h) incurred or accrued O&M expenses;

i) any other payments required to be made under the YATL Concession Agreement; and

j) balance, if any, in accordance with the instructions of YATL.

No appropriations shall be made until a vesting certificate has been issued by the NHAI.

Change of Scope

The NHAI may, notwithstanding anything to the contrary contained in the YATL Concession Agreement, require the provision of additional works and services which are not included in the scope of the project as contemplated by the YATL Concession Agreement. Any such change of scope shall be made in accordance with the provisions of the YATL Concession Agreement and the costs thereof shall be expended by YATL and reimbursed by the NHAI.

If YATL determines at any time that a change in scope is necessary for providing safer and improved services to the users, it shall, by notice in writing, require the NHAI to consider such change of scope. The NHAI shall, within 15 days of receipt of such notice, either accept the change of scope with modifications, if any, and initiate proceedings thereof in accordance with the provisions of the YATL Concession Agreement, or inform YATL in writing of its reasons for not accepting such change of scope.

Compensation for Breach of Agreement

In the event of YATL being in material default or breach of the YATL Concession Agreement, it shall pay to the NHAI by way of compensation, all direct costs suffered or incurred by the NHAI as a consequence of the material default or breach, within 30 days of the receipt of the demand supported by the necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages are expressly specified and payable under the YATL Concession Agreement.

In the event of the NHAI being in material default of the YATL Concession Agreement at any time after the YATL Appointed Date, it shall pay to YATL by way of compensation, all direct costs suffered or incurred by YATL as a consequence of the material default or breach within 30 days of receipt of the demand supported by necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages have been expressly specified in the YATL Concession Agreement.

In the event that a material default or breach of the YATL Concession Agreement causes a delay in achieving COD or leads to suspension of, or reduction in collection of fee, as the case may be, the NHAI shall, in addition to the payment of compensation, extend the YATL Concession Period as provided in the YATL Concession Agreement. In the event that an additional toll way or a competing road, as the case may be, is opened to traffic in breach of the YATL Concession Agreement, the NHAI shall pay to YATL, for each day of the breach, compensation as provided in the YATL Concession Agreement, until the breach is cured. The payment of compensation by the NHAI shall be deemed to cure the breach of the YATL Concession Agreement so long as the NHAI continues to pay the compensation.

The compensation payable shall be in addition to, and not in substitution for, or derogation of, termination payment, if any.

Effects of Variation in Traffic Growth

Subject to the provisions of the YATL Concession Agreement, in the event actual average traffic shall have fallen short of the target traffic, then for every 1% (one percent) shortfall as compared to the target traffic, the YATL Concession Period shall, subject to payment of concession fee in accordance with the YATL Concession Agreement, be increased by 1.5% (one point five percent) thereof; provided that such increase in YATL Concession Period shall not in any case exceed 20% (twenty percent) of the YATL Concession Period.

Subject to the provisions of the YATL Concession Agreement, in the event actual average traffic shall have exceeded the target traffic, then for every 1% (one percent) excess as compared to the target traffic, the YATL Concession Period shall be reduced by 0.75% (zero point seven five percent) thereof; provided that such reduction in YATL Concession Period shall not in any case exceed 10% (ten percent) thereof.

Provided further that in lieu of a reduction in YATL Concession Period under the YATL Concession Agreement, YATL may elect to pay, in addition to the concession fee that would be due and payable if the YATL Concession Period were not reduced hereunder, a further premium equal to 25% (twenty five percent) of the realizable fee, and upon notice given to this effect by YATL no later than two years prior to the YATL Termination Date contemplated by the YATL Concession Agreement, NHAI shall waive the reduction in YATL Concession Period hereunder forthwith.

Notwithstanding anything to the contrary contained in YATL Concession Agreement, if the average daily traffic of PCUs in any accounting year shall exceed the designed capacity of the YATL Project Highway, the NHAI at its option may cause preparation of detailed project report which will assess the cost that may have to be incurred for augmenting the capacity of the YATL Project Highway so that its capacity is sufficiently increased for carrying the then current traffic in accordance with the corresponding provisions of the Indian Roads Congress publication no. IRC -64, 1990 or any substitute thereof. The YATL Concession Period, may be extended so that it yields for YATL a post-tax return on equity of 16% per annum. This assessment will be made at an assumed debt to equity ratio of 70:30. The extension of the YATL Concession Period shall be however limited to five years. The NHAI may thereafter, at their sole option, issue a notice to YATL, to undertake within six months of such notice, the augmentation so determined by the NHAI. The refusal, non-acceptance, or failure by YATL to undertake such augmentation on the due date so intimated by the NHAI, will be considered an indirect political event and the NHAI may at its discretion terminate this YATL Concession Agreement by issuing a termination notice and making a termination payment in accordance with the provisions of the YATL Concession Agreement without the NHAI being liable to issue any further notice under it.

Termination of the YATL Concession Agreement

Termination by the NHAI

Save as otherwise provided in the YATL Concession Agreement, in the event that any of the defaults specified below shall have occurred, and YATL fails to cure the default within the cure period, or where no cure period is specified, then within a cure period of 60 days, YATL shall be deemed to be in default of the YATL Concession Agreement ("**YATL Default**"), unless the default has occurred solely as a result of any breach of the YATL Concession Agreement by the NHAI or due to force majeure. The defaults referred to herein shall include:

a) the performance security has been encashed and appropriated in accordance with the YATL Concession Agreement and YATL fails to replenish or provide fresh performance security within a cure period of 30 days;

b) subsequent to the replenishment or furnishing of fresh performance security in accordance with the YATL Concession Agreement, YATL fails to cure, within a cure period of 90 days, the YATL Default for which whole or part of the performance security was appropriated;

c) YATL does not achieve the latest outstanding project milestone due in accordance with the YATL Concession Agreement and continues to be in default for 120 days;

d) YATL abandons or manifests intention to abandon the construction or operation of the YATL Project Highway without the prior written consent of the NHAI;

e) project completion date does not occur within the period specified in the YATL Concession Agreement;

f) the punch list items have not been completed within the period set forth in the YATL Concession Agreement;

g) YATL is in breach of the maintenance requirements or the safety requirements as the case may be;

h) YATL has failed to make any payment to the NHAI within the period specified in the YATL Concession Agreement;

i) an escrow default has occurred and YATL fails to cure the default within a cure period of 15 days;

j) upon occurrence of a financial default, the lenders' representative has, by notice, required the NHAI to undertake suspension or termination, as the case may be, in accordance with the Substitution Agreement and YATL fails to cure the default within the cure period specified hereinabove;

k) a breach of the project agreements by YATL has caused a material adverse effect;

l) YATL creates an encumbrance in breach of the YATL Concession Agreement;

m) YATL repudiates the YATL Concession Agreement or otherwise takes any action or evidences or conveys an intention not to be bound by the YATL Concession Agreement;

n) a change in ownership has occurred in breach of the YATL Concession Agreement;

o) there is a transfer, pursuant to law either of (i) the rights and/or obligations of YATL under any of the project agreements, or of (ii) all or part of the assets or undertaking of YATL, and such transfer causes a material adverse effect;

p) an execution levied on any of the assets of YATL has caused a material adverse effect;

q) YATL is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for YATL or for the whole or material part of its assets that has a material bearing on the YATL Project;

r) YATL has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the NHAI, a material adverse effect;

s) a resolution for winding up of YATL is passed, or any petition for winding up of YATL is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 days of the date thereof, or YATL is ordered to be wound up by Court except for the purpose of amalgamation or reconstruction, provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of YATL are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of YATL under the YATL Concession Agreement and the project agreements; provided that:

    i) the amalgamated or reconstructed entity has the capability and operating experience necessary for the performance of its obligations under the YATL Concession Agreement and the project agreements;

    ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under the YATL Concession Agreement and the project agreements and has a creditworthiness at least as good as that of YATL as at the YATL Appointed Date; and

    iii) each of the project agreements remains in full force and effect;

t) any representation or warranty of YATL which is, as of the date hereof, found to be materially false, incorrect or misleading or YATL is at any time hereafter found to be in breach thereof;

u) YATL submits to the NHAI any statement, notice or other document, in written or electronic form, which has a material effect on the NHAI's rights, obligations or interests and which is false in material particulars;

v) YATL has failed to fulfil any obligation, for which failure termination has been specified in the YATL Concession Agreement; or

w) YATL commits a default in complying with any other provision of the YATL Concession Agreement if such default causes a material adverse effect on the NHAI.

Without prejudice to any other rights or remedies which the NHAI may have under the YATL Concession Agreement, upon the occurrence of a YATL Default, the NHAI shall be entitled to terminate the YATL Concession Agreement by issuing a termination notice to YATL. Before issuing the termination notice, the NHAI shall, by notice, inform YATL of its intention to issue a termination notice and grant 15 days to YATL to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice subject to the provisions of the YATL Concession Agreement.

If there are senior lenders, the NHAI shall send a copy of its notice of intention to issue a termination notice to inform the lenders' representative and grant 15 days to the lenders' representative for making a representation on behalf of the senior lenders stating the intention to substitute YATL in accordance with the Substitution Agreement. If the NHAI receives a representation on behalf of the senior lenders, it shall, in its discretion, either withhold termination for a period not exceeding 180 days from the date of the representation, or exercise its right of suspension, as the case may be, to enable the lenders' representative to exercise the senior lenders' right of substitution in accordance with the Substitution Agreement. The lenders' representative may, instead of exercising the senior lenders' right of substitution, procure that the default specified in the notice is cured within the aforesaid 180 days, and upon the curing, the NHAI shall withdraw its notice and restore the rights of YATL. On a written request from the lenders' representative and YATL, the NHAI shall extend the period of 180 days by a further period not exceeding 90 days as it may deem appropriate.

Termination by YATL

In the event that any of the defaults specified below shall have occurred, and the NHAI fails to cure the default within a cure period of 90 days or such longer period as provided in the YATL Concession Agreement, the NHAI shall be deemed to be in default of the YATL Concession Agreement ("**NHAI Default**"), unless the default has occurred as a result of a breach of the YATL Concession Agreement by YATL, or due to force majeure. The default referred to herein shall include:

a) the NHAI commits a material default in complying with any of the provisions of the YATL Concession Agreement and such default has a material adverse effect on YATL;

b) the NHAI has failed to make any payment to YATL within the period specified in the YATL Concession Agreement;

c) the NHAI repudiates the YATL Concession Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by the YATL Concession Agreement; or

d) the State of Maharashtra commits a material default in complying with the provisions of the state support agreement if such default has a material adverse effect on YATL and the breach continues for a period of 90 days from the date of notice given in this behalf by YATL to the NHAI.

Without prejudice to any other rights or remedies which YATL may have under the YATL Concession Agreement, upon the occurrence of an NHAI Default, YATL shall be entitled to terminate the YATL Concession Agreement by issuing a termination notice to the NHAI. Before issuing the termination notice, YATL shall, by notice, inform the NHAI of its intention to issue a termination notice and grant 15 days to the NHAI to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice.

Termination Payment

Upon termination on account of a YATL Default during the operation period, the NHAI shall pay to YATL, by way of termination payment, an amount equal to 90% of the YATL Debt Due less insurance cover. If any insurance claims forming part of the insurance cover are not admitted and paid, then 80% of such unpaid claims shall be included in the computation of YATL Debt Due.

Upon termination on account of an NHAI Default, the NHAI shall pay to YATL, by way of termination payment, an amount equal to:

a) YATL Debt Due; and
b) 150% of the adjusted equity.

Termination payment shall become due and payable to YATL within 15 days of a demand being made by YATL to the NHAI with the necessary particulars, and in the event of any delay, the NHAI shall pay interest at a rate equal to 3% above the bank rate on the amount of termination payment remaining unpaid. The delay shall not exceed 90 days. The termination payment under the YATL Concession Agreement shall constitute a full and final settlement of all claims of YATL on account of termination of the YATL Concession Agreement for any reason whatsoever and YATL, or any shareholder thereof, shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

Defects Liability after Termination

YATL shall be responsible for all defects and deficiencies in the YATL Project Highway for a period of 120 days after termination. YATL shall have the obligation to repair or rectify, at its own cost, all defects and deficiencies in the YATL Project Highway as observed by the independent engineer. The repair or rectification of the defect or deficiency shall be done within a period of 15 days from the date of notice issued by the NHAI in this behalf. A sum as specified in the YATL Concession Agreement shall be retained in the Escrow Account for a period of 120 days after termination for meeting the liabilities, if any, arising out of, or in connection with this provision.

10. Concession Agreement between PDTPL and the NHAI dated June 14, 2021

PTDTPL has entered into a concession agreement for the six-laning of National Corridor NH-19 from Palsit to Dankuni (upto NH-6 Connector) from KM 588.870 to KM 652.700 (total design length 63.830 km) in the State of West Bengal under Bharatmala Pariyojana to be executed on BOT (Toll) basis (the "**PDTPL Concession Agreement**"), for a period of 17 years, from April 2, 2022 ("**PDTPL Appointed Date**") or until such date on which the PDTPL Concession Agreement is terminated by a termination notice ("**PDTPL Termination Date**", and the period between the PDTPL Appointed Date and the PDTPL Termination Date, the "**PDTPL Concession Period**").

Certain Definitions

"**PDTPL Debt Due**" shall mean the aggregate of the following sums expressed in Indian Rupees outstanding on the transfer date:

a) the principal amount of the debt provided by the senior lenders under the financing agreements for financing the total project cost (the "**Principa**l") but excluding any part of the Principal that had fallen due for repayment two years prior to the transfer date;

b) all accrued interest, financing fees and charges payable under the financing agreements on, or in respect of, the debt referred to in the sub-clause above until the transfer date but excluding (i) any interest, fees or charges that had fallen due one year prior to the transfer date, (ii) any penal interest or charges payable under the financing agreements to any senior lender, and (iii) any pre-payment charges in relation to accelerated repayment of debt except where such charges have arisen due to an NHAI Default (as defined below); and

c) any subordinated debt which is included in the financing package and disbursed by lenders for financing the total project cost;

If all, or any part of the PDTPL Debt Due is convertible into equity at the option of the senior lenders and/or PDTPL, it shall, for the purposes of the PDTPL Concession Agreement, be deemed to be PDTPL Debt Due even after the conversion and the Principal thereof shall be dealt with as if such conversion had not been undertaken;

"**PDTPL Debt Service**" shall mean the sum of all payments on account of principal, interest, financing fees and charges due and payable in an accounting year to the senior lenders under the financing agreements;

"**PDTPL Project Assets**" shall mean all physical and other assets relating to and forming part of the site including (a) rights over the site in the form of licence, right of way or otherwise; (b) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road overbridges, drainage works, traffic signals, sign boards, kilometre-stones, toll plazas, electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; (c) project facilities situated on the site; (d) all rights of PDTPL under the project agreements; (e) financial assets, such as receivables, security deposits etc.; (f) insurance proceeds; and (g) applicable permits and authorizations relating to or in respect of the PDTPL Project Highway (as defined below), but does not include additional facilities;

"**PDTPL Project Highway**" shall mean the site comprising the existing road comprising NH-19 from km 588.870 to km 652.700 and all PDTPL Project Assets, and its subsequent development and augmentation in accordance with the PDTPL Concession Agreement;

"**PDTPL Project**" shall mean the construction, operation, and maintenance of the PDTPL Project Highway in accordance with the provisions of the PDTPL Concession Agreement, and includes all works, services, and equipment relating to and in respect of the scope of the project; and

"**Premium**" shall mean an amount payable to the NHAI by PDTPL in the form of an additional concession fee, as set forth in the bid for each year of the PDTPL Concession Period.

Grant of Concession

Subject to, and in accordance with the provisions set out in the PDTPL Concession Agreement, the applicable laws and the applicable permits, the NHAI has granted to PDTPL, and PDTPL has accepted the concession, including the exclusive right, license, and authority during the subsistence of the PDTPL Concession Agreement, to construct, operate and maintain the PDTPL Project for a period of 17 years from the PDTPL Appointed Date.

Subject to, and in accordance with the provisions of the PDTPL Concession Agreement, the concession granted shall oblige or entitle, as the case may be, PDTPL to:

h) right of way, access and license to the site for the purpose of, and to the extent conferred by the provisions of the PDTPL Concession Agreement;

i) finance and construct the PDTPL Project Highway;

j) manage, operate, and maintain the PDTPL Project Highway and regulate the use thereof by third parties;

k) demand, collect, and appropriate fee from vehicles and persons liable for payment of fee for using the PDTPL Project Highway or any part thereof and refuse entry of any vehicle if the fee due is not paid;

l) perform and fulfil all of PDTPL's obligations under and in accordance with the PDTPL Concession Agreement;

m) bear and pay all costs, expenses, and charges in connection with or incidental to the performance of the obligations of PDTPL under the PDTPL Concession Agreement; and

n) neither assign, transfer or sublet, or create any lien or encumbrance on the PDTPL Concession Agreement, or the concession granted, or on the whole or any part of the PDTPL Project Highway, nor transfer, lease, or part possession thereof, save and except as expressly permitted by the PDTPL Concession Agreement or the agreement for the substitution of PDTPL entered into by PDTPL, the NHAI, and the lenders' representative on behalf of the senior lenders (the "**Substitution Agreement**").

Fees

On and from the commercial operation date ("**COD**") till the transfer date, PDTPL shall have the sole and exclusive right to demand, collect, and appropriate fee from the users subject to, and in accordance with the PDTPL Concession Agreement and the applicable rules and regulations, provided that for ease of payment and collection, such fee shall be rounded off to the nearest five rupees in accordance with the applicable fee rules, as updated from time to time. Further, PDTPL may determine and collect fee at such lower rates as it may, by public notice to the users, specify in respect of all or any category of users or vehicles. In accordance with the PDTPL Concession Agreement, PDTPL shall not collect any fees in relation to exempted vehicles.

PDTPL shall not collect any fee from a local user for non-commercial use of the PDTPL Project Highway, and shall issue a pass in respect thereof for commuting on a section of the PDTPL Project Highway as specified in the pass and for crossing the toll plaza specified therein. For carrying out these provisions, PDTPL shall formulate, publish and implement an appropriate scheme, and make such modifications to the scheme as may reasonably be suggested by the NHAI or by local users from time to time. For defraying its expenses on issuing of passes and handling of local users, PDTPL shall be entitled to charge a monthly fee of ₹150, with reference to the base year 2007-08, to be revised annually in accordance with the fee rules to reflect the variation in WPI, and then rounded off to the nearest five rupees; provided that no passes will be required or fee collected from a vehicle that uses part of the PDTPL Project Highway and does not cross a toll plaza.

Concession Fee

In consideration of the grant of concession, PDTPL shall pay to the NHAI by way of concession fee a sum of ₹1 per annum.

Additionally, immediately after the first anniversary of the project completion date, a premium in the form of an additional concession fee for every year of the remaining concession period is payable by PDTPL. The premium to be paid for the second year after the project completion date is equal to 10.8% of the realisable fee and is required to be paid by PDTPL as due to the NHAI during that year. For subsequent years, the premium will be determined based on the total realisable fee in the respective year at the percentage to be arrived at by increasing the percentage of premium in the respective year by an additional 1% as compared to the immediately preceding year.

The concession fee payable under the provisions of the PDTPL Concession Agreement shall be due and payable in monthly instalments within seven days of the close of each month.

Escrow Account

PDTPL was required to, prior to the PDTPL Appointed Date, open and establish an escrow account (the "**Escrow Account**") with a bank (the "**Escrow Bank**") in accordance with the PDTPL Concession Agreement read with the escrow agreement entered into among PDTPL, the NHAI, the Escrow Bank and the senior lenders through the lenders' representative (the "**Escrow Agreement**").

PDTPL shall deposit, or cause to be deposited the following inflows and receipts into the Escrow Account:

a) all funds constituting the financial package;
b) all fee and any other revenues from or in respect of the PDTPL Project Highway, including the proceeds of any deposits, capital receipts or insurance claims; and
c) all payments by the NHAI, after deducting any outstanding concession fee.

The senior lenders may make direct disbursements to the EPC contractor in accordance with the express provisions contained in this behalf in the financing agreements.

Withdrawals during Concession Period

PDTPL was required to, at the time of opening the Escrow Account, give irrevocable instructions, by way of the Escrow Agreement, to the Escrow Bank instructing, *inter alia*, that deposits in the Escrow Account shall be appropriated in the following order every month, or at shorter intervals as necessary, and if not due in a month, then appropriated proportionately in such month and retained in the Escrow Account and paid out therefrom in a month when due:

a) all taxes due and payable by PDTPL for and in respect of the PDTPL Project Highway;

b) all payments relating to construction of the PDTPL Project Highway, subject to and in accordance with the conditions, if any, set forth in the financing agreements;

c) operation and management ("**O&M**") expenses, subject to the ceiling, if any, set forth in the financing agreements;

d) O&M expenses and other costs and expenses incurred by the NHAI in accordance with the provisions of the PDTPL Concession Agreement, and certified by the NHAI as due and payable to it;

e) concession fee and premium due and payable to the NHAI;

f) monthly proportionate provision of PDTPL Debt Service due in an accounting year;

g) premium due and payable to the NHAI;

h) all payments and damages certified by the NHAI as due and payable to it by PDTPL, including repayment of revenue shortfall loan. PDTPL has agreed to give irrevocable instructions to the Escrow Bank to make payments from the Escrow Account in accordance with the instructions of the NHAI under the PDTPL Concession Agreement and debit the payment to O&M expenses;

i) monthly proportionate provision of PDTPL Debt Service payments due in an accounting year in respect of subordinated debt;

j) any reserve requirements set forth in the financing agreements; and

k) balance, if any, in accordance with the instructions of PDTPL.

PDTPL shall not, in any manner, modify the order of payment specified except with prior written approval from the NHAI.

Withdrawals upon Termination

Notwithstanding anything to the contrary contained in the PDTPL Concession Agreement, all amounts standing to the credit of the Escrow Account shall, upon termination, be appropriated in the following order:

a) all taxes due and payable by PDTPL for and in respect of the PDTPL Project Highway;

b) 90% of the PDTPL Debt Due excluding the subordinated debt;

c) outstanding concession fee;

d) all payments and damages certified by the NHAI as due and payable to it by PDTPL, including the repayment of the revenue shortfall loan. PDTPL has agreed to give irrevocable instruction to the Escrow Bank to make payment from the Escrow Account in accordance with the instructions of the NHAI under the PDTPL Concession Agreement and debit the payment to O&M expenses.

e) retention and payments relating to the liability for defects and deficiencies set forth in the PDTPL Concession Agreement;

f) outstanding PDTPL Debt Service including balance of PDTPL Debt Due;

g) outstanding subordinated debt;

h) incurred or accrued O&M expenses;

i) any other payments required to be made under the PDTPL Concession Agreement; and

j) balance, if any, in accordance with the instructions of PDTPL.

No appropriations shall be made until a vesting certificate has been issued by the NHAI.

Change of Scope

The NHAI may, notwithstanding anything to the contrary contained in the PDTPL Concession Agreement, require the provision of additional works and services which are not included in the scope of the project as contemplated by the PDTPL Concession Agreement. Any such change of scope shall be made in accordance with the provisions of the PDTPL Concession Agreement and the costs thereof shall be expended by PDTPL and reimbursed by the NHAI in accordance with the PDTPL Concession Agreement.

If PDTPL determines at any time that a change in scope is necessary for providing safer and improved services to the users, it shall, by notice in writing, require the NHAI to consider such change of scope. The NHAI shall, within 60 days of receipt of such notice, either accept the change of scope with modifications, if any, and initiate proceedings thereof in accordance with the provisions of the PDTPL Concession Agreement, or inform PDTPL in writing of its reasons for not accepting such change of scope.

Compensation for Breach of Agreement

In the event of PDTPL being in material default or breach of the PDTPL Concession Agreement, it shall pay to the NHAI by way of compensation, all direct costs suffered or incurred by the NHAI as a consequence of the material default or breach, within 30 days of the receipt of the demand supported by the necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages are expressly specified and payable under the PDTPL Concession Agreement.

In the event of the NHAI being in material default or breach of the PDTPL Concession Agreement at any time after the PDTPL Appointed Date, it shall pay to PDTPL by way of compensation, all direct costs suffered or incurred by PDTPL as a consequence of the material default or breach within 30 days of receipt of the demand supported by necessary particulars thereof. No compensation shall be payable for any material breach or default in respect of which damages have been expressly specified in the PDTPL Concession Agreement.

In the event that a material default or breach of the PDTPL Concession Agreement causes a delay in achieving COD or leads to suspension of, or reduction in collection of fee, as the case may be, the NHAI shall, in addition to the payment of compensation, extend the PDTPL Concession Period as provided in the PDTPL Concession Agreement. In the event that an additional toll way or a competing road, as the case may be, is opened to traffic in breach of the PDTPL Concession Agreement, the NHAI shall pay to PDTPL, for each day of the breach, compensation as provided in the PDTPL Concession Agreement, until the breach is cured. The payment of compensation by the NHAI shall be deemed to cure the breach of the PDTPL Concession Agreement so long as the NHAI continues to pay the compensation.

The compensation payable shall be in addition to, and not in substitution for, or derogation of, termination payment, if any.

Effects of Variation in Traffic Growth

Subject to the provisions of the PDTPL Concession Agreement, in the event actual average traffic shall have fallen short of the target traffic by more than 5% (five percent), then for every 1% (one percent) shortfall as compared to the target traffic, the PDTPL Concession Period shall, subject to payment of concession fee and additional concession fee in accordance with the PDTPL Concession Agreement, be increased by 1% (one percent) thereof; provided that such increase in PDTPL Concession Period shall not in any case exceed 20% (twenty percent) of the PDTPL Concession Period.

Subject to the provisions of the PDTPL Concession Agreement, in the event actual average traffic shall have exceeded the target traffic by more than 5% (five percent), then for every 1% (one percent) increase as compared to the target traffic, the PDTPL Concession Period shall be reduced by 1% (one percent) thereof; provided that such reduction in PDTPL Concession Period shall not in any case exceed 20% (ten percent) of the PDTPL Concession Period.

Notwithstanding anything to the contrary contained in the PDTPL Concession Agreement, if the average daily traffic of PCUs in any accounting year shall exceed the designed capacity of the PDTPL Project Highway, an indirect political event under the PDTPL Concession Agreement will be deemed to have occurred and the NHAI may, at its discretion, terminate the PDTPL Concession Agreement. If PDTPL has completed the construction works necessary for augmenting the capacity of the PDTPL Project Highway such that its capacity has increased sufficiently for carrying the then current traffic in accordance with the corresponding provisions of the relevant Indian Roads Congress publication, prior to the issue of a termination notice by the NHAI, the indirect political event will deemed to have been cured.

Termination of the PDTPL Concession Agreement

Termination by the NHAI

Save as otherwise provided in the PDTPL Concession Agreement, in the event that any of the defaults specified below shall have occurred, and PDTPL fails to cure the default within the cure period, or where no cure period is specified, then within a cure period of 60 days, PDTPL shall be deemed to be in default of the PDTPL Concession Agreement ("**PDTPL Default**"), unless the default has occurred solely as a result of any breach of the PDTPL Concession Agreement by the NHAI or due to force majeure. The defaults referred to herein shall include:

a) the performance security has been encashed and appropriated in accordance with the PDTPL Concession Agreement and PDTPL fails to replenish or provide fresh performance security within a cure period of 30 days;

b) subsequent to the replenishment or furnishing of fresh performance security in accordance with the PDTPL Concession Agreement, PDTPL fails to cure, within a cure period of 90 days, the PDTPL Default for which whole or part of the performance security was appropriated;

c) PDTPL does not achieve the latest outstanding project milestone due in accordance with the PDTPL Concession Agreement and continues to be in default for 90 days;

d) PDTPL abandons or manifests intention to abandon the construction or operation of the PDTPL Project Highway without the prior written consent of the NHAI;

e) project completion date does not occur within the period specified in the PDTPL Concession Agreement;

f) the punch list items have not been completed within the period set forth in the PDTPL Concession Agreement;

g) PDTPL is in breach of the maintenance requirements or the safety requirements as the case may be;

h) PDTPL has failed to make any payment to the NHAI within the period specified in the PDTPL Concession Agreement;

i) an escrow default has occurred and PDTPL fails to cure the default within a cure period of 15 days;

j) upon occurrence of a financial default, the lenders' representative has, by notice, required the NHAI to undertake suspension or termination, as the case may be, in accordance with the Substitution Agreement and PDTPL fails to cure the default within the cure period specified hereinabove;

k) a breach of the project agreements by PDTPL has caused a material adverse effect;

l) PDTPL creates an encumbrance in breach of the PDTPL Concession Agreement;

m) PDTPL repudiates the PDTPL Concession Agreement or otherwise takes any action or evidences or conveys an intention not to be bound by the PDTPL Concession Agreement;

n) a change in ownership has occurred in breach of the PDTPL Concession Agreement;

o) there is a transfer, pursuant to law either of (i) the rights and/or obligations of PDTPL under any of the project agreements, or of (ii) all or part of the assets or undertaking of PDTPL, and such transfer causes a material adverse effect;

p) an execution levied on any of the assets of PDTPL has caused a material adverse effect;

q) PDTPL is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for PDTPL or for the whole or material part of its assets that has a material bearing on the PDTPL Project;

r) PDTPL has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the NHAI, a material adverse effect;

s) a resolution for winding up of PDTPL is passed, or any petition for winding up of PDTPL is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 days of the date thereof, or PDTPL is ordered to be wound up by a court except for the purpose of amalgamation or reconstruction, provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of PDTPL are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of PDTPL under the PDTPL Concession Agreement and the project agreements; provided that:

    i) the amalgamated or reconstructed entity has the capability and operating experience necessary for the performance of its obligations under the PDTPL Concession Agreement and the project agreements;

ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under the PDTPL Concession Agreement and the project agreements and has a creditworthiness at least as good as that of PDTPL as at the PDTPL Appointed Date; and

iii) each of the project agreements remains in full force and effect;

t) any representation or warranty of PDTPL which is, as of the date hereof, found to be materially false, incorrect or misleading or PDTPL is at any time hereafter found to be in breach thereof;

u) PDTPL submits to the NHAI any statement, notice or other document, in written or electronic form, which has a material effect on the NHAI's rights, obligations or interests and which is false in material particulars;

v) PDTPL has failed to fulfil any obligation, for which failure termination has been specified in the PDTPL Concession Agreement; or

w) PDTPL commits a default in complying with any other provision of the PDTPL Concession Agreement if such default causes a material adverse effect on the NHAI.

Without prejudice to any other rights or remedies which the NHAI may have under the PDTPL Concession Agreement, upon the occurrence of a PDTPL Default, the NHAI shall be entitled to terminate the PDTPL Concession Agreement by issuing a termination notice to PDTPL. Before issuing the termination notice, the NHAI shall, by notice, inform PDTPL of its intention to issue a termination notice and grant 15 days to PDTPL to make a representation, and may, after the expiry of the 15 days, whether or not it is in receipt of such representation, issue the termination notice subject to the provisions of the PDTPL Concession Agreement.

If there are senior lenders, the NHAI shall send a copy of its notice of intention to issue a termination notice to inform the lenders' representative and grant 30 days to the lenders' representative for making a representation on behalf of the senior lenders stating the intention to substitute PDTPL in accordance with the Substitution Agreement. If the NHAI receives a representation on behalf of the senior lenders, it shall, in its discretion, either withhold termination for a period not exceeding 180 days from the date of the representation, or exercise its right of suspension, as the case may be, to enable the lenders' representative to exercise the senior lenders' right of substitution in accordance with the Substitution Agreement. The lenders' representative may, instead of exercising the senior lenders' right of substitution, procure that the default specified in the notice is cured within the aforesaid 180 days, and upon the curing, the NHAI shall withdraw its notice and restore the rights of PDTPL. On a written request from the lenders' representative and PDTPL, the NHAI shall extend the period of 180 days by a further period not exceeding 90 days as it may deem appropriate.

Termination by PDTPL

In the event that any of the defaults specified below shall have occurred, and the NHAI fails to cure the default within a cure period of 90 days or such longer period as provided in the PDTPL Concession Agreement, the NHAI shall be deemed to be in default of the PDTPL Concession Agreement ("**NHAI Default**"), unless the default has occurred as a result of a breach of the PDTPL Concession Agreement by PDTPL, or due to force majeure. The default referred to herein shall include:

e) the NHAI commits a material default in complying with any of the provisions of the PDTPL Concession Agreement and such default has a material adverse effect on PDTPL;

f) the NHAI has failed to make any payment to PDTPL within the period specified in the PDTPL Concession Agreement;

g) the NHAI repudiates the PDTPL Concession Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by the PDTPL Concession Agreement; or

h) the State of West Bengal commits a material default in complying with the provisions of the state support agreement if such default has a material adverse effect on PDTPL and the breach continues for a period of 90 days from the date of notice given in this behalf by PDTPL to the NHAI.

Without prejudice to any other rights or remedies which PDTPL may have under the PDTPL Concession Agreement, upon the occurrence of an NHAI Default, PDTPL shall be entitled to terminate the PDTPL Concession Agreement by issuing a termination notice to the NHAI. Before issuing the termination notice, PDTPL shall, by notice, inform the NHAI of its intention to issue a termination notice and grant 30 days to the NHAI to make a representation, and may, after the expiry of the 30 days, whether or not it is in receipt of such representation, issue the termination notice.

Termination Payment

Upon termination on account of a PDTPL Default during the operation period, the NHAI shall pay to PDTPL, by way of termination payment, an amount equal to 90% of the PDTPL Debt Due less insurance cover. If any insurance claims forming part of the insurance cover are not admitted and paid, then 80% of such unpaid claims shall be included in the computation of PDTPL Debt Due.

Upon termination on account of an NHAI Default, the NHAI shall pay to PDTPL, by way of termination payment, an amount equal to:

a) PDTPL Debt Due; and
b) 150% of the adjusted equity.

The termination payment shall not be less than an amount equal to the product of six and the average monthly fee actually realized 12 months prior to the transfer date.

Termination payment shall become due and payable to PDTPL within 30 days of a demand being made by PDTPL to the NHAI with the necessary particulars, and in the event of any delay, the NHAI shall pay interest at a rate equal to 3% above the bank rate on the amount of termination payment remaining unpaid. The delay shall not exceed 90 days. The termination payment under the PDTPL Concession Agreement shall constitute a full and final settlement of all claims of PDTPL on account of termination of the PDTPL Concession Agreement for any reason whatsoever and PDTPL shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

Defects Liability after Termination

PDTPL shall be responsible for all defects and deficiencies in the PDTPL Project Highway for a period of 120 days after termination. PDTPL shall have the obligation to repair or rectify, at its own cost, all defects and deficiencies in the PDTPL Project Highway as observed by the independent engineer. The repair or rectification of the defect or deficiency shall be done within a period of 15 days from the date of notice issued by the NHAI in this behalf. A sum as specified in the PDTPL Concession Agreement shall be retained in the Escrow Account for a period of 120 days after termination for meeting the liabilities, if any, arising out of, or in connection with this provision.

REGULATIONS AND POLICIES

The following description is a summary of certain key regulations and policies which are applicable to the operations of the Trust and the Project SPVs. The information detailed in this section has been obtained from publications available in the public domain. The regulations set out below may not be exhaustive, and are only intended to provide general information to the investors and are neither designed nor intended to substitute for professional legal advice. The information in this section is based on the current provisions of applicable law that are subject to change or modification by subsequent legislative, regulatory, administrative or judicial decisions in India.

Laws Relating to the Business and Operations of the Trust and the Project SPVs

The primary central legislations governing the road sector are the National Highways Act, 1956 (the "**NH Act**") and the National Highways Authority of India Act, 1988 (the "**NHAI Act**").

The NH Act

In accordance with the NH Act, the GoI is vested with the power to declare a highway as a national highway and also to acquire land for this purpose. The GoI may, by notification, declare its intention to acquire any land when it is satisfied that, for a public purpose, such land is required for the building, maintenance, management or operation of a national highway, or part thereof. The NH Act prescribes the procedure for such land acquisition. Such procedure includes, *inter-alia,* a declaration of an intention to acquire, entering and inspecting such land, hearing of objections, a declaration of the acquisition and the power to take possession. The NH Act also provides for payment of compensation to owners and any other person whose right of enjoyment in the land has been affected.

The GoI is responsible for the development and maintenance of national highways. However, it may direct that such functions may also be exercised by the government of a state in which the highway is located or by any officer or authority subordinate to the GoI or to the state government. Further, the GoI has the power to enter into an agreement with any person for the development and maintenance of a part or whole of the highway. Such person would have the right to collect and retain fees at such rates as may be notified by the GoI and will also have the powers to regulate and control the traffic, for proper management of the highway, in accordance with the provisions of the Motor Vehicles Act, 1988, as amended. The GoI also has the power to make rules for carrying out the purposes of the NH Act.

National Highways Fee (Determination of Rates and Collection) Rules, 2008

The National Highways Fee (Determination of Rates and Collection) Rules, 2008 (the "**NH Fee Rules**"), regulates the collection of fees for the use of national highways. In accordance with the NH Fee Rules, the GoI may, by a notification, levy a fee for use of any section of a national highway, permanent bridge, bypass or tunnel forming part of a national highway, as the case may be. However, the GoI may, by notification, exempt any section of a national highway, permanent bridge, bypass or tunnel constructed through a public funded project from levy of such fee.

The NH Fee Rules supersede the National Highways (Temporary Bridges) Rules, 1964, the National Highways (Collection of Fees by any Person for the Use of Section of National Highways/ Permanent Bridge/ Temporary Bridge on National Highways) Rules, 1997, the National Highways (Fees for the use of National Highways Section and Permanent Bridges – Public Funded Project) Rules, 1997 and the National Highways (Rate of Fees) Rules, 1997 other than in respect of things done or omitted to be done under such rules prior to supersession. The NH Fee Rules do not apply to agreements and contracts executed or bids invited prior to the publication of such rules, i.e., prior to December 5, 2008.

The collection of fees in case of a public funded project shall commence within 45 days from the date of completion of the project. The NH Fee Rules further provide a base rate of fees applicable for the use of a section of the national highway for different categories of vehicles and the fees collected by the executing authority shall be remitted to the GoI. However, the GoI may, by notification, allow any or all of the executing authorities to appropriate the whole, or part of such fees for purposes as may be specified.

FASTag lanes on fee plazas is a policy initiative of the GoI in which there is an exclusive lane in the fee plaza for movement of vehicles fitted with FASTag. The FASTag is a device which is fitted on the front windscreen of vehicles to indicate online toll payment. The amended NH Fee Rules impose a penalty equivalent to two times the fee applicable if a vehicle not fitted with FASTag enters the exclusive FASTag lane. However, in case a user is unable to pay, due to malfunctioning electronic toll collection infrastructure, the user will be permitted to pass the fee plaza without payment.

The NH Fee rules were also amended to provide that the driver or owner of a mechanical vehicle which is loaded in excess of permissible load specified for its category, (i) shall not be permitted to use the national highway or cross the fee plaza until the excess load has been removed, and (ii) shall be liable to pay a fee to the toll collection agency equal to 10 times of the fee applicable to such category of mechanical vehicle. However, in case no weighbridge has been installed at the toll plaza, no fee for overloading shall be levied.

The National Highways Rules, 1957

The National Highway Rules, 1957 (the "**NH Rules**") provide that in situations where the estimate cost of the execution of any original work on a national highway exceeds ₹1,000,000, a detailed estimated of the cost is to be forwarded to the GoI. An application for allotment of funds for meeting expenditure on an original work on a national highway must also be made to the GoI. The executing agency of the highway is required to furnish monthly progress reports and a completion report on the conclusion of the work. The NH Rules also give the consulting engineer of the GoI the right to inspect the work while it is in progress or after completion.

The NHAI Act

NHAI

The National Highways Authority of India (the "**NHAI**") was constituted pursuant to the NHAI Act and became operational in 1995. The NHAI Act details the functions the NHAI, which primarily are the development, maintenance and management of national highways and any other highways vested in, or entrusted to it, by the GoI, and matters connected therewith or incidental thereto. In accordance with the NHAI Act, the GoI carries out development and maintenance of the national highway system through NHAI. Subject to the provisions of the NHAI Act, the NHAI has the power to enter into and perform any contract necessary for the discharge of its functions. The NHAI has the power to acquire any land to discharge its functions, and such acquired land will be deemed to be land needed for a public purpose. The NHAI Act prescribes a limit in relation to the value of the contracts that may be entered into by NHAI. However, the NHAI may enter into contracts exceeding the specified value, on obtaining prior approval of the GoI. The NHAI Act provides that the contracts for acquisition, sale, or lease of immovable property on behalf of the NHAI cannot exceed a term of 30 years unless previously approved by the GoI.

As per the NHAI Works Manual, 2006, NHAI's mandate is the time and cost bound implementation of the National Highways Development Project (the "**NHDP**"). The sources of finance available to the NHAI include fund assistance from external funding agencies like the World Bank and the Asian Development Bank. NHDP Phase – I also strives to provide road connectivity to major ports. NHAI's role encompasses involving the private sector in provision, maintenance and operation of the national highways.

Financing of the NHDP

The GoI, under the Central Road Fund Act, 2000 created a fund which is required to be utilized for the development and maintenance of national highways (the "**Central Road Fund**"). Section 18 of the NHAI Act also provides for the creation of a separate NHAI Fund. Any capital grant or aid received, loan taken, borrowing made, or any other sum received by the NHAI is credited to the NHAI Fund. Certain sources for financing of the NHDP are through dedicated accruals under the Central Road Fund by levy of cess on fuel as well as involving the private sector and encouraging public private partnerships. The NHDP is also financed through long-term external loans from the World Bank, the Asian Development Bank and the Japan Bank for International Cooperation as well as through tolling of roads for different projects undertaken by the NHAI.

Private Participation in NHDP

In an effort to attract private sector participation in the NHDP, the NHAI has formulated model concession agreements where a private entity being the concessionaire is awarded a concession to build, operate and collect toll on a road for a specified period of time, which is usually up to 30 years.

The bidding for the projects takes place in two stages as per the process provided below:

1. in the pre-qualification stage, the NHAI selects certain bidders on the basis of technical and financial expertise, prior experience in implementing similar projects and previous track record; and

2. in the second stage, the NHAI invites commercial bids from the pre-qualified bidders on the basis of which the right to develop the project is awarded.

In accordance with the model concession agreement for projects above ₹1,000 million, the concessionaire meets the upfront cost and expenditure on annual maintenance and recovers the entire cost along with the interest from toll collections during the concession period. As per the 'Guidelines for Investment in Road Sector' issued by the Ministry of Shipping, Road Transport and Highways ("**MoRTH**") in 2009, in order to increase the viability of projects, a capital grant of up to 40% of the project cost is provided by the NHAI or the GoI. The quantum of grant is determined on a case to case basis and typically constitutes the bid parameter in Build, Operate, Transfer ("**BOT**") projects which are generally not viable based on toll revenue alone. For certain projects with high traffic volumes, concessionaire also offers a negative grant (i.e., premium) to the NHAI. The concessionaire at the end of the concession period transfers the road back to the Government (free of charge and clear of all encumbrances). The concessionaire's investment in the road is recovered directly through user fees collected by way of tolls. As per the model concession agreement for annuity based projects, the concessionaire is required to meet the entire upfront cost (no grant is paid by the NHAI or the GoI) and the expenditure on annual maintenance for annuity based projects. The concessionaire recovers the entire investment through pre-determined annuity payments to be made by the NHAI or the GoI. Furthermore, MoRTH approved certain amendments to the model concession agreement, *inter-alia,* in relation to deferment of premium payments.

Exit Policy

The CCEA in May 2015 approved a comprehensive exit policy framework with the objective to mobilize funds in the market. This policy framework now permits divestment of 100% equity by concessionaires/developers after two years of completion of construction to facilitate unlocking of funds for new projects. The equity divested is required to be invested by promoters in their new projects. This comprehensive exit policy framework is expected to harmonize certain conditions across all concessions signed prior to 2009 with the policy framework for post 2009 contracts which permit divestment of equity up to 100%, two years after completion of construction.

In November 2020, the MoRTH in modified the change in ownership clause in the Hybrid Annuity Mode ("**HAM**") projects and permitted the bidders/consortium members to dilute their equity after a period of six months from the commercial operations date ("**COD**"). Prior to the relaxation, the concessionaire/bidders/consortium members had to retain their equity for a period of two years from COD. Further, MoRTH in May 2022 approved changes in the model concession agreements of Build-Operate-Transfer projects and permitted the change of ownership from the existing two years to one year after COD/issuance of completion certificate and completion of punch list items.

Rationalized Compensation

The CCEA in November 2015 approved a policy for rationalized compensation to concessionaires for languishing national highway projects in BOT mode for delays that are not attributable to the concessionaires. Under the policy, the NHAI is authorized to allow an extension of the concession period for BOT (Toll) projects while keeping the original operation period unchanged. The NHAI has also been authorised to pay compensatory annuities to the concessionaire corresponding to the actual period of delay that is not attributable to the concessionaire upon successful completion of the project. In these cases, the construction period will be enhanced but the tenure of the concession will remain unchanged.

One Time Fund Infusion

The CCEA in October 2015 gave its approval to the NHAI for a one-time infusion of funds with the purpose of reviving and physically completing stalled projects in the advanced stages of completion. As per the policy, the amount of funds required in each case shall be approved by NHAI on a case-to-case basis.

Bidder Information

MoRTH has developed the Bidder Information Management System ("**BIMS**") to streamline the process of pre-qualification of bidders for EPC mode of contracts for all national highway works, with enhanced transparency and objectivity. BIMS works as a data base of bidder information that covers basic details, civil works experience, cash accruals and network, and annual turnover so that bidders' pre-qualification can be assessed based on evaluation parameters like threshold capacity and bid capacity from already stored data and the technical evaluation can be carried out in a faster manner.

Land Acquisition

While land is acquired for national highway projects under the NH Act, the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (the "**Land Acquisition Act**") must also be complied with. MoRTH has issued comprehensive guidelines on land acquisition for national highways taking into account the applicability of the Land Acquisition Act.

Arbitral Awards

CCEA on August 31, 2016 approved various measures to revive the construction sector. An office memorandum dated September 5, 2016 was issued by the National Institute for Transforming India with certain proposals. On November 20, 2019, the CCEA approved certain proposals in relation to the arbitrations by or against government entities, for the effective implementation of the CCEA's decision on August 31, 2016 on its initiatives to revive the construction sector. Initially, the CCEA had approved the proposal that government agencies will be required to pay 75% of the arbitral award to the concessionaire against a bank guarantee, in cases where the award already announced is challenged. However, pursuant to a press release dated November 20, 2019, the CCEA approved, *inter-alia,* that where a government entity has challenged an arbitral award, resultant of which the amount of the arbitral award has not been paid, 75% of such award will be paid by the government entity to the contractor or the concessionaire against a bank guarantee only for the said 75% and not for its interest component. In relation to interest payable to the government entity, if a subsequent court order required the refund of 75% of the amount, the payment of such amounts will be required to be made as per the court orders. On October 29, 2021, the Department of Expenditure inserted a new Rule 227A in the General Finance Rules, 2017 ("**GFR**") to incorporate the above decision of the CCEA. The above rule further requires payment to be made into a designated escrow account with the stipulation that the proceeds will be used: (i) for the payment of lenders' dues; (ii) for completion of the project, and (iii) for completion of other projects. The balance remaining in the escrow account may be used by the contractor/concessionaire with prior approval of the lead banker and the ministry/department. Retention money and other amounts withheld may also be released against the bank guarantee subject to eligibility conditions and applicable contractual provisions.

Policy Framework in light of COVID-19

The NHAI issued a policy titled *'Relief Measures to the BOT (Toll) Concessionaires from the impact of COVID-19."* dated May 26, 2020 (the "**Policy**"), which, *inter-alia*, included provisions for (i) extension in the concession period equal in length to the period during which the toll collection was suspended by the NHAI; (ii) extension in the concession period in the event of partial collection of fee where the daily collection is less than 90% of the average daily fee (as defined in the Policy); and (iii) exemption from payment of concession fee during which the toll collection was suspended by the NHAI. A concessionaire would be required to pay additional concession fee / premium during the extended period which would be calculated based on the provisions of the model concession agreement; and (iv) in the event that the daily collection fee was less than 90% of the average daily fee and the concessionaire was able to collect some user fee, the extension of the concession period would take into account the portion of user fee collected. The concessionaire would be required to pay proportionate additional concession fee/premium with respect to any fee collections. NHAI further extended the relief measures in view of COVID-19 pursuant to circulars dated August 31, 2021, January 17, 2022 and December 5, 2022.

Policy on forceful stoppage of toll collection due to farmers' agitation – Relief to be provided to concessionaires

The NHAI issued a circular dated July 2, 2021 in connection with the stoppage of toll collection by protests in relation to certain agricultural laws across the country. The circular is applicable to all BOT projects of the NHAI based on the model concession agreement issued post 2009.

The impact of the farmers' agitation has been considered as an indirect political force majeure event under the concession agreement. The corresponding impact on the concession period is to be dealt as per the relevant provisions of the concession agreement in relation to extension of concession period after COD, which states, *inter-alia*, that in case the concessionaire was unable to collect fee despite making best efforts or the NHAI directed suspension of toll collection during the subsistence of a force majeure event, the concession period will be extended by a period equal in length to the period during which the concessionaire was prevented from collection of fee. Further, in the event of partial collection of fee where the daily collection is less than 90% of the average daily fee, the NHAI will extend the concession period in proportion to the loss of fee on a daily basis.

Further, the NHAI issued a circular dated April 19, 2022 to amend the guidelines for calculation of force majeure costs provided in the above circular and prescribe new guidelines for calculation of such costs, including in relation to interest payment on debt, O&M expenses and insurance cover.

Indian Tolls Act, 1851

In accordance with the Indian Tolls Act, 1851 (the "**Tolls Act**"), state governments have been vested with the power to levy tolls at such rates as they deem fit, to be levied upon any road or bridge, made or repaired at the expense of the GoI or any state government. The tolls levied under the Tolls Act, are deemed to be 'public revenue' and the collection of tolls can be placed under the management of any person the state governments' may deem fit. Such persons are instructed with the same responsibilities as if they were employed in the collection of land revenue. Further, all police officers are bound to assist the toll collectors when required in the implementation of the Tolls Act. The Tolls Act further gives power for recovery of toll and exempts certain category of people from payment of toll.

Provisions under the Constitution of India and other legislations in relation to collection of toll

Entry 59, List II of Schedule VII read with Article 246 of the Constitution of India vests state governments with the power to levy tolls. Further, in accordance with the Tolls Act, state governments have been vested with the power to levy tolls at such rates as they deem fit.

Control of National Highways (Land and Traffic) Act, 2002

The Control of National Highways (Land and Traffic) Act, 2002 (the "**Control of NH Act**") provides for control of land within national highways, right of way and traffic moving on national highways and also for removal of unauthorised occupation thereon.

In accordance with the provisions of the Control of NH Act, the GoI has established the Highway Administration which is governed by Highway Administration Rules, 2004. Its functions include maintenance of land records and issuance of permits. Under the Control of NH Act, all land that forms part of a highway which vests in the GoI, or that which does not already vest in the GoI but has been acquired for the purpose of highways shall be deemed to be the property of the GoI. The Control of NH Act prohibits any person from occupying any highway land or discharging any material through drain on such land without the permission of the Highway Administration or any officer authorised by such administration. The Control of NH Act permits the grant of lease and license for use of highway land for temporary use.

Other Laws and Regulations

In addition to the aforementioned legislations which are applicable to the Trust and the Project SPVs, certain other material legislations that are applicable to the operations of the Trust and the Project SPVs are set out below.

In addition to such legislations, we are also required to comply with the provisions of various tax-related legislations, intellectual-property related legislations and other applicable law for our day-to-day operations.

Indian Trusts Act, 1882

The Indian Trusts Act, 1882 ("**Trusts Act**") governs all private trusts in India.

The Trusts Act sets out the purpose for which private trusts can be established, the manner in which they may be created, executed and extinguished. The person creating a trust under the Trusts Act is the author of such trust, the person to whom the author grants the power and authority to regulate the trust is the trustee and the persons for whose benefit such trust has been created are the beneficiaries of such trust. The Trust Act sets out the rights, duties, liabilities and powers of the trustees and the beneficiaries *vis-a-vis* the trust. The Trust has been settled in accordance with the provisions of the Trusts Act.

InvIT Regulations

The InvIT Regulations set out the framework for infrastructure investment trusts and the registration and regulation thereof. An infrastructure investment trust is required to obtain a certificate of registration from the SEBI. The InvIT Regulations prescribe, *inter-alia*, the eligibility criteria and the rights and responsibilities of the parties to an infrastructure investment trust, namely its sponsor, investment manager, trustee and project manager; and the rights and responsibilities of the valuer and auditor of an infrastructure investment trust. Parties to an infrastructure investment trust are required to maintain the eligibility conditions specified under the InvIT Regulations of the InvIT Regulations on an ongoing basis. Infrastructure investment trusts and parties to infrastructure investment trusts are also required to comply with the code of conduct prescribed under the InvIT Regulations. The framework for privately placed unlisted InvIT under Chapter VIA of the InvIT Regulations has been discontinued from January 1, 2023.

Environment Regulation

Infrastructure projects must also ensure compliance with environmental legislation such as the Water (Prevention and Control of Pollution) Act, 1974 ("**Water Pollution Act**"), the Air (Prevention and Control of Pollution) Act, 1981 ("**Air Pollution Act**") and the Environment Protection Act, 1986 ("**Environment Act**"). The Water Pollution Act aims to prevent and control water pollution. This legislation provides for the constitution of a Central Pollution Control Board and State Pollution Control Boards. The functions of the Central Pollution Control Board include, *inter alia*, coordination of activities of the State Pollution Control Boards, collecting data relating to water pollution and the measures devised for the prevention and control of water pollution and prescription of standards for streams or wells. The State Pollution Control Boards are responsible for, *inter alia*, the planning for programmes for prevention and control of pollution of streams and wells, collecting and disseminating information relating to water pollution and its prevention and control, inspection of sewage or trade effluents, works and plants for their treatment and to review the specifications and data relating to plants set up for treatment and purification of water, laying down or annulling the effluent standards for trade effluents and for the quality of the receiving waters, and laying down standards for treatment of trade effluents to be discharged. This legislation prohibits any person from establishing any industry, operation or process or any treatment and disposal system, which is likely to discharge trade effluent into a stream, well or sewer, or bring into use any new or altered outlet for discharge of sewage, or begin to make any new discharge of sewage without taking prior consent of the State Pollution Control Board.

The Central and State Pollution Control Boards constituted under the Water Pollution Act are also to perform functions as per the Air Pollution Act for the prevention and control of air pollution. The Air Pollution Act aims for the prevention, control and abatement of air pollution. It is mandated under this Act that no person can, without the previous consent of the State Pollution Control Board, establish or operate any industrial plant in an air pollution control area as notified by the State Government. The Environment Act has been enacted for the protection and improvement of the environment. The Environment Act empowers the GoI to take measures to protect and improve the environment such as by laying down standards for emission or discharge of pollutants, providing for restrictions regarding areas where industries may operate and so on. The GoI may make rules for regulating environmental pollution. With respect to forest conservation, the Forest (Conservation) Act, 1980 prevents state governments from making any order directing that any forest land be used for a non-forest purpose or that any forest land is assigned through lease or otherwise to any private person or corporation not owned or managed or controlled by the Government without the prior approval of the GoI. The Ministry of Environment and Forests (the "**MoEF**") mandates that Environment Impact Assessment ("**EIA**") must be conducted for specified projects. In the process, the MoEF receives proposals for the setting up of projects and assesses their impact on the environment before granting clearances to the projects.

The EIA Notification S.O. 1533, issued on September 14, 2006 (the "**EIA Notification**") and amended from time to time, under the provisions of the Environment Act, prescribes that new construction of specified projects require prior environmental clearance from the MoEF. The environmental clearance must be obtained from the MoEF according to the procedure specified in the EIA Notification. No construction work or preparation of land by the project management except for securing the land, relating to the setting up of a specified project can be undertaken until such clearance is obtained. Under the EIA Notification, the environmental clearance process for new projects consists of four stages – screening, scoping, public consultation and appraisal. After completion of public consultation, the applicant is required to make appropriate changes in the draft 'EIA Report' and the 'Environment

Management Plan.' The final EIA Report has to be submitted to the concerned regulatory authority for appraisal. The regulatory authority is required to give its decision within 105 days of the receipt of the final EIA Report. The EIA Guidance Manual for Highways, 2010 explains the four stages of the environmental clearance process and the contents of the EIA Report required to be submitted by highway projects.

Public Liability Insurance Act, 1991

The Public Liability Insurance Act, 1991 (the "**Public Liability Act**"), imposes liability on the owner or controller of hazardous substances for any damage arising out of an accident involving such hazardous substances. A list of 'hazardous substances' covered by the legislation has been enumerated by the Government by way of a notification. The owner or handler is also required to take out an insurance policy insuring against liability under the legislation. The rules made under the Public Liability Act mandate that the employer has to contribute towards the Environment Relief Fund, a sum equal to the premium paid on the insurance policies. This amount is payable to the insurer.

Green Highways (Plantation, Transplantation, Beautification and Maintenance) Policy, 2015

In September 2015, MoRTH has launched Green Highways (Plantation, Transplantation, Beautification and Maintenance) Policy, 2015 which will require road developers to earmark one per cent of a project's total cost for planting of trees and shrubs across the national highways. Under this policy, the maintenance of such plantations will be outsourced through a bidding process to plantation agencies. MoRTH/NHAI will appoint the authorized agency for empanelment of such plantation agencies.

Foreign Investment Regulations

Foreign investment in Indian securities is governed by the provisions of the FEMA, read with the applicable FEMA Rules, the FEMA (Mode of payment and Reporting of Non-Debt Instruments) Regulations, 2019 and the consolidated FDI Policy issued by the Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, Government. Foreign investment is permitted (except in the prohibited sectors) either through the automatic route or the approval route, depending upon the sector in which foreign investment is sought to be made. Under the FEMA Rules and the current consolidated FDI Policy, effective from October 15, 2020, an infrastructure investment trust registered and regulated by the SEBI under the InvIT Regulations, being an 'investment vehicle', is permitted to receive foreign investment from a person resident outside India subject to the terms and conditions specified in the FEMA Rules.

All investments by entities of a country which shares land border with India or where the beneficial owner of an investment into India is situated in or is a citizen of any such country will require prior approval of the Government of India. Further, in the event of transfer of ownership of any existing or future foreign direct investment in an entity in India, directly or indirectly, resulting in the beneficial ownership falling within the purview of the above restriction, such subsequent change in the beneficial ownership will also require approval of the Government of India. A multilateral bank or fund, of which India is a member, shall not be treated as an entity of a particular country nor shall any country be treated as the beneficial owner of the investments of such bank or fund in India.

Downstream investment by an infrastructure investment trust shall be regarded as indirect foreign investment if either the sponsor or the investment manager of such an infrastructure investment trust is not Indian 'owned and controlled' as defined in FEMA Rules.

Downstream investment by an 'investment vehicle' is required to conform to the sectoral caps and conditions/restrictions, if any, as applicable to the company in which the downstream investment is made as per the FDI Policy. Foreign investment of up to 100% through the automatic route is permitted in the infrastructure sector in India. An infrastructure investment trust that receives foreign investment shall be required to make such report and in such format to the RBI or to the SEBI as may be prescribed by them from time to time.

The payment for the units of an infrastructure investment trust acquired by a person resident or registered/ incorporated outside India shall be made in accordance with the Foreign Exchange Management (Deposit) Regulations, 2016 and other applicable law.

Further, any person who is a non-resident and holds units of an infrastructure investment trust in accordance with the FEMA Rules may pledge such units (i) in favor of a bank in India to secure the credit facilities being extended to the Indian company for bona fide purposes; (ii) in favor of an overseas bank to secure the credit facilities being extended to the person, or a person resident outside India who is the promoter of the Indian company or the overseas group company of the Indian company; (iii) in favor of a Non-Banking Financial Company registered with the RBI to secure credit facilities being extended to the Indian company for bona fide purposes; and (iv) subject to the authorized dealer bank satisfying itself of the compliance of the conditions stipulated by the RBI in this regard.

Laws Relating to Employment

Certain other laws and regulations that may be applicable to the Trust and the Project SPVs include the following:

- Contract Labour (Regulation and Abolition) Act, 1970;
- Payment of Wages Act, 1936;
- Payment of Bonus Act, 1965;
- Employees' State Insurance Act, 1948;
- Employees' Provident Funds and Miscellaneous Provisions Act, 1952;
- Equal Remuneration Act, 1976;
- Payment of Gratuity Act, 1972;
- Shops and Commercial Establishments Acts, where applicable;
- Minimum Wages Act 1948;
- Industrial Disputes Act, 1947;
- Employees Compensation Act, 1923;
- The Code of Wages, 2019;
- The Occupational Safety, Health and Working Conditions Code, 2020;
- The Industrial Relations Code, 2020; and
- The Code on Social Security, 2020

The Code on Wages, 2019 will come into force on such date as may be notified in the official gazette of India by the central government. Once effective, it will subsume the Equal Remuneration Act, 1976, the Minimum Wages Act, 1948, the Payment of Bonus Act, 1965 and the Payment of Wages Act, 1936. However, certain provisions of relating to the central advisory board have been brought into force by the Ministry of Labor and Employment. Further, the Occupational Safety, Health and Working Conditions Code, 2020, the Industrial Relations Code, 2020 and the Code on Social Security, 2020 will subsume various legislations including the Contract Labour (Regulation and Abolition) Act, 1970, the Industrial Disputes Act, 1947, the Employees Compensation Act, 1923, the Employees' State Insurance Act, 1948, the Employees' Provident Funds and Miscellaneous Provisions Act, 1952, the Maternity Benefit Act, 1961 and the Payment of Gratuity Act, 1972, upon being brought into force.

LEVERAGE

The following tables present (a) the capital structure of the Trust (including any borrowings or deferred payments) on a consolidated basis and a standalone basis as at December 31, 2022; and (b) the capital structure of each of the Project SPVs (including any borrowings or deferred payments) on a standalone basis as at December 31, 2022.

The information presented below should be read in conjunction with the sections "*Financial Statements*" and "*Management's Discussion and Analysis of Financial Condition and Results of Operations*" on pages 243 and 287, respectively.

Consolidated capital structure of the Trust (including any borrowings or deferred payments)

Particulars	As at December 31, 2022 (₹ in millions)
Shareholders' Funds:	
Unit Capital	87,929.33
Subordinate Debt	-
Other Equity	(9,559.80)
Minority interest	0.68
Total Shareholders' Funds	**78,370.21**
Borrowings	
Borrowings from related parties	5,350.72
Long term borrowings	99,347.94
Current maturities of long term borrowings	672.41
Total Debt	**105,371.07**
Total Capitalization	**183,741.28**

Standalone capital structure of the Trust (including any borrowings or deferred payments)

Particulars	As at December 31, 2022 (₹ in millions)
Shareholders' Funds:	
Unit Capital	87,929.33
Subordinate Debt	-
Other Equity	8,710.31
Total Shareholders' Funds	**96,639.64**
Borrowings	
Borrowings from related parties	4,872.91
Long term borrowings	-
Current maturities of long term borrowings	-
Total Debt	**4,872.91**
Total Capitalization	**101,512.55**

Standalone capital structure of the Project SPVs (including any borrowings or deferred payments)

AETL

Particulars	As at December 31, 2022 (₹ in millions)
Shareholders' Funds:	
Equity Share Capital	4,365.00
Subordinate Debt	10,265.88
Other Equity	(4,706.14)
Total Shareholders' Funds	**9,924.74**

Borrowings	
Borrowings from related parties	10,007.30
Long term borrowings	7,201.59
Current maturities of long term borrowings	12.25
Total Debt	**17,221.14**
Total Capitalization	**27,145.88**

CGTL

Particulars	**As at December 31, 2022 (₹ in millions)**
Shareholders' Funds:	
Equity Share Capital	2,035.00
Subordinate Debt	2,727.80
Other Equity	(15.61)
Total Shareholders' Funds	**4,747.19**
Borrowings	
Borrowings from related parties	396.30
Long term borrowings	13,908.60
Current maturities of long term borrowings	81.88
Total Debt	**14,386.78**
Total Capitalization	**19,133.97**

IRB HMTL

Particulars	**As at December 31, 2022 (₹ in millions)**
Shareholders' Funds:	
Equity Share Capital	3,715.00
Subordinate Debt	9,798.52
Other Equity	283.77
Total Shareholders' Funds	**13,797.29**
Borrowings	
Borrowings from related parties	
Long term borrowings	14,161.36
Current maturities of long term borrowings	170.15
Total Debt	**14,331.51**
Total Capitalization	**28,128.80**

IRB WTL

Particulars	**As at December 31, 2022 (₹ in millions)**
Shareholders' Funds:	
Equity Share Capital	1,741.94
Subordinate Debt	12,203.92
Other Equity	(2,692.57)
Total Shareholders' Funds	**11,253.29**
Borrowings	
Borrowings from related parties	6,205.58
Long term borrowings	10,022.91

Current maturities of long term borrowings	215.94
Total Debt	**16,444.43**
Total Capitalization	**27,697.72**

KGTL

Particulars	As at December 31, 2022 (₹ in millions)
Shareholders' Funds:	
Equity Share Capital	1,555.00
Subordinate Debt	2,495.38
Other Equity	203.85
Total Shareholders' Funds	**4,254.23**
Borrowings	
Borrowings from related parties	-
Long term borrowings	10,046.92
Current maturities of long term borrowings	26.86
Total Debt	**10,073.78**
Total Capitalization	**14,328.01**

KTL

Particulars	As at December 31, 2022 (₹ in millions)
Shareholders' Funds:	
Equity Share Capital	3,280.00
Subordinate Debt	4,426.04
Other Equity	(4,354.46)
Total Shareholders' Funds	**3,351.58**
Borrowings	
Borrowings from related parties	8,967.98
Long term borrowings	5,287.63
Current maturities of long term borrowings	119.78
Total Debt	**14,375.39**
Total Capitalization	**17,726.97**

SYTL

Particulars	As at December 31, 2022 (₹ in millions)
Shareholders' Funds:	
Equity Share Capital	982.50
Subordinate Debt	4,423.70
Other Equity	(2,274.09)
Total Shareholders' Funds	**3,132.11**
Borrowings	
Borrowings from related parties	4,114.82
Long term borrowings	5,910.00
Current maturities of long term borrowings	-
Total Debt	**10,024.82**
Total Capitalization	**13,156.93**

UTL

Particulars	As at December 31, 2022 (₹ in millions)
Shareholders' Funds:	
Equity Share Capital	1,168.00
Subordinate Debt	8,338.40
Other Equity	(3,097.03)
Total Shareholders' Funds	**6,409.37**
Borrowings	
Borrowings from related parties	1,320.00
Long term borrowings	15,261.74
Current maturities of long term borrowings	45.55
Total Debt	**16,627.29**
Total Capitalization	**23,036.66**

YATL

Particulars	As at December 31, 2022 (₹ in millions)
Shareholders' Funds:	
Equity Share Capital	2,157.57
Subordinate Debt	16,319.79
Other Equity	(2,986.87)
Total Shareholders' Funds	**15,490.49**
Borrowings	
Borrowings from related parties	4,687.70
Long term borrowings	15,150.00
Current maturities of long term borrowings	-
Total Debt	**19,837.70**
Total Capitalization	**35,328.19**

PDTPL

Particulars	As at December 31, 2022 (₹ in millions)
Shareholders' Funds:	
Equity Share Capital	1,212.50
Subordinate Debt	1,213.00
Other Equity	1,125.98
Total Shareholders' Funds	**3,551.48**
Borrowings	
Borrowings from related parties	-
Long term borrowings	2,397.18
Current maturities of long term borrowings	-
Total Debt	**2,397.18**
Total Capitalization	**5,948.66**

Leverage Policy

This policy sets out the framework for selection and repayment of borrowings by the Manager Group. The key terms of the Leverage Policy include, *inter-alia*:

(i) The Manager Group Members may avail additional borrowings or debt from time to time in accordance with the Annual Budget and Business Plan of the respective Manager Group Members, the Transaction Documents, and the InvIT Regulations. Any additional borrowing or creation of security that is not in accordance with the Annual Budget and Business Plan will require the prior approval of the shareholders of the Investment Manager.

(ii) In the event that the Trust is listed, and in accordance with Regulation 20 of the InvIT Regulations, if the aggregate consolidated borrowings and deferred payments of the Trust, holdco, and the SPVs, net of cash and cash equivalents exceeds 25% of the value of the Trust Assets, then for any further borrowing:

a. Up to 49% of the value of the Trust Assets, the Trust shall:
   - obtain credit rating from a credit rating agency registered with the SEBI; and
   - seek approval of the Unitholders in the manner as specified in Regulation 22 of the InvIT Regulations.

b. Above 49% of the value of the Trust Assets and up to 70% of the value of the Trust Assets, the Trust shall:
   - obtain a credit rating from a credit rating agency registered with the SEBI;
   - utilize the funds only for acquisition or development of infrastructure projects;
   - obtain the one-time approval of Unitholders.

(iii) If either of the conditions specified above are breached on account of market movements of the price of the underlying assets or securities, the Investment Manager shall inform the Trustee at the earliest and ensure that the condition is satisfied within six months of the breach, in accordance with the InvIT Regulations.

(iv) The limits in relation to the aggregate consolidated borrowings and deferred payments of the Trust, any Holdcos and the SPVs, net of cash and cash equivalents, shall be as approved by at least 60% of the Unitholders from time to time, unless otherwise provided under the InvIT Regulations.

(v) In no event will the aggregate borrowings exceed 70% of the value of the Trust Assets, or such other limit as provided under the InvIT Regulations.

(vi) The Trust shall be permitted to borrow monies through any permitted means, by any instrument, in Indian or foreign currency, as permitted by applicable law.

(vii) The Investment Manager shall be permitted to borrow monies on behalf of the Trust, subject to the approval of its board of directors or such other committee of the board of directors of the Investment Manager as may be constituted in this regard.

(viii) Any borrowing and/or creation of security for any borrowing by the Manager Group Members incorporated under the Companies Act, 1956 or the Companies Act, 2013, will be in accordance with the conditions prescribed therein.

(ix) The Investment Manager may secure the payment of any sum of money for and on behalf of the Manager Group Member in such manner and upon such terms and conditions in all respects as set out in the Annual Budget or the Business Plan, including by mortgage or pledge or charge upon all or any Trust Assets (present or future).

RELATED PARTY TRANSACTIONS

Under Regulation 2(1)(zv) of the InvIT Regulations, a 'related party' will be as defined under the Companies Act, 2013 or under the applicable accounting standards (i.e., Ind AS 24 on "Related Party Disclosures") and will also include (i) the Parties to the Trust and (ii) the promoters, directors and partners of the Parties to the Trust. Further, any transaction between the Trust and one or more infrastructure investment trusts having a common investment manager or sponsor, or a transaction where the Investment Manager or the Sponsor is an Associate of the investment manager or sponsor of the other infrastructure investment trust, will be deemed to be related party transactions for such parties. Also see "*Financial Statements*" on page 243.

A. Procedure for dealing with Related Party Transactions

General Requirements

In accordance with relevant provisions of the InvIT Regulations, all related party transactions will be on an arms' length basis, in compliance with applicable accounting standards and any other guidelines issued by the SEBI from time to time. Such related party transactions shall be in the best interest of the Unitholders, and must be consistent with the strategy and investment objectives of the Trust.

Approval of the Unitholders

In the case of related party transactions proposed to be entered into, if such related party transaction is a Reserved Matter, approval from Unitholders will be obtained such that the votes cast by Unitholders so entitled and voting in favor of a resolution are not less than one-and-a-half times the votes cast against such resolution, provided that if the InvIT Regulations specify a different threshold for the approval by Unitholders of such matter, the threshold specified in the InvIT Regulations will prevail. Further, if such related party transaction is a Reserved Matter and does not require the approval of the Unitholders to be obtained at a Unitholders meeting under the InvIT Regulations, then, a meeting of the Unitholders shall not be required if the prior approval in writing of the Unitholders holding at least 60% of the Unitholding of the Trust has been obtained by IRB in respect of such Reserved Matter. For details of the Reserved Matters, see "*Corporate Governance*" and "*Rights of Unitholders*" on pages 111 and 220, respectively.

Voting by any person who is a related party with respect to any transaction as well as the voting by the Associates of such person will not be considered on the specific issue.

Role of the Investment Manager

The Investment Manager is responsible for formulating and maintaining all such internal processes and relevant controls with respect to related party transactions, so as to ensure compliance with the InvIT Regulations and applicable accounting standards. Further, the Investment Manager will convene meetings of the Unitholders in accordance with Regulation 22 of the InvIT Regulations and maintain records pertaining to such meetings in the manner prescribed. The Investment Manager will also ensure compliance with any additional guidelines, circulars or regulations with respect to related party transactions issued by the SEBI or the stock exchanges in the future.

The Investment Manager or its Associates will not obtain any commission, rebate or any other remuneration, by whatever name called, arising out of transactions pertaining to the Trust, other than as specified in the relevant documents for any offering of Units or any other document as may be specified by the SEBI for the issue of Units.

Disclosure and Reporting

The Investment Manager will submit quarterly reports on the activities of the Trust, including the status of compliance with the requirements specified under the InvIT Regulations in relation to related party transactions to the Trustee within 30 days of the end of each quarter.

Further, in accordance with the InvIT Regulations, the Investment Manager will submit an annual report and a half-yearly report to the Trustee, the Unitholders and the stock exchanges, electronically or through physical copies within the timelines specified under the InvIT Regulations, which will contain, *inter-alia*, details of all related party transactions, including acquisitions or disposal of any projects, directly or through SPVs during the year, the value of which exceeded 5% of the value of the Trust Assets.

B. Details of Related Party Transactions undertaken prior to the filing of this Disclosure Document

The Trust (acting through the Trustee) has entered into, *inter-alia*, the following related party transactions prior to the filing of this Disclosure Document:

S. No.	Name of the Related Party	Nature of Relationship with the Trust	Nature of Transaction
1.	IRB Infrastructure Developers Limited	Sponsor	The Trust was settled with an initial settlement amount of ₹1,000.00 by the Sponsor.
2.	MMK Toll Road Private Limited	Investment Manager	The Trustee (acting on behalf of the Trust) has entered into the Investment Management Agreement dated August 27, 2019, as amended on September 16, 2019, with the Investment Manager for managing and administering the Trust, in accordance with the InvIT Regulations. The Investment Manager will be paid Management Fees in accordance with the terms of the Investment Management Agreement. For details, see "*Background and Structure of the Trust – Fees and Expenses – Fees and expenses payable to the Investment Manager*" and "*The Investment Manager*" on pages 78 and 229, respectively.
3.	IRB Infrastructure Developers Limited	Project Manager	The Trustee (on behalf of the Trust) has entered into the Project Implementation Agreements with the Project Manager, with respect to each of the Project SPVs, which set out the obligations of the Project Manager with respect to the execution of each of the projects, in accordance with the InvIT Regulations. The Project Manager will be paid EPC Payments and O&M Payments, as applicable, by the respective Project SPVs in accordance with the terms of the Project Implementation Agreements. For details, see "*Background and Structure of the Trust – Fees and Expenses – Fees and expenses payable to the Project Manager*" and "*The Sponsor and Project Manager*" on pages 79 and 226, respectively.
4.	IRB Infrastructure Developers Limited	Sponsor	Pursuant to the Name Licensing Agreement dated February 13, 2020, as amended, the Sponsor has granted to the Trust, each of the Project SPVs and the Investment Manager, the non-transferable and non-assignable right to use the "IRB" trademark as part of their respective corporate names, if applicable, as well as the "IRB" logo in connection with their respective businesses, on a non-exclusive basis. No licensing fee is payable to the Sponsor under the Name Licensing Agreement.
5.	IRB Infrastructure Developers Limited and its Associates	Sponsor and its Associates	The Project SPVs (except PDTPL) were transferred to the Trust on February 25, 2020 by the Sponsor pursuant to the Formation Transactions undertaken as part of the initial offer through private placement of Units. The Subordinated Debt and Unsecured Loans were also novated in favor of the Trust.

For details of the related party transactions entered into by the Project SPVs during the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years 2022, 2021 and 2020, see "*Financial Statements*" on page 243.

C. Details of Related Party Transactions proposed to be undertaken

Pursuant to the terms of the Framework Agreement, the Sponsor has agreed that prior to the submission of a bid ("**Bid**") for (i) any new concession by the Sponsor and/or its affiliates involving the development or operation of roads and highways ("**New Projects**"); or (ii) over any extensions of the concession period of road projects held by the Sponsor and/or its affiliates (other than the Project SPVs) ("**Extension Projects**", and together with the New Projects, the "**Potential Projects**"), it will consult the Financial Investors in good faith and make best efforts to Bid for the Potential Project on behalf of the Trust on such terms as agreed between the Sponsor and the Financial Investors. If IRB and the Financial Investors are unable to reach an agreement in relation to the terms of the Bid within a reasonable period, the Sponsor will be free to submit a Bid subject to the terms of the Framework Agreement.

In order to conduct its business, the Trust may enter into transactions with related parties in the future, which will be carried out in compliance with the above policy for dealing with related party transactions, applicable accounting standards and the provisions of the InvIT Regulations.

D. Potential Conflicts of Interest

We may be subject to potential conflicts of interest arising out of our relationship with our Sponsor and its respective Associates, and we will enter into transactions with related parties in the future. Details in relation to our policies for dealing with related party transactions are provided above. Also see "*Risk Factors – Risks Related to the Trust's Relationships with the Sponsor and the Investment Manager*" on page 27.

While the Sponsor operates various road infrastructure projects and accordingly, has interests in road infrastructure assets apart from those of the Project SPVs, none of these other road infrastructure assets compete or are likely to compete, directly or indirectly, with the activities of the Trust. The Sponsor confirms that it shall perform its duty in relation to the Trust independent of its related business.

VALUATION

The Valuer has undertaken a valuation of the assets of the Trust as at December 31, 2022 and has issued a valuation report dated March 23, 2023 (the "**Portfolio Valuation Report**") which is included as "*Annexure A: Portfolio Valuation Report*" on page A. This is the last available valuation report for the Portfolio under the InvIT Regulations.

A. Summary of the Valuation and Valuation Methodology of the Portfolio

Valuation methodology

The standard of value used in the Valuer's analysis is fair value which is often defined as the price, in terms of cash or equivalent, that a buyer could reasonably be expected to pay, and a seller could reasonably be expected to accept, if the business were exposed for sale on the open market for a reasonable period of time, with both buyer and seller being in possession of the pertinent facts and neither being under any compulsion to act.

There are several commonly used and internationally accepted methods for determining the fair value of companies, which have been considered in the present case, to the extent relevant and applicable. Accordingly, The Valuer has carried out valuation of the Project SPVs as on December 31, 2022.

It should be understood that the valuation of any company or its assets is inherently subjective and is subject to certain uncertainties and contingencies, all of which are difficult to predict and are beyond the Valuer's control. In performing the analysis, the Valuer made assumptions with respect to industry performance and general business and economic conditions, many of which are beyond the control of the Project SPVs. In addition, the valuation will fluctuate with changes in prevailing market conditions, the conditions and prospects, financial and otherwise, of the Project SPVs, and other factors which generally influence the valuation analysis.

The application of any particular method of valuation depends on the purpose for which the valuation is done. Although different values may exist for different purposes, it cannot be too strongly emphasized that a valuer can only arrive at one value for one purpose. The Valuer's choice of methodology of valuation has been arrived at using usual and conventional methodologies adopted for transactions of a similar nature and the Valuer's reasonable judgment, in an independent and bona fide manner is based on the Valuer's previous experience of assignments of a similar nature.

In respect of going concerns, certain valuation techniques have evolved over time and are commonly in vogue. These can be broadly categorised as follows:

Market Price (MP) Method

The market price of an equity share as quoted on a Stock Exchange is generally considered as the value of the equity shares of that company where such quotations are arising from the shares being regularly and freely traded in, subject to the element of speculative support that may be inbuilt in the value of the shares.

Equity shares of the Project SPVs are not listed on any stock exchange. Hence, this method has not been considered for the purpose of valuation.

Comparable Companies Market Multiple ("CCM") Method

Under this method, the value of the equity shares of a company/ business undertaking is arrived at by using multiples derived from valuations of comparable companies, as apparent through stock market valuations of listed companies. This valuation is based on the principle that market valuations, taking place between informed buyers and informed sellers, incorporate all factors relevant for the assessment of the value of the company.

Relevant multiples need to be chosen carefully and adjusted for differences between the circumstances. The Valuer has not considered this method in its valuation analysis in the absence of closely comparable listed companies having similar geographical locations, stage of growth, size, terms and profitability.

Comparable Companies Transaction Multiple ("CTM") Method

Under the CTM method, the value of the equity shares of a company/ business undertaking is arrived at by using the prices implied by reported transactions/ deals of comparable companies.

Relevant multiples need to be chosen carefully and adjusted for differences between the circumstances.

The Valuer has not been able to identify any comparable company to the Project SPVs for which a transaction has taken place in the last one year. The Valuer believes that the older transactions are not relevant for its valuation considering share price movements and changes in the macro-economic situation in India. Also, transactions multiples at times tend to be biased due to premium which may be embedded in the price for strategic benefits and synergies which an acquirer may perceive in the target. Accordingly, the Valuer has not applied the Comparable Transactions Multiple Method for the valuation of the Project SPVs.

Net Asset Value (NAV) Method

The asset-based valuation technique is based on the value of the underlying net assets of the business either on a book value basis or realisable value basis or replacement cost basis. The cost approach assumes that a prudent investor would pay no more for an entity than the amount for which he could replace or re-create it or an asset with similar utility. Under a going-concern premise, the cost approach usually is best suited for use in valuing asset-intensive companies, such as investment or real estate holding companies, or companies with unstable or unpredictable earnings.

In the present case of valuing the Project SPVs, the Valuer has not considered this method as the underlying earnings are fairly stable, and a going concern business plan has been provided by the Management.

Discounted Cash Flows (DCF) Method

Under the DCF method, the projected free cash flows to the firm are discounted at the weighted average cost of capital. The sum of the discounted value of such free cash flows is the value of the firm.

Using the DCF analysis involves determining the following:

Estimating future free cash flows:

Free cash flows are the cash flows expected to be generated by the company that is available to all providers of the company's capital — both debt and equity.

Appropriate discount rate to be applied to cash flows, i.e. the cost of capital:

This discount rate, which is applied to the free cash flows, should reflect the opportunity cost to all the capital providers (namely shareholders and creditors), weighted by their relative contribution to the total capital of the company. The opportunity cost to the capital provider equals the rate of return the capital provider expects to earn on other investments of equivalent risk.

The value so computed by discounting the cash flows to the firm is adjusted for net borrowings, surplus asset including investments, minority interests, equity instruments granted as part of the share-based payment, and other matters to arrive at an aggregate equity value of the company.

In the present case, the Valuer has been provided with the financial projections of all the 10 SPVs. As such, the Valuer has considered this method for valuing the Project SPVs.

Valuation Summary

FCFF method- Equity value of the Trust			
Sl. No	**Name of SPV**	**Short name of SPV**	**Enterprise value (INR crores)**
1	Goa Kundapur	IWTL	3,542.2
2	Solapur Yedeshi	SYTL	2,182.1
3	Yedeshi Aurangabad	YATL	4,188.4
4	Kaithal - Rajasthan	KTL	2,434.5
5	Agra Etawah	AETL	3,154.8
6	Udaipur Rajasthan Gujarat	UTL	2,600.2
7	Gulabpura Chittorgarh	CGTL	2,642.5
8	Kishangarh Gulabpura	KGTL	2,139.1
9	Hapur Moradabad	IHMTL	4,034.6
10	Dankuni - Palsit	PDTPL	942.9
	Total Enterprise Value	**Total**	**27,861.5**

Computation of fair value of the equity of the Trust			
Valuation approach	**Method**	**INR crores**	**Weight (%)**
Income approach	DCF	27,861.5	100%
Market approach	Comparable companies method	n/a	0%
Cost approach	NAV	n/a	0%
Enterprise value for the combined portfolio of 10 SPVs		27,861.5	100%
Less: Debt		(10,379.9)	
Less: Debt-like-items		(15.4)	
Less: Present value of stand alone expenses pertaining to InvIT as on 31 December 2022		(152.9)	
Add: Cash and cash equivalents		226.5	
Add: Surplus assets		124.8	
Value of 100% interest in equity (on a control, marketable basis)		**17,664.6**	
Number of units outstanding		87,92,93,265	
Value per unit		**200.90**	

Notes:

1. *Adjustments for debt, cash & cash equivalents and surplus assets have been made considering provisional and Condensed Interim Special Purpose Consolidated Financial statements of InvIT as on 31 December 2022.*
2. *Debt of INR 10,379.9 crores includes loan from banks, loan from financial institutions and non-convertible debentures.*
3. *Debt like items consist of current tax liabilities amounting INR 15.4 crores.*
4. *Surplus assets of INR 124.8 crores primarily comprises investments in IDBI liquid fund, L&T liquid fund, SBI liquid fund, security deposits and current tax assets.*
5. *Standalone expenses pertaining to InvIT has been considered based on Management business plan.*
6. *Management has represented that the probability of devolvement of contingent liabilities is insignificant and accordingly no adjustment was required to be carried out in the valuation of the 10 SPVs.*
7. *Money payable to related parties (INR 3,575 crores) forming part of non-current liabilities (INR 3,548.3 crores) and current liabilities (INR 26.7 crores) on the Trust combined balance sheet as on Valuation Date and will be settled against amount receivable from NHAI against claim. Hence, the same has not been considered as a Debt-like item based on management representation.*

B. Frequency of Valuation

In accordance with the InvIT Regulations, a full valuation of the Trust Assets (including physical inspection of each of the Trust's infrastructure projects) shall be conducted by the Valuer not less than once every financial year, and that such a full valuation shall be conducted at the end of each financial year, within two months from the end of such financial year. An updated valuation report taking into account any material developments during the previous half-year is also required to be issued by the Valuer as part of the half-yearly report to be submitted by the Investment Manager to the Trustee, the Unitholders and the stock exchanges.

However, in case of any material development that may have an impact on the valuation of the Trust Assets, the Investment Manager will require the Valuer to undertake a full valuation of the infrastructure project under consideration, within not more than two months from the date of such event, and disclose the same to the Trustee within 15 days of such valuation. Any valuation reports received by the Investment Manager are required to be disclosed to the stock exchanges within 15 days of receipt.

As a listed InvIT, in case the consolidated borrowings and deferred payments of the Trust are above 49% of the value of the Trust Assets, the valuation of the assets of the Trust is required to be conducted by the Valuer for the quarters ending June, September and December, for incorporating any key changes in the previous quarter and such quarterly reports are required to be prepared within one month of the end of such quarter.

C. Declaration of NAV

The Investment Manager will ensure that computation and declaration of NAV of the Trust is based on the valuation done by the Valuer, not later than 15 days from the date of valuation.

DISTRIBUTIONS

Distribution

Distributions shall be made by the Trust to the Unitholders, from time to time, in accordance with the Indenture of Trust and the InvIT Regulations. The Trustee shall make and shall ensure that the Investment Manager declares distributions on a quarterly basis. However, Unitholders should note that there is no assurance or guarantee that distributions will be made in any amount or at all.

The InvIT Regulations provide that not less than 90% of net distributable cash flows of each Project SPV, and any other SPV that may be acquired by the Trust, are required to be distributed to the Trust in proportion of its holding in each of the Project SPVs, and any other SPV that may be acquired by the Trust, subject to applicable provisions of the Companies Act. Further, not less than 90% of net distributable cash flows of the Trust shall be distributed to the Unitholders. Such distributions are required be declared and made not less than once every year and shall be made not later than 15 days from the date of such declaration.

In the event distributions are not made within 15 days of declaration, the Investment Manager shall pay interest at the rate of 15% per annum until the distribution is made to the Unitholders. Such interest is not and will not be recoverable by the Investment Manager from the Trust in the form of fees or any other charges payable by the Trust to the Investment Manager. Any amount remaining unclaimed or unpaid out of the distributions declared by the Trust shall be transferred to the "Investor Protection and Education Fund" constituted by the SEBI, in such manner as may be specified by the SEBI.

Distributions shall be made *pro rata* to the total subscription amount of a Unitholder and in accordance with the provisions of the Indenture of Trust, the InvIT Regulations, the Distribution Policy, the preliminary placement memorandum and the placement memorandum.

Since the establishment of the Trust, there have not been any distributions made on the Units.

The Trust's distribution policy is to distribute as per the Trust's net distributable cash flows (the "**Net Distributable Cash Flows**"). The Trust's distribution policy is to distribute at least 90% of the Net Distributable Cash Flows of the Trust. Unless otherwise decided by the Unitholders, the Trust shall declare 100% of the Net Distributable Cash Flows as distributions to the Unitholders.

See "*Risk Factors*" on page 10 for a description of factors that may adversely affect the ability of the Trust to make distributions to Unitholders.

Distribution Policy of the Trust

In accordance with the InvIT Regulations, and the applicable guidelines, as may be issued by SEBI from time to time:

a) Each Project SPV, and any other SPV that may be acquired by the Trust, shall distribute its respective Net Distributable Cash Flows to the Trust, subject to the applicable provisions under Companies Act or any other applicable law, not less than once every three months; and

b) The Trust shall distribute at least 90% of the Net Distributable Cash Flows to the Unitholders not less than once every three months. Unless otheriwse decided by the Unitholders, the Trust shall declare 100% of the Net Distributable Cash Flows as distributions to the Unitholders.

The indicative framework for calculation of net distributable cash flows, as provided herein below, is subject to change, including pursuant to any amendments to the InvIT Regulations or by way of any circulars or guidelines issued by SEBI in this regard:

A. *Indicative Calculation of Net Distributable Cash Flows at a Standalone SPV Level*

S. No.	Description
1.	**Profit after tax as per profit and loss account (standalone) (A)**
2.	**Add:** Depreciation and amortisation as per profit and loss account
3.	**Add/less:** Loss/gain on sale of infrastructure assets

4.	**Add:** Proceeds from sale of infrastructure assets adjusted for the following: • related debts settled or due to be settled from sale proceeds • directly attributable transaction costs • proceeds reinvested or planned to be reinvested in accordance with Regulation 18 (7) (a) of the InvIT Regulations
5.	**Add:** Proceeds from sale of infrastructure assets not distributed pursuant to an earlier plan to re-invest, if such proceeds are not intended to be invested subsequently net of any profit/(loss) recognized in the P&L account
6.	**Add/less:** Any other item of non-cash expense / non cash income (net of actual cash flows for these items), if deemed necessary by the Investment Manager, including but not limited to: • any decrease / increase in carrying amount of an asset or of a liability recognised in profit and loss • account on measurement of the asset or the liability at fair value; • interest cost as per effective interest rate method; • deferred tax; • reserve for major maintenance to the extent payments are not due in the next period; and • any other items charged / credited to the P&L account which do not involve corresponding cash flows
7.	**Less:** Repayment of external debt (principal) / redeemable preference shares / debentures
8.	**Less:** Any premium / negative grant payments to NHAI
9.	**Less:** Capital expenditure towards the project
10.	**Total Adjustments (B)**
11.	**Net Distributable Cash Flows (C)=(A+B)**

A minimum of 90% of the net distributable cash flows arrived at in (C) above shall be distributed by each Project SPV and any other SPVs that may be acquired in the future, to the Trust, subject to the applicable provisions of Companies Act/LLP Act or any other applicable laws, net of applicable taxes, if any, proportionate to the Trust's equity shareholding in such SPV.

B. ***Indicative Calculation of Net Distributable Cash Flows at the Standalone Trust Level***

S. No.	Description
1.	Cash flows received from the Identified SPVs in the form of interest
2.	Cash flows received from the Identified SPVs in the form of dividend
3.	Any other income accruing at the Trust level and not captured above, including but not limited to interest / return on surplus cash invested by the Trust
4.	Cash flows received from the Identified SPVs towards the repayment of the debt issued to the Identified SPVs by the Trust
5.	Proceeds from the Identified SPVs for any capital reduction by way of buy back etc., subject to applicable laws
6.	Proceeds from sale of assets of the Identified SPVs not distributed pursuant to an earlier plan to re-invest, or if such proceeds are not intended to be invested subsequently
7.	**Total cash inflow at the Trust level (A)**
8.	**Less:** Any payment of fees, interest and expense incurred at the Trust level, including but not limited to the fees of the Investment Manager
9.	**Less:** Capital expenditure towards the Identified SPVs
10.	**Less:** Costs/retention associated with sale of assets of the project SPVs: • related debts settled or due to be settled from sale proceeds of Identified SPVs • transaction costs paid on sale of the assets of the Identified SPVs
11.	**Less:** Proceeds reinvested or planned to be reinvested in accordance with Regulation 18(7)(a) of the InvIT Regulations
12.	**Less:** Repayment of external debt at the Trust level
13.	**Less:** Income tax (if applicable) at the standalone Trust Level (including capital gains taxes on sale of assets / share in Identified SPVs / other investments)
14.	**Less:** Contribution towards maintaining minimum cash balance of INR 150,000,000 (Rupees One Hundred and Fifty Million) and/or such other reserve/minimum cash balance as agreed by Unitholders
15.	**Total cash outflows / retention at the Trust level (B)**
16.	**Net Distributable Cash Flows (C)=(A+B)**

A minimum of 90% of the Net Distributable Cash Flows arrived at in (C) above shall be distributed by the Trust to the Unitholders, subject to the applicable provisions of InvIT Regulations, net of applicable taxes, if any.

Distribution on Disposition

Subject to the InvIT Regulations, if (i) any asset is sold by the Trust or (ii) if the equity shares or interest in the Trust Assets are sold by the Trust then (a) if the Trust proposes to re-invest the sale proceeds into another infrastructure asset, it shall not be required to distribute any sale proceeds to the Trust or the Unitholders; but (b) if the Trust proposes not to invest the sales proceeds into any other infrastructure Assets, then such sales proceeds shall be regarded as Net Distributable Cash Flows and the Trust shall be required to distribute such proceeds in accordance with the Distribution Policy.

Distribution on Dissolution

In the event of dissolution or winding up of the Trust, all of the Trust Assets or the proceeds therefrom shall be distributed or used as follows and in the following order of priority:

a) First, towards the payment of the debts and liabilities of the Trust, including without limitation any fees, any amounts due to the Investment Manager, or the Project Manager and the expenses of liquidation;

b) Second, towards the setting up of any reserves which the Trustee, in consultation with the Investment Manager, or the authority in-charge of the dissolution of the Trust may deem reasonably necessary for any contingent or unforeseen liabilities or obligations of the Trust; and

c) Third, towards the Unitholders in accordance with the terms of the Distribution Policy, the Indenture of Trust, and applicable law.

In-specie Distribution

Subject to the provisions of applicable law and the Trust Documents, the Trustee, in consultation with the Investment Manager, may anytime during the life of the Trust make *in-specie* distributions of the Trust Assets.

RIGHTS OF UNITHOLDERS

The rights and interests of the Unitholders are included in this Disclosure Document and the InvIT Regulations. Under the the Indenture of Trust and the Investment Management Agreement, these rights and interests are safeguarded by the Trustee and the Investment Manager respectively. Any rights and interests of Unitholders as specified in this Disclosure Document would be deemed to be amended to the extent of any amendment to the InvIT Regulations.

Please note that nothing contained in this Disclosure Document (including any declarations provided by the directors of the Investment Manager) will relieve any party of its rights or obligations under the Framework Agreement and the IM SHA.

Beneficial Interest

Each Unit represents an undivided beneficial interest in the Trust. A Unitholder has no equitable or proprietary interest in the Trust Assets and is not entitled to transfer of the Trust Assets (or any part thereof) or any interest in the Trust Assets (or any part thereof). A Unitholder's right is limited to the right to require due administration of the Trust in accordance with the provisions of the Indenture of Trust and the Investment Management Agreement.

Ranking

No Unitholder of the Trust shall enjoy superior voting or any other rights over another Unitholder. Further, the Units shall not have multiple classes, except any subordinate Units that may be issued only to the Sponsor and its Associates, where such subordinate units carry only inferior voting or any other rights compared to other Units in the future, in accordance with Regulation 4(2)(h) of the InvIT Regulations.

Distribution

The Trustee shall ensure that the Investment Manager makes timely declaration of distributions to the Unitholders in accordance with the InvIT Regulations. If the distributions are not made within 15 days of declaration, then the Investment Manager shall be liable to pay interest to the Unitholders at the rate of 15% per annum till the distribution is made. The Investment Manager shall maintain records of the distributions declared and made to the Unitholders. For details, see "*Distributions*" on page 217.

Rights of Unitholders

Subject to the provisions of the InvIT Regulations, the Indenture of Trust, and applicable rules, regulations and guidelines, the rights of the Unitholders include:

a) right to receive income or distributions with respect to the Units held in accordance with the InvIT Regulations and in the manner set forth in the preliminary placement memorandum and the placement memorandum;

b) right to attend the annual general meeting and other meetings of the Unitholders of the Trust;

c) right to vote upon any matters/resolutions proposed in relation to the Trust;

d) right to receive periodic information having a bearing on the operation or performance of the Trust in accordance with the InvIT Regulations; and

e) right to apply to the Trustee to take up certain issues at meetings for Unitholders approval;

Pre-emptive rights: In addition, the Investment Manager (on behalf of the Trust) will ensure that Unitholders will have the right to subscribe to their respective proportionate share of the proposed issue of Units at the same price to maintain their respective proportionate ownership in the Trust if the Trust proposes to issue any new units after the completion of the initial offer of Units to any person (except as contemplated in any business plan). The Investment Manager and the Trustee will also ensure that Unitholders exercise their rights in relation to Reserved Matters and Events of Default.

For details of Reserved Matters, see "*Corporate Governance*" and " – *Approval of Unitholders*" on pages 111 and 221, respectively. For details of Events of Default, see " – *Arrangements between the Sponsor and the Financial Investors*" below.

The Trustee shall hold the Trust Assets in the name of the Trust for the benefit of the Unitholders in accordance with the Indenture of Trust and the InvIT Regulations and shall oversee the activities of the Investment Manager in the interest of the Unitholders. All related party transactions shall be on an arms' length basis in accordance with the relevant accounting standards, and in the best interests of the Unitholders. Further, the Trustee shall maintain records relating to the notices and agenda sent to the Unitholders for meetings held and the disclosures made to the Unitholders.

The rights given by the Sponsor to the Financial Investors will be made available to any new Unitholder that acquires Units of the Trust. Pursuant to a letter dated February 28, 2023, the SEBI has permitted *inter-se* rights among the existing Unitholders of the Trust to continue post-Listing, provided that such rights are extended to all Unitholders other than the Sponsor and its Associates post-Listing.

Arrangements between the Sponsor and the Financial Investors

In addition to the rights set out above, pursuant to the Framework Agreement, the Sponsor and the Financial Investors have agreed to certain *inter-se* arrangements in relation to their Unitholding in the Trust. Key terms of such arrangements are set out below:

Put option: The Financial Investors had the right to require the Sponsor to purchase the Units held by them in the Trust upon the occurrence of certain events within the period of 12 months from the date of allotment in the initial offer of Units.

Right of first offer: The Financial Investors have a right of first offer over Units proposed to be transferred by the Sponsor to any person other than the subsidiaries of the Sponsor.

Tag along right: If the Sponsor proposes to transfer the Units held by it to a third party buyer (which is not a subsidiary of the Sponsor), the Financial Investors have a right to require such buyer to purchase from the Financial Investors, (i) the entire Unitholding of the Financial Investors, if the Sponsor proposes to transfer in excess of 20% of the total outstanding Units or (ii) up to such percentage of Units held by the Financial Investors that are *pro rata* to the percentage of Units proposed to be transferred by the Sponsor if the Sponsor proposes to transfer 20% or less of the total outstanding Units.

Reserved Matters: See " – *Approval of Unitholders*" below.

Encumbrances on the Sponsor's Units: The Sponsor is restricted from creating any encumbrances on its Units until the expiry of five years from the date of allotment of Units in the initial offer of Units. However, the Sponsor can pledge up to a certain percentage of its Units in favor of permitted lenders, the Financial Investors or their affiliates subject to certain conditions as agreed between the Sponsor and the Financial Investors.

Transfer of Units by the Sponsor: The Sponsor will only sell its Units to a person that is willing to be bound by the existing arrangements between Sponsor and the Financial Investors.

Event of Default and Consequences

The Financial Investors have the right to call an event of default ("**Event of Default**") under the Framework Agreement under certain circumstances.

If an Event of Default is declared by the Financial Investors:

- *Credit of distributions into an escrow account controlled by the Investment Manager*: The Sponsor and the Investors will cause any distributions that are to be made to them to be credited into the escrow account. The Trustee and the Investment Manager will ensure compliance with obligations in relation to distributions under Regulation 18(6) of the InvIT Regulations.

- *Operations of the Trust*: Other than operating in the ordinary course of business, no action shall be taken by any Manager Group Member in relation to the operations and business of the Trust without the unanimous consent of the Unitholders. However, if the InvIT Regulations specify a different threshold for the approval by Unitholders of such matter, the threshold specified in the InvIT Regulations will be followed instead of the unanimous consent requirement. If the Financial Investors vote against a resolution on any such matter for which a different threshold is specified under the InvIT Regulations, the Sponsor has agreed that it will also vote against the resolution on such matter.

The Sponsor may elect to dispute the event of default notice within a specified time period. If the Sponsor does not dispute such notice or the dispute is decided in favour of the Financial Investors:

- *Default call option and default put option*: The Financial Investors will have the right to require (i) the Sponsor to sell its Unitholding to them or (ii) the Sponsor to purchase the Investors' Unitholding in accordance with the conditions specified in the Framework Agreement.

- *Right to cause the Sponsor to take actions*: The Financial Investors will have the right to require the Sponsor to require the Trustee to call for a meeting of the Unitholders for change of the investment manager and the project manager. The Sponsor will vote in favor of the appointment of any entity proposed by the Financial Investors as the new investment manager of the Trust as per the InvIT Regulations. The Sponsor and its affiliates will forfeit all their rights under the transaction documents. This will not impact any responsibilities of the Sponsor under the InvIT Regulations.

- *Resolution of dispute relating to an Event of Default*: Upon the resolution of the dispute relating to the event of default, the distributions in the escrow account will immediately be released to the relevant party, i.e., Sponsor and Financial Investors. The party (against whom the dispute has been resolved unfavorably) shall be required to pay interest to the other party on the distributions credited to the escrow account for the delayed period.

Meetings of Unitholders

Subject to the provisions of the IM SHA, the Investment Manager shall convene meetings of the Unitholders in accordance with Regulation 22 of the InvIT Regulations, including at the written request of the Unitholders as specified therein, and maintain records pertaining to the meetings in accordance with Regulation 26 of the InvIT Regulations.

A Unitholder may be present at and may vote at any Unitholders' meeting in person, electronically, by proxy or attorney or by a duly authorized representative, and any such proxy, attorney or representative shall be counted for the purposes of constituting a quorum, to the extent permissible under applicable law. Voting on all matters to be considered at a Unitholders meeting shall be by poll, in proportion of the Units held by each Unitholder. Each Unit shall carry one vote. The Unitholders shall be entitled to participate, be counted towards quorum and vote in Unitholders' meetings by e-voting, postal ballot or any other means, subject to applicable law.

Approval of Unitholders

The Investment Manager and the Trustee are required to ensure that no resolution is passed in respect of any of the Reserved Matters without the approval of Unitholders such that the votes cast by Unitholders so entitled and voting in favor of the resolution are not less than one-and-a-half times the votes cast against such resolution at a validly convened Unitholders meeting (i.e., Unitholders holding at least 60% of the Unitholding of the Trust), provided that if the InvIT Regulations specify a different threshold for approval by Unitholders of any Reserved Matter, the threshold specified in the InvIT Regulations will prevail. If the Financial Investors vote against a resolution on a Reserved Matter for which the InvIT Regulations specify an approval threshold below 60%, the Sponsor has agreed that it will also vote against the resolution on such matter. If a Reserved Matter does not require the approval of the Unitholders to be obtained at a Unitholders meeting under the InvIT Regulations, then, a meeting of the Unitholders shall not be required if the prior approval in writing of the Unitholders holding at least 60% of the Unitholding of the Trust has been obtained by IRB in respect of such Reserved Matter.

After the allotment of Units pursuant to the initial offer of Units, where any act under any Trust Document requires a 'consultation with the Trustee' or involves the exercise of powers by the Trustee which have not or cannot be delegated to the Investment Manager, then the performance of such act shall be deemed to include the obligation to obtain the approval of the Unitholders such that the votes cast by Unitholders so entitled and voting in favor of the resolution are not less than one-and-a-half times the votes cast against such resolution.

The limits in relation to the aggregate consolidated borrowings and deferred payments of the Trust and its Project SPVs, net of cash and cash equivalents (which includes investments in overnight mutual funds, characterized by their investments in overnight securities, having maturity of one day), shall be up to 70% of the Trust Assets. Also see "*Leverage*" on page 205 for details of the leverage policy of the Trust.

Reserved Matters

Certain Reserved Matters relating to the operations of the Trust, the Investment Manager, the Project SPVs, and any other Manager Group Members which would require the approval of the board of directors, shareholders and Unitholders of the relevant entities, as applicable, have been identified and agreed under the Framework Agreement and the IM SHA. Such Reserved Matters include, *inter-alia*, matters in relation to:

- changes to the capital structure of any Manager Group Member;
- amendments to the charter documents of any Manager Group Member;
- listing of any Manager Group Member;
- approval of annual budgets and business plans;
- acquisition or divestment of road assets by the Trust;
- replacement or removal of certain managerial personnel;
- distributions in deviation from the Distribution Policy;
- indebtedness and encumbrances of assets of any Manager Group Member;
- amendment or termination of material contracts;
- major transactions;
- accounting and tax matters; and
- litigation and delegation of authority.

Matters for Approval under the InvIT Regulations

Under the InvIT Regulations, with respect to any matter requiring approval of the Unitholders:

a) a resolution shall be considered as passed when the votes cast by Unitholders, so entitled and voting, in favor of the resolution exceed a certain percentage (as specified in InvIT Regulations) of votes cast against;

b) the voting may also be done by postal ballot or electronic mode;

c) a notice of not less than 21 days (or such other time period specified under the InvIT Regulations) shall be provided to the Unitholders; and

d) voting by any person who is a related party in such transaction as well as the voting by any Associates of such person(s), shall not be considered on the specific issue.

The Investment Manager shall be responsible for all the activities relating to conducting of a meeting of the Unitholders, subject to the Trustee's oversight. However, in accordance with Regulation 22(2) of the InvIT Regulations, the Trustee shall convene and handle all activities relating to the conduct of the meetings in respect of issues relating to the Investment Manager, such as change, removal or change in control of the Investment Manager. Further, in respect of issues pertaining to the Trustee, including any change in the Trustee, the Trustee shall not be involved in any manner in the conduct of the meetings of the Unitholders.

Under the InvIT Regulations, approval from the Unitholders shall be required where the votes cast in favor of the resolution shall be more than the votes cast against the resolution, with respect to the resolutions of the Unitholders on, *inter-alia*, the following matters:

a) any approval from the unitholders required in terms of Regulation 18 (Investment Conditions and Dividend Policy), Regulation 19 (Related Party Transactions), and Regulation 21 (Valuation of Assets) of the InvIT Regulations, to the extent applicable;

b) any transaction, other than borrowing, the value of which is equal to or greater than the threshold prescribed under the InvIT Regulations (currently 25% of the Trust Assets);

c) any issue of Units after the initial offer by the Trust, in whatever form, other than any issue of Units which is considered by the SEBI under Regulation 22(5) of the InvIT Regulations;

d) increasing period for compliance with investment conditions to one year in accordance with Regulation 18(5)(c) of the InvIT Regulations;

e) any issue, which in the ordinary course of business, in the opinion of the Sponsor, the Trustee or the Investment Manager, is material and requires approval of the Unitholders;

f) declassification of the status of a sponsor;

g) any issue for which the SEBI or the stock exchanges require the approval of the Unitholders under Regulation 22(4) of the InvIT Regulations; and

h) any issue taken up at an annual meeting of the Unitholders under Regulation 22(3) of the InvIT Regulations, which requires approval of the Unitholders other than as specified in Regulation 22(6) of the InvIT Regulations.

Under the InvIT Regulations, approval from the Unitholders shall be required where the votes cast in favor of the resolution shall not be less than one and a half times the votes cast against the resolution, with respect to the resolutions of the Unitholders on, *inter-alia*, the following matters:

a) any change in the Investment Manager, including removal or change in control of the Investment Manager;

b) any material change in the investment strategy of the Trust or its management fees;

c) the Trustee and the Investment Manager proposing to seek delisting of the Units of the Trust under Regulation 17(1)(e) of the InvIT Regulations;

d) any issue, not in the ordinary course of business, which in the opinion of the Sponsor, the Investment Manager or the Trustee, requires approval of the Unitholders;

e) any issue for which SEBI or the stock exchanges require the approval of the Unitholders under Regulation 22(5) of the InvIT Regulations;

f) any issue taken up at the request of the Unitholders, including:

    i) removal of the Investment Manager, and the appointment of another investment manager to the Trust;

    ii) removal of the Auditor, and appointment of another auditor with respect to the Trust;

    iii) removal of the Valuer, and appointment of another valuer with respect to the Trust;

    iv) delisting of the Trust, if the Unitholders have sufficient reason to believe that such delisting would act in their interest;

    v) any issue which the Unitholders have sufficient reason to believe is detrimental to their interest; or

    vi) a change in the Trustee if the Unitholders have sufficient reason to believe that the acts of the Trustee are detrimental to their interests.

In relation to any issue taken up at the request of the Unitholders as described above, the Trustee will require the Investment Manager to place the issue for voting in the manner specified in the InvIT Regulations on receipt of such applications.

Redressal of Grievances

The Investment Manager shall ensure adequate and timely redressal of all Unitholders' grievances pertaining to the activities of the Trust, and the Trustee shall periodically review the status of Unitholders' complaints and their redressal undertaken by the Investment Manager. The Investment Manager shall maintain records of the Unitholders' grievances and the actions taken thereon, including copies of correspondences made with the Unitholders. The Trust has obtained authentication on the SEBI Complaints Redress System (SCORES).

Limitation of the Liability of the Unitholders

The liability of each Unitholder towards the payment of any amount (that may arise in relation to the Trust including any taxes, duties, fines, levies, liabilities, costs or expenses) shall be limited only to the extent of the Capital Contribution of such Unitholder and after such capital contribution shall have been paid in full by the Unitholder, the Unitholder shall not be obligated to make any further payments.

Periodic Information and Disclosures

The Investment Manager shall submit an annual report to all Unitholders and the stock exchanges, electronically or by physical copies. In addition, the Investment Manager shall submit a half-yearly report, and if the Trust's consolidated borrowings and deferred payments in terms of Regulation 20 of the InvIT Regulations is above 49%, a quarterly report and valuation report to the stock exchanges.

The Investment Manager shall disclose to the stock exchanges any information having bearing on the operation or performance of the Trust as well as price sensitive information which includes, but is not restricted to the following:

a) acquisition or disposal of any projects, directly or through a holdco or SPV, the value of which exceeds 5% of the value of the Trust Assets;

b) additional borrowing, at level of holdco or SPV or the Trust, exceeding 15% of value of the Trust assets;

c) additional issue of Units by the Trust;

d) details of any credit rating obtained by the Trust and any change in such rating;

e) any issue which requires the approval of the Unitholders;

f) any legal proceedings which may have significant bearing on the functioning of the Trust;

g) notices and results of meetings of the Unitholders;

h) any instance of non-compliance with the InvIT Regulations, including any breach of limits specified under the InvIT Regulations; and

i) any material issue that, in the opinion of the Investment Manager or Trustee, needs to be disclosed to the Unitholders.

The Investment Manager (on behalf of the Trust) shall submit such information to the Unitholders and the Designated Stock Exchange on a periodic basis as may be required under the InvIT Regulations and applicable law. Further, the Investment Manager (on behalf of the Trust) shall disclose to the Unitholders, the Designated Stock Exchange and SEBI, all such information, in the manner as may be specified by SEBI. For details of the responsibilities of the Investment Manager in relation to making periodic disclosures with respect to the valuation of the Trust Assets and the computation and declaration of NAV of the Trust, see "*Valuation*" on page 213.

SECTION V – PARTIES TO THE TRUST

THE SPONSOR AND PROJECT MANAGER

The Sponsor of the Trust is IRB Infrastructure Developers Limited. The Sponsor has settled the Trust pursuant to the Indenture of Trust dated August 27, 2019 and has appointed the Trustee in accordance with the provisions of the InvIT Regulations.

The Sponsor has also been appointed as the Project Manager pursuant to the Project Implementation Agreements.

The details of the Sponsor and Project Manager are as follows:

A. Details of the Sponsor and Project Manager

a) **Name:** IRB Infrastructure Developers Limited;

b) **Registered Office:** Off No-11th Floor/1101, Technology Street, Hill Side Avenue, Powai, Mumbai 400 076, Maharashtra, India;

c) **Correspondence Address:** Off No-11th Floor/1101, Technology Street, Hill Side Avenue, Powai, Mumbai 400 076, Maharashtra, India;

d) **Telephone Number:** +91 22 6640 4220;

e) **Website:** www.irb.co.in

f) **E-mail:** info@irb.co.in

B. Details of the Contact Person of the Sponsor

a) **Name:** Mr. Mehul Patel;

b) **Telephone Number:** +91 22 6640 4220; and

c) **E-mail:** mehul.patel@irb.co.in

C. Background and Past Experience of the Sponsor and Project Manager

The Sponsor is one of the largest infrastructure development and construction companies in India in terms of net worth in the roads and highways sector according to the NHAI's annual prequalification for public private partnerships in national highway projects report for 2016. As at December 31, 2022, the Sponsor had six road projects of which two were operational and four were under-construction or awaiting appointed date.

The Sponsor also acts as the Project Manager. The Sponsor's BOT project portfolio includes the Ahmedabad Vadodara section of NH 8 and the Ahmedabad Vadodara Expressway and the Meerut Budaun (Group-I) section of Ganga Expressway. The Sponsor's HAM project portfolio includes the Gandeva to Ena project on the Vadodara-Mumbai eight lane expressway, four-laning of Punjab/Himachal Border to Mo Section of NH-154 and the six-laning of Chittoor Thachur road. The Sponsor's TOT project includes the Yashwantrao Chavan Expressway (Mumbai Pune Expressway) and Mumbai – Pune section of NH-48 (old NH-4). The Sponsor has experience in developing road and highway infrastructure and has received various industry awards and recognitions.

The Sponsor/Project Manager has experience in the execution of construction work for roads, highways, and other relevant structures and had a track record of constructing over 11,900 Lane Kilometres of roads and highways as of December 31, 2022.

The Sponsor is listed on the Stock Exchanges with a market capitalization of ₹161.00 billion as at March 17, 2023. As at March 31, 2022, the Sponsor has a consolidated networth of ₹125.66 billion. The Sponsor recorded a consolidated turnover of ₹63.55 billion in the Financial Year 2022 with a profit after tax of

₹3,613.97 million.

In accordance with the eligibility criteria specified under the InvIT Regulations, the Sponsor had a net worth of ₹84.87 billion as on March 31, 2022, on a standalone basis. As on March 31, 2022, the Sponsor had a consolidated net worth of ₹125.66 billion. The Sponsor has an experience of more than 20 years as a developer in the infrastructure sector.

Further, neither the Sponsor/Project Manager, nor its promoters or directors:

a) is debarred from accessing the securities market by the SEBI; or

b) is a promoter, director or person in control of any other company or a sponsor, investment manager or trustee of any other infrastructure investment trust which is debarred from accessing the capital market under any order or directions made by the SEBI.

None of the promoters or directors of the Sponsor/Project Manager is a fugitive economic offender declared under Section 12 of the Fugitive Economic Offenders Act, 2018.

D. Details of the Holding or the Proposed Holding by Sponsor in the Trust

The Sponsor currently holds 51% of the Units of the Trust and will continue to hold 51% of the Units of the Trust upon the completion of the Listing.

E. Summary of the Consolidated Financial Statements of the Sponsor

For a summary of the financial statements of the Sponsor, as derived from the consolidated financial statements of the Sponsor, prepared in accordance with Ind AS and the Companies Act, as of and for the Financial Years 2022, 2021 and 2020, see "*Summary Financial Information*" on page 35.

F. Functions, Duties and Responsibilities of the Project Manager

The Project Manager has agreed to provide professional services to carry out engineering, procurement, construction, operations and maintenance of the Project SPVs, including making arrangements for the appropriate maintenance, either directly or through sub-contractors, in accordance with the terms and conditions of the relevant project agreements, the InvIT Regulations, other applicable law and good industry practice (the "**Works**"). CGTL, IRB HMTL, KGTL, IRB WTL and UTL have also executed addenda dated May 6, 2021 to their respective Project Implementation Agreements, in connection with the payment of certain additional costs to the Project Manager.

Under the terms of the Project Implementation Agreements, the Project Manager is required to, *inter-alia*, provide the following Works:

(a) engineering, procurement and construction works in relation to the project as required under the project agreements;
(b) operations and maintenance for the project as stipulated under the project agreements, including tolling, which shall include procuring, operating and maintaining the toll management system at its toll plazas, including employing staff for toll collection, security arrangements at toll plazas and printing of toll tickets;
(c) any and all activities required to be performed by the Project SPVs pursuant to the project agreements or pursuant to any communication from NHAI or any other governmental authority, including in relation to shifting of utilities, associated roads, felling of trees and related works with respect to the project site or any work to be undertaken pursuant to a change of scope order based on a determination of change of scope by the NHAI under the relevant concession agreement; and
(d) other administrative services such as software usage support services, information technology support services, support services for legal matters, support services for accounting and tax matters, support services for general administration and investor relations, and support services and payroll and related services.

The Project Manager may engage duly qualified third-party service providers including but not limited to architects, surveyors and technical consultants for provision of the Works. If more than 50% of the Works are sub-contracted to any person other than Modern Road Makers Private Limited or any other affiliate of the Project Manager, then such sub-contract will be subject to prior approval of the Investment Manager (as confirmed by Unitholders of the Trust).

The Project Manager will inform the Investment Manager about any transactions between the Project Manager and its Associates which may involve a conflict of interest and where the Project Manager has advised that there may be a conflict of interest, and will obtain confirmation from the practicing chartered accountant or the valuer, as applicable, that such transaction is on an arms' length basis.

The Project Manager will ensure that it provides a compliance certificate to the Investment Manager and the Trustee on a quarterly basis or such other intervals as required in accordance with the InvIT Regulations with a copy to the Financial Investors.

The Project Manager has confirmed that it will provide the Works to the Project SPVs on a most preferred basis and if the Project Manager offers same or similar works to any person on better terms than offered to a Project SPV, then the Project SPV will be automatically entitled to such better terms, and the Project Manager will ensure that the such better terms are forthwith made applicable to the Project SPV.

The Project Manager has also agreed to indemnify the Investment Manager, the Project SPVs and their respective officers, directors, shareholders, partners, members and employees subject to the terms, conditions and limitations specified in the Project Implementation Agreements.

The Project Implementation Agreements are valid for an initial period of 10 years. The Project Implementation Agreements may be terminated by the Investment Manager, *inter-alia*, with prior written notice of a specified period, provided that such right shall not be exercisable by the Investment Manager until the later of (i) the completion of the first major maintenance cycle in relation to the first Project SPV that undergoes a major maintenance cycle; or (ii) the commencement of the fifth year of the initial term. The above right of termination shall be exercisable by the Investment Manager collectively in relation to all the Project Implementation Agreements and not selectively in relation to one or more (but less than all) Project Implementation Agreements, provided that selective termination in respect of a Project SPV shall be permitted if (a) the Project Implementation is terminated pursuant to the other provisions of the agreement; or (b) if the Project SPV is undergoing a major maintenance or the construction period or any EPC Work, in which case, unless otherwise required by the Investment Manager for such Project SPV, the other Project Implementation Agreements shall stand terminated. The Investment Manager shall obtain approvals from the Unitholders and any governmental authority as may be applicable, in relation to such termination.

The Investment Manager also has the right to terminate the Project Implementation Agreements by issuing a notice of termination in case of certain events, including breach of the agreement by the Project Manager and the breach is not remedied within 60 days, occurrence of an Event of Default under the Framework Agreement, change in control of the Project Manager, occurrence of an insolvency event in relation to the Project Manager or a force majeure event continues for a period of 180 days or more within a continuous period of 365 days. Also see "*Background and Structure of the Trust – Fees and Expenses – Fees and expenses of the Project Manager*" on page 79.

THE INVESTMENT MANAGER

MMK Toll Road Private Limited is the Investment Manager of the Trust, and has been designated as such pursuant to the Investment Management Agreement. The Investment Manager is responsible for making investment decisions with respect to the underlying assets or projects of the Trust, including any further investment or divestment of its assets, in accordance with the InvIT Regulations and the Investment Management Agreement.

The details of the Invesment Manager are as follows:

A. Details of the Investment Manager

a) **Name:** MMK Toll Road Private Limited;

b) **Registered Office:** Off No-11th Floor/1101, Technology Street, Hill Side Avenue, Powai, Mumbai 400 076, Maharashtra, India;

c) **Correspondence Address:** Off No-11th Floor/1101, Technology Street, Hill Side Avenue, Powai, Mumbai 400 076, Maharashtra, India;

d) **Telephone Number:** +91 22 6733 6400; and

e) **E-mail:** dhananjay.joshi@irb.co.in

B. Details of the Contact Person of the Investment Manager

a) **Name:** Mr. Dhananjay Joshi;

b) **Telephone Number:** +91 22 6733 6400; and

c) **Email:** dhananjay.joshi@irb.co.in

C. Background and Past Experience of the Investment Manager

MMK Toll Road Private Limited ("**Investment Manager**") was incorporated on April 12, 2002. The Investment Manager has experience in operating a road BOT project for a period of 14 years and in developing, operating and maintaining toll roads in the infrastructure sector.

The Investment Manager has executed the BOT project of improving and strengthening the Mohol – Kurul – Kamti – Mandrup Road in Solapur District (length: 33 km). The cost of the project was ₹180 million, which was financed by equity of ₹70.00 million and RTL of ₹110.00 million. The commercial operations date of the project was in May 2002 and the concession period was 13 years which expired in May 2015.

Being part of the IRB group, the Investment Manager has the infrastructure for acting as the Investment Manager for managing the assets and investments of the Trust.

The net worth of the Investment Manager as on March 31, 2022 stood at ₹102.68 million on a standalone basis. The key managerial personnel of the Investment Manager have over five years of experience each, in providing advisory services to a developer in the infrastructure sector. One such key managerial personnel has experience of over five years in the roads sector which is the relevant sub-sector in which the Trust primarily proposes to invest.

The Investment Manager confirms that it has, and undertakes to ensure that it will at all times maintain, adequate infrastructure, personnel and resources to perform its functions, duties and responsibilities with respect to the management of the Trust, in accordance with the InvIT Regulations, the Investment Management Agreement and other applicable law.

Further, neither the Investment Manager, nor its promoters or directors:

a) is debarred from accessing the securities market by the SEBI; or

b) is a promoter, director or person in control of any other company or a sponsor, investment manager or trustee of any other infrastructure investment trust or infrastructure investment trust which is debarred from accessing the capital market under any order or directions made by the SEBI.

None of the promoters or directors of the Investment Manager is a fugitive economic offender declared under Section 12 of the Fugitive Economic Offenders Act, 2018.

The Investment Manager conducts the operations of the Trust from its offices in Mumbai and New Delhi.

D. Brief Profiles of the Investment Manager's Directors

a) **Mr. Virendra D. Mhaiskar**

Mr. Virendra D. Mhaiskar, is a non-executive director of the Investment Manager. He holds a Diploma in Civil Engineering from Shriram Polytechnic, Navi Mumbai. Mr. Mhaiskar has over 30 years of experience in the construction and infrastructure industry. He joined the IRB group in June 1990 and is responsible for leading and directing the IRB group's strategy in BOT and funded projects.

b) **Mr. Kunnasagaran Chinniah**

Mr. Kunnasagaran Chinniah is a non-executive director of the Investment Manager. He is a Chartered Financial Analyst with a bachelor's degree in electrical engineering from the National University of Singapore and an MBA from the University of California, Berkeley. He has more than three decades of experience in the financial and infrastructure sectors. He is presently a director of Changi Airport International, Keppel Infrastructure Trust, Azalea Asset Management, Capitaland Ascendas REIT, Hindu Endowments Board, Singapore and several other companies. Earlier, he retired as the Managing Director/Global Head of Portfolio, Strategy & Risk group and Head of Infrastructure with GIC Special Investments ("**GICSI**"), the Private Equity arm of the Government of Singapore Investment Corporation ("**GIC**"). He joined GIC in 1989 and has held various positions with the Special Investments Department of GIC in their North American, European and Asian regions.

c) **Mr. K G Krishnamurthy**

Mr. K G Krishnamurthy, is an independent director of the Investment Manager. He was the Managing Director and CEO of HDFC Property Ventures Limited. He holds a degree in Bachelor of Architecture from Indian Institute of Technology Kharagpur. He was associated with Housing Development Finance Corporation ("**HDFC**") for more than two decades and held various leadership positions during his tenure with HDFC. He was also deputed to HDFC Venture Capital Limited (a subsidiary of HDFC) as Managing Director and CEO in the year 2005.

d) **Mrs. Ranjana Paranjape**

Mrs. Ranjana Paranjape, is an independent director of the Investment Manager. She holds a Diploma in Financial Management and a master's degree on Commerce from the University of Mumbai. She is also a Certified Associate of the Indian Institute of Bankers. She was associated with IDBI Bank for over 38 years and retired in October 2016 as a Chief General Manager.

The directors are not directors or members of the governing board of an investment manager of another infrastructure investment trust.

E. Brief Profiles of the Investment Manager's Key Personnel

a) **Mr. Dhananjay K. Joshi, Chief Executive Officer**

Mr. Dhananjay K. Joshi, 49 years, joined the IRB group in November 1998. He was appointed as the Chief Executive Officer of MMK Toll Road Private Limited with effect from February 10, 2020. He holds a bachelor's degree in commerce and a bachelor's degree in law from the University of Mumbai. He also holds a post-graduate diploma in business management and a masters in business administration from Shivaji University, Kolhapur. He has been a part of the IRB group for over 22 years.

b) **Ms. Shilpa C. Todankar, Chief Financial Officer**

Ms. Shilpa C. Todankar, 39 years, joined the IRB group in September 2009. She is a member of the Institute of Chartered Accountants of India since 2011. She holds a diploma in Information System Audit from Institute of Chartered Accountants of India. She has approximately 10 years of experience in the fields of accountancy, audit and taxation in the IRB group. She is also a director on the board of the nine Project SPVs.

c) **Mr. Kaustubh Shevade, Company Secretary and Compliance Officer**

Mr. Kaustubh Shevade, 36 years, joined the IRB group in December 2019. He is an associate member of the Institute of Company Secretaries of India. He holds a bachelor of legal sciences degree and a bachelor of laws degree from the University of Mumbai. He also holds a master of business laws degree from the National Law School of India University, Bengaluru. Prior to joining the Investment Manager, he was associated with Tata Realty and Infrastructure Limited and Reliance Infrastructure Limited.

F. Details of the Holding or the Proposed Holding by the Investment Manager and its Directors in the Trust

The Investment Manager and its directors do not hold any Units as on date. None of the directors of the Investment Manager or the Investment Manager propose to hold any Units in the Trust.

G. Summary of the Standalone Financial Statements of the Investment Manager

For a summary of the financial statements of the Investment Manager, as derived from the standalone financial statements of the Investment Manager, prepared in accordance with Ind AS and the Companies Act, as of and for the Financial Years 2022, 2021 and 2020, see "*Summary Financial Information*" on page 35.

H. Functions, Duties and Responsibilities of the Investment Manager

Below is the brief description of the functions, duties and responsibilities of the Investment Manager provided in the Investment Management Agreement in accordance with the InvIT Regulations, which *inter-alia,* include:

a) Coordinating with the Trustee, as may be necessary, with respect to the operations of the Trust.
b) Ensuring that the valuation of the Trust Assets is done by the Valuer in accordance with the InvIT Regulations.
c) Arranging for adequate insurance coverage for the Trust Assets in accordance with the InvIT Regulations.
d) Maintaining proper books of accounts, documents and records with respect to the Trust, in the manner set out in the Indenture of Trust and in accordance with Applicable Law.
e) Ensuring that the audit of the accounts of the Trust by the Auditor is undertaken in accordance with the InvIT Regulations.
f) Making Distributions to Unitholders in accordance with Regulations 9(8) and 18 of the InvIT Regulations, the Trust Documents and the Investment Strategy. Subject to the Trust Documents, Applicable Law and the Investment Strategy, at least such percentage of the net distributable cash flows of the SPVs and Holdcos (as applicable) shall be distributed to the InvIT, as prescribed in the InvIT Regulations. The Distributions shall be made not less than once every year or at such other intervals as may be specified in the relevant Trust Documents or applicable under the InvIT Regulations;
g) To convene meetings of the Unitholders in accordance with Regulation 22 of the InvIT Regulations, including at the written request of the Unitholders as specified therein, and maintain records pertaining to the meetings in accordance with Regulation 26 of the InvIT Regulations.
h) To intimate the Trustee prior to any change in control of the Investment Manager to enable the Trustee to seek prior approval from the Unitholders (and the SEBI or any other governmental

authority, if applicable) and ensuring that no such change is given effect to, until the approval of the Unitholders (and the SEBI or any other governmental authority, as applicable) has been obtained, or the Investemnt Management Agreement is terminated and a new investment manager has been appointed in accordance with the terms in the Investment Management Agreement, or in compliance with any other requirement under the InvIT Regulations, other applicable law and the Trust Documents.

i) To place before the board of directors, a report on the activity and performance of the Trust in accordance with the InvIT Regulations. To designate an appropriately qualified employee to act as the compliance officer for monitoring of compliance with the InvIT Regulations and any circulars or guidelines issued thereunder and intimating the SEBI in case of non-compliance.

j) Maintaining records pertaining to the activity of the Trust in terms of Regulation 26 of the InvIT Regulations.

k) To manage the Trust in accordance with applicable law (including the InvIT Regulations) and the Trust Documents and the investment strategy, to make all investment decisions with respect to the Trust Assets and ensure that the investments made by the Trust are in accordance with the investment conditions specified in the applicable provisions of the InvIT Regulations and in accordance with the investment strategy as specified in the Investment Management Agreement.

l) To appoint, in consultation with the Trustee, the Valuer, Auditor (for a period of not more than five consecutive years or such other period as may be prescribed under the InvIT Regulations), regsitrar and transfer agent, merchant bankers, custodians, credit rating agencies, and any other intermediaries or service providers.

m) To ensure all activities of the intermediaries, agents, or service providers appointed by the Investment Manager are in accordance with the InvIT Regulations and guidelines and circulars issued thereunder, as applicable.

n) Overseeing the activities of the Project Manager, ensuring that the Project Manager conplies with the InvIT Regulations, and reviewing the transactions carried out between the Project Manager and its Associates and where the Project Manager has advised that there may be a conflict of interest, to obtain confirmation from a practicing chartered accountant or valuer, as applicable, that such transaction is on an arms' length basis.

o) To ensure adequate and timely redressal of Unitholders' grievances pertaining to the activities of the Trust in accordance with the InvIT Regulations. The Investment Manager is required to submit quarterly reports on Unitholders' grievances to the Trustee, as applicable.

p) To provide to the SEBI, the stock exchanges and other governmental authorities, as applicable, information as may be requested or required under applicable law by the SEBI, the stock exchanges or other governmental authorities, as applicable, in relation to the activities of the Trust

q) To ensure that disclosures and reporting to the Unitholders, SEBI, the Trustee, and the stock exchanges are in accordance with the applicable provisions of the InvIT Regulations (including disclosure to the Trustee and the Unitholders of any information having a bearing on the operation or performance of the Trust) in accordance with the timelines specified in the InvIT Regulations.

r) To intimate the Trustee and the Unitholders on the occurrence of any event that may have a material impact on the Investment Manager and its ability to perform its obligations under the Trust Documents, including any change in control of the Investment Manager.

s) To be responsible for all activities pertaining to the issue of Units including filing of any placement memorandum, final placement memorandum, draft offer document, offer document or final offer document with the SEBI and dealing with all matters relating to the allotment of Units to Unitholders.

t) To ensure that disclosures in the placement memorandum or offer document are material, true, correct and adequate and in accordance with the InvIT Regulations. The Trust may list its Units on one or more stock exchanges subject to compliance with the conditions specified under the InvIT Regulations and directions issued by the SEBI or the stock exchanges, as applicable.

u) Fulfiling its obligations under the applicable provisions of the InvIT Regulations and the Trust Documents.

v) The Investment Manager is required to submit to the Trustee:

  i. quarterly reports on the activities of the Trust including receipts for all funds received by it and for all payments made, status of compliance with the InvIT Regulations, specifically Regulations 18, 19 and 20 of the InvIT Regulations, performance report, status of development of under-construction projects, within time period specified under the InvIT Regulations, whichever is earlier;
  ii. valuation reports as required under the InvIT Regulations within the time period specified under the InvIT Regulations;

iii. decision to acquire or sell or develop or bid for any Trust Asset or project or expand existing completed Trust Assets or projects along with rationale for the same;
iv. details of any action which requires approval from the Unitholders as may be required under the InvIT Regulations; and
v. details of any other material fact including change in its directors, change in its shareholding, any legal proceedings that may have a significant bearing on the activity of the Trust, within the time period specified under the InvIT Regulations.

w) To submit within the time period prescribed under the InvIT Regulations, annual reports and half yearly reports to all the Unitholders electronically or provide physical copies and, if applicable, to the stock exchanges.

x) To keep segregated at all times the assets and liabilities of the Trust from the assets and liabilities of the Investment Manager and the assets and liabilities of any other trusts managed by the Investment Manager. The assets held under the Trust shall be held for the exclusive benefit of the Unitholders and such assets shall not be subject to the claims of any creditor or any person claiming under any other fund or trust administered or managed by the Investment Manager.

y) To be responsible for monitoring, administering and giving effect to all claims and adjustments arising out of the share purchase agreements executed in respect of the acquisition of Trust Assets and any payments required to be made by or to the Trust.

z) Other duties include:

i. ensuring that computation of the net asset value of the Trust is based on the valuation done by the Valuer in accordance with the InvIT Regulations;
ii. maintaining regular interaction with the Trustee on performance of the Trust and providing the Trustee with any information in relation to the operations of the Trust as may be required;
iii. conducting its affairs and the affairs of the Trust in such a manner that Unitholders will not have personal liability with respect to liabilities or obligations of the Trust;
iv. collecting all dividends, fees, property and other payments due and receivable by the Trust in the manner set out in the Indenture and in terms of the InvIT Regulations;
v. ensuring that no commission or rebate or any other remuneration, arising out of transaction pertaining to the Trust is collected by the Investment Manager or its Associates, other than as specified in the offer document or any other document as may be specified by SEBI for the purpose of the issue of the units of the Trust;
vi. ensuring that the Trust Assets have proper and legal marketable titles and that all the material contracts entered into or on behalf of the Trust or the Trust Assets or the SPVs, or the Holdcos are legal, valid, binding and enforceable by and on behalf of the Trust or the Trust Assets or the SPVs or the Holdcos, as applicable;
vii. keeping the Unitholders informed and updated on investment activities of the Trust in accordance with the Trust Documents;
viii. ensuring that any possible conflict of interest involving its role as an Investment Manager is reported to the Trustee and the Unitholders;
ix. ensuring that disclosures and reporting to the Unitholders, SEBI and the Trustee are in accordance with applicable law and InvIT Regulations;
x. to immediately notify the Trustee and the Unitholders of any act which is detrimental to the interest of the Unitholders;
xi. informing the Trustee and Unitholders in writing about any change in the representations and warranties provided by the Investment Manager under the Investment Management Agreement or any of the Trust Documents;
xii. providing assistance to the Trustee as may be required in fulfilling its obligations towards the Trustee and the Unitholders, under applicable law, by any governmental authority or under the Trust Documents;
xiii. providing to the SEBI, the Trustee and if applicable, the stock exchanges, such information as may be sought by the SEBI, the Trustee or the stock exchanges in relation to the activities of the Trust, and providing, in parallel, to the Unitholders a copy of all reports and submissions made hereunder;
xiv. taking any other actions incidental to any of the foregoing or necessary or convenient in order to fully effect or evidence any action or transaction contemplated under the Investment Management Agreement; and
xv. to perform any other duties specified in the InvIT Regulations and the Trust Documents.

I. Rights in relation to shareholding in the Investment Manager

Pursuant to the terms of the IM SHA, the Sponsor and Croxley have agreed to the following arrangements in relation to their shareholding in the Investment Manager:

- ***Put option***: Croxley has the right to require the Sponsor to purchase the equity shares held by it in the Investment Manager upon the occurrence of certain events within the period of 12 months from the date of allotment in the initial offer of Units.

- ***Right of first refusal***: Croxley has a right of first refusal over equity shares of the Investment Manager proposed to be transferred by the Sponsor to any person other than the subsidiaries of the Sponsor.

- ***Tag along right***: Subject to lock-in below, if the Sponsor proposes to transfer equity shares of the Investment Manager held by it to a third party buyer (which is not a subsidiary of the Sponsor), Croxley has a right to require such buyer to purchase from the Investors, (i) the entire shareholding of Croxley if the Sponsor proposes to transfer in excess of 20% of the total outstanding equity shares or (ii) up to such percentage of equity shares held by Croxley that is *pro rata* to the percentage of equity shares proposed to be transferred by the Sponsor if the Sponsor proposes to transfer 20% or less of the total outstanding equity shares.

- ***Lock-in***: The Sponsor is not permitted to transfer the equity shares held by in the Investment Manager to any person, including to its affiliates without the prior written permission of Croxley.

- ***Deed of Adherence***: The Sponsor has agreed that any transfer of its shareholding to any person will be valid only if such person executes a deed of adherence and agrees to be bound by the terms and conditions of the IM SHA.

- ***Pre-emptive rights***: If the Investment Manager proposes to issue any new equity shares to any person including an existing shareholder, including by way of a preferential allotment, subject to certain exceptions specified in the IM SHA, then until the date of completion of any initial public offering of the Investment Manager, the Investment Manager will provide a right to the existing shareholders to subscribe to their respective proportionate share (in the proportion of their shareholding in the Investment Manager) of such proposed issuance at the same price as is offered to the proposed recipient, so as to maintain their respective proportionate ownership in the Investment Manager.

- ***Events of Default and consequences***: See "*Rights of Unitholders – Arrangements between the Sponsor and the Financial Investors*" on page 221.

THE TRUSTEE

The Sponsor has settled the Trust pursuant to the Indenture of Trust and appointed IDBI Trusteeship Services Limited in accordance with the provisions of the InvIT Regulations.

The details of the Trustee are as follows:

A. Details of the Trustee

a) **Name:** IDBI Trusteeship Services Limited;

b) **Registered Office:** Ground Floor, Universal Insurance Building, Sir Phirozshah Mehta Road, Fort, Mumbai 400 001, Maharashtra, India;

c) **Correspondence Address:** Asian Building, Ground Floor, 17, R. Kamani Marg, Ballard Estate, Mumbai 400 001, Maharashtra, India;

d) **Telephone Number:** +91 22 4080 7016;

e) **E-mail:** itsl@idbitrustee.co.in

B. Details of the Contact Person of the Trustee

a) **Name:** Mr. Shivaji Gunware / Mr. Naresh Sachwani;

b) **Telephone Number:** +91 22 4080 7016; and

c) **E-mail:** itsl@idbitrustee.co.in

C. Details of Trustee's Registration with SEBI

The Trustee is registered with SEBI as a debenture trustee with registration number IND000000460.

D. Background of the Trustee

The Trustee is a trusteeship company which has been registered with SEBI, and has been jointly promoted by IDBI Bank Limited, Life Insurance Corporation and General Insurance Corporation for providing corporate and other trusteeship services.

The Trustee is permitted to engage in the following activities.

a) Debenture / bond trustee;
b) Security trustee/ facility agent;
c) Securitization trustee;
d) Share pledge trustee / share monitoring agent;
e) Escrow agent;
f) VCF trustees/ AIF Trustees;
g) Safe keeping / lockers services;
h) Management of private trusts / execution of wills; and
i) Special corporate services (e.g. provision of nominee directors)

The Trustee is the one of the largest trusteeship companies in India. The Trustee provides trusteeship services to corporates across diverse industries as well as domestic and foreign banks and financial institutions.

The Trustee is not an Associate of the Sponsor or the Investment Manager. Further, the Trustee (i) is not debarred from accessing the securities market by the SEBI; or (ii) is not a promoter, director or person in control of any other company or a sponsor, investment manager or trustee of any other infrastructure investment trust or infrastructure investment trust which is debarred from accessing the capital market under any order or directions made by the SEBI.

To the best knowledge of the Trustee, none of the promoters or directors of the Trustee (i) is debarred from accessing the securities market by SEBI; or (ii) is a promoter, director or person in control of any other company or a sponsor, investment manager or trustee of any other infrastructure investment trust or an infrastructure investment trust which is debarred from accessing the capital market under any order or direction made by SEBI; or (iii) is in the list of wilful defaulters published by the RBI.

None of the promoters or directors of the Trustee is a fugitive economic offender declared under Section 12 of the Fugitive Economic Offenders Act, 2018.

E. Names and Profiles of the Directors of the Trustee

The names and profiles of board of directors of the Trustee, are as follows:

S. No.	Name	Designation	DIN
1.	Mr. J. Samuel Joseph	Chairman	02262530
2.	Mr. Pradeep Kumar Jain	Director	07829987
3.	Mr. Pradeep Kumar Malhotra*	Managing Director and Chief Executive Officer	09817764
4.	Ms. Jayashree Ranade	Director	09320683
5.	Ms. Baljinder Kaur Mandal*	Additonal Director	06652016

**The filing of e-forms on the Ministry of Corporate Affairs portal in relation to the appointment of Mr. Pradeep Kumar Malhotra as the Managing Director and Chief Executive Officer, the appointment of Ms.Baljinder Kaur Mandal as an additional director and the resignation of Ms. Padma Vinod Betai as the erstwhile Managing Director and Chief Executive Officer are in process and are expected to be completed once the relevant e-forms are available for filing on the portal.*

The Trustee confirms that it has, and undertakes to ensure that it will at all times maintain, adequate infrastructure, personnel and resources to perform its functions, duties and responsibilities with respect to the Trust, in accordance InvIT Regulations, the Indenture of Trust and applicable law.

F. Functions, Duties and Responsibilities of the Trustee

a) Interests of the Unitholders

The Trustee shall carry on and conduct its business in a proper and efficient manner in the best interest of the Unitholders in accordance with the Trust Documents. The Trustee shall duly perform all its duties, responsibilities and powers as set out in the InvIT Regulations in the interest of the Unitholders and in accordance with the provisions of the Trust Documents.

b) Appointment of the Investment Manager, the Project Manager and enter into the Investment Management Agreement and the Project Implementation Agreements

The Trustee, on behalf of the Trust, shall within a reasonable time from the date of execution of the Indenture of Trust, appoint an Investment Manager and a Project Manager (in consultation with the Investment Manager) and enter into an Investment Management Agreement and the Project Implementation Agreements. The Trustee shall have the power to execute the Project Implementation Agreement or any other agreement or arrangement, from time to time, with the Project Manager, any holding company or the SPV in this regard. The Trustee shall obtain a compliance certificate from the Investment Manager and the Project Manager on a quarterly basis, or such other time and in the form as may be prescribed under the InvIT Regulations.

c) Supervision of the Investment Manager

i. The Trustee shall ensure that the Investment Manager complies with reporting and disclosure requirements in accordance with the InvIT Regulations and in case of any delay or discrepancy, the Trustee shall require the Investment Manager to rectify such delay or discrepancy on an urgent basis.

ii. The Trustee shall oversee the activities of the Investment Manager in the interest of the Unitholders, ensure that the Investment Manager complies with the applicable provisions of the InvIT Regulations, including in relation to reporting and disclosure requirements and shall obtain a compliance certificate from the Investment Manager on a quarterly basis.

iii. The Trustee shall review transactions between the Investment Manager and its Associates and where the Investment Manager has advised that there may be a conflict of interest, obtain a confirmation that such transaction is on an arm's length basis from a practicing chartered account, a valuer or as may be otherwise prescribed under the InvIT Regulations, as applicable.

iv. The Trustee shall ensure that the Investment Manager reviews the valuation reports issued by the valuer and submitted to the Trustee by the Investment Manager in accordance with the InvIT Regulations.

v. The Trustee shall require the Investment Manager to set up such systems and procedures and submit such reports to the Trustee, as may be necessary for effective monitoring of the functioning of the Trust.

vi. The Trustee shall ensure that the Investment Manager convenes meetings of the Unitholders in accordance with the InvIT Regulations and oversees voting by the Unitholders and declaration of results (except where the Trustee is required to carry out such functions under the InvIT Regulations). The Trustee shall ensure that the Investment Manager convenes meetings of Unitholders within the period prescribed under the InvIT Regulations and the period between such meetings shall not exceed the period prescribed under the InvIT Regulations.

d) Providing information to the SEBI

The Trustee shall ensure that the Investment Manager shall provide to the SEBI and other governmental authorities, as applicable, information as may be requested or required under applicable law by the SEBI or other governmental authorities, as applicable, in relation to the activities of the Trust. The Trustee shall comply with the information and intimation requirements under the InvIT Regulations. The Trustee shall ensure that the activity of the Trust is operated in accordance with the provisions of the Indenture of Trust, the InvIT Regulations, other applicable law and the Trust Documents.

e) Documents and information to be provided to Unitholders

The Trustee shall, and shall ensure that the Investment Manager shall, provide documents and information to the Unitholders with respect to the activities carried on by the Trust, as may be required by the SEBI or other governmental authority, as applicable, under applicable law.

f) Change in Control

The Trustee shall obtain approvals, if required under the Trust Documents, the InvIT Regulations, other applicable law and any concession agreement, for any proposed change in control of the Trustee, the Investment Manager or the Project Manager, as applicable.

g) Change in Investment Manager or Project Manager

In the event of any proposed change or termination in the investment manager or project manager, the Trustee shall ensure that all conditions in connection with the removal of such investment manager or project manager and appointment of a new investment manager or project manager prescribed under the InvIT Regulations, the Trust Documents and other applicable law are complied with. The previous investment manager or project manager shall continue to act as such at the discretion of the Trustee until such time as the new investment manager or project manager is appointed. The Trustee shall ensure that the new investment manager or project manager shall stand substituted as a party in all the documents (to the extent applicable) to which the earlier investment manager or project manager was a party. The Trustee shall also ensure that the earlier investment manager or project manager continues to be liable for all its acts of omissions and commissions for the period during which it served as investment manager or project manager, notwithstanding its change or termination.

h) Subscription amounts

The Trustee shall and shall ensure that the Investment Manager ensures that subscription amounts in case of any offering by the Trust are collected and utilized in accordance with the InvIT Regulations, the relevant Trust Documents and conditions specified by the SEBI, as applicable.

i) Distribution

The Trustee shall make Distributions and ensure that the Investment Manager makes timely declarations of Distributions to the Unitholders in accordance with the InvIT Regulations.

j) Maintenance of books of accounts and other records

The Trustee shall cause the books of accounts and other records of the Trust to be maintained in accordance with the Indenture of Trust, the Trust Documents and applicable law.

k) Payment of statutory charges, operation of bank accounts etc.

i. The Trustee shall ensure that the Investment Manager shall make payments of all taxes, duties and any other statutory charges or levies that may be payable by the Trust or on behalf of the Unitholders from the Trust Assets, subject to the provisions of the Trust Documents and applicable law.
ii. The Trustee shall be responsible for opening and operating bank accounts and demat accounts on behalf of the Trust.

l) Attainment of objects of the Trust

The Trustee shall ensure that all acts, deeds and things are done for the fulfilment of the investment objectives of the Trust in accordance with the InvIT Regulations, the Trust Documents and to secure the best interests of the Unitholders.

m) Reports to be filed by the Trust

The Trustee shall file such reports as may be required by the SEBI or any other governmental authority or as required under applicable law in relation to the activities carried on by the Trust.

n) Unitholder Complaints

The Trustee shall periodically review the status of Unitholders' complaints and their redressal by the Investment Manager. The Investment Manager shall provide quarterly reports on Unitholders' grievances to the Trustee, as applicable.

o) Segregation of assets and liabilities

The assets and liabilities of the Trust shall at all times be segregated from the assets and liabilities of the Trustee and the assets and liabilities of other trusts managed by the Trustee. The Trust Assets shall be held for the exclusive benefit of the Unitholders and such assets shall not be subject to the claims of any creditor or any Person claiming under any other fund or trust administered or managed by the Trustee or the Investment Manager.

p) Valuer

i. The Trustee shall ensure that the valuer is not an Associate of the Sponsor, the Investment Manager or the Trustee.
ii. The Trustee shall ensure that the Investment Manager ensures that a detailed valuation is undertaken of the Trust Assets by the valuer at such intervals and in the manner specified under the InvIT Regulations and the Trust Documents.
iii. The Trustee shall ensure that the remuneration of the valuer is not linked to or based on the value of the asset being valued.

q) Investment by Trustee

The Trustee shall invest in Units only if permitted under Applicable Law and such investments shall be in accordance with applicable law.

r) Compliance with the InvIT Regulations

The Trustee shall fulfil its obligations under applicable provisions of the InvIT Regulations.

s) Delegation to the Investment Manager

The Trustee shall delegate all such powers to the Investment Manager as may be required by the Investment Manager to carry out its obligations under the Investment Management Agreement and Applicable Law and as may be required for the benefit of the Unitholders. Also see "*Rights of Unitholders – Approval of Unitholders*"on page 222.

t) Related Party Transactions

The Trustee shall review the transactions carried out between the Investment Manager and its Associates and obtain a certificate from a practising chartered accountant or a valuer, as applicable with respect to any related party transactions involving the Investment Manager and its Associates, where the Investment Manager has advised that there may be a conflict of interest, stating that such transactions have been done at an arms-length basis.

u) Monitoring

The Trustee shall require the Investment Manager to set up such systems and procedures and submit such reports to the Trustee, as may be necessary for the effective monitoring or the functioning of the Trust. The Trustee shall oversee activities of the Investment Manager in the interest of the Unitholders, shall ensure that the Investment Manager is in compliance with the provisions of the InvIT Regulations at all times and shall obtain a compliance certificate from the Investment Manager on a quarterly basis. Further, the Trustee shall ensure that the Investment Manager complies with reporting and disclosure requirements in accordance with the InvIT Regulations and in case of any delay or discrepancy, the Trustee will ensure that the Investment Manager rectifies such delay or discrepancy on an urgent basis.

v) Unitholders Meeting

The Trustee shall ensure that the Investment Manager convenes meetings of the Unitholders in accordance with the InvIT Regulations and shall also oversee the voting by the Unitholders and the declaration of results (excpet where the Trustee is required to carry out such functions under the InvIt Regulations). The Trustee shall ensure that the Investment Manager convenes meetings of Unitholders within the period prescribed under the InvIT Regulations and the period between such meetings shall not exceed the period prescribed under the InvIT Regulations.

w) Others

The Trustee shall ensure that the activity of the Trust is operated in accordance with the Indenture of Trust, InvIT Regulations, other applicable law and the Trust Documents. In the event, any discrepancy is noticed by the Trustee, then the Trustee shall promptly inform the SEBI in writing. The Trustee shall provide to the SEBI such information as may be sought by the SEBI pertaining to the activity of the Trust.

The Trustee shall have the power to take up with SEBI or with the stock exchanges, as applicable, any matter which has been approved in any meeting of Unitholders post the initial offer by the Trust, if the matter requires such action.

x) Compliance Certificate

The Trustee shall obtain a compliance certificate in the form and manner prescribed under applicable law on a quarterly basis, from each of the Investment Manager and the Project Manager.

SECTION VI – OTHER PARTIES

AUDITOR

The Investment Manager, in consultation with the Trustee, has appointed Gokhale & Sathe, Chartered Accountants as the Trust's Auditor until the conclusion of the next annual meeting of Unitholders of the Trust. The Auditor has audited the Special Purpose Consolidated / Combined Financial Information and their report thereon dated March 22, 2023, has been included in this Disclosure Document.

Policy for Appointment of Auditor

The Investment Manager shall appoint an auditor of the Trust to hold office from the date of conclusion of the annual meeting in which the auditor is appointed until the date of conclusion of the sixth annual meeting of the unitholders thereafter in accordance with the procedure for selection of auditors as may be specified by the SEBI. The Investment Manager is not permitted to appoint or re-appoint an individual as the auditor for more than one term of five consecutive years, and an audit firm as the auditor for more than two terms of five consecutive years, subject to a cooling-off period of five years. With respect to the appointment of the auditor of the Trust and the fees of such an auditor, an approval from the Unitholders shall be required at the annual meeting in accordance with Regulation 22 of the InvIT Regulations.

The Investment Manager shall ensure that the auditor carries out an audit of the accounts of the Trust at such intervals as may be required under the InvIT Regulations.

In accordance with the InvIT Regulations, the auditor of the Trust shall:

a) conduct an audit of the accounts of the Trust and draft the audit report based on the accounts examined, after taking into account the relevant accounting and auditing standards, as may be specified by SEBI in this regard;

b) to the best of its information and knowledge, ensure that the accounts and financial statements give a true and fair view of the state of the affairs of the Trust, including profit or loss and cash flow for the period and such other matters as may be specified;

c) have a right of access at all times to the books of accounts and vouchers pertaining to activities of the Trust;

d) have a right to require such information and explanation pertaining to activities of the Trust, as it may consider necessary for the performance of its duties as auditor from the employees of Trust or the Sponsor, the Investment Manager, the Project Manager or the Trustee or the SPVs or any other person in possession of such information; and

e) undertake a limited review of the audit of all the entities or companies whose accounts are to be consolidated with the accounts of the Trust as per the applicable Indian Accounting Standards (Ind AS) and any addendum thereto as defined in Rule 2(1)(a) of the Companies (Indian Accounting Standards) Rules, 2015, in such manner as may be specified by the SEBI.

Auditing Standards

The Auditor shall conduct an audit of the accounts of the Trust and issue the audit report based on the accounts examined, after taking into account the relevant accounting and auditing standards, as may be specified by SEBI and/or the ICAI, from time to time, in this regard. Further, the Auditor shall undertake a limited review of the audit of all the entities or companies whose accounts are to be consolidated with the accounts of the Trust, in accordance with the relevant accounting standards, in such manner as may be specified by the SEBI.

VALUER

The Investment Manager, in consultation with the Trustee, has appointed Mr. Sunit Khandelwal as the Valuer of the Trust for a period of three years. Mr. Sunit Khandelwal is a co-founder of Incwert. In accordance with the InvIT Regulations, the Valuer has undertaken a full valuation of the assets of the Trust as of December 31, 2022 and his Portfolio Valuation Report dated March 23, 2023 in relation to such valuation has been included in this Disclosure Document.

The Valuer is not an Associate of the Sponsor, the Investment Manager or the Trustee, and has not less than five years of experience in the valuation of infrastructure assets.

SECTION VII – FINANCIAL INFORMATION

FINANCIAL STATEMENTS

SPECIAL PURPOSE CONSOLIDATED / COMBINED FINANCIAL INFORMATION

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gokhale & sathe (regd.)
chartered accountants
304/308/309, Udyog Mandir No. 1,
7-C, Bhagoji Keer Marg,
Mahim, Mumbai 400 016

Independent Auditor's Report on Condensed Interim Special Purpose Consolidated / Combined Financial Statements of the IRB Infrastructure Trust and the Project SPVs in connection with the listing of Units of the Trust.

To,
IDBI Trusteeship Services Limited,
(As Trustee of the IRB Infrastructure Trust)
Asian Building Ground Floor,
17, R. Kamani Marg
Ballard Estate,
Mumbai - 400001

MMK Toll Road Private Limited,
(As the Investment Manager of the IRB Infrastructure Trust)
Off no-11th floor/1101,
Hiranandani Knowledge Park,
Technology Street, Hill Side Avenue,
Powai, Mumbai - 400076.

Dear Sirs,

Report on Condensed Interim Special Purpose Consolidated / Combined Financial Statements of the IRB Infrastructure Trust and the Project SPVs

OPINION

We have audited the accompanying Condensed Interim Special Purpose Consolidated / Combined Financial Statements of the IRB Infrastructure Trust ('the Trust') and the following ten subsidiaries of Trust, namely –

1. IRB Westcoast Tollway Limited
2. Yedeshi Aurangabad Tollway Limited
3. Solapur Yedeshi Tollway Limited
4. Kaithal Tollway Limited
5. AE Tollway Limited
6. Udaipur Tollway Limited
7. CG Tollway Limited
8. Kishangarh Gulabpura Tollway Limited
9. IRB Hapur Moradabad Tollway Limited
10. Palsit Dankuni Tollway Private Limited

(together referred as 'Project SPVs' or 'Trust Group' and individually 'Project SPV') of which, SPVs listed at Sr. No. 1 to 9 were transferred by IRB Infrastructure Developers Limited to the trust on February 25, 2020 pursuant to the private placement of Units of the Trust with effect from March 1, 2020 (the effective date for consolidation) and the Project SPV listed st Sr. No. 10 was acquired by the Trust on April 2, 2022.

and which comprises the

- **Condensed Interim Special Purpose Consolidated / Combined Balance Sheet** as at December 31, 2022, March 31, 2022, March 31, 2021 and March 31, 2020 (which comprises Combined figures for the 11 months ended on February 29, 2020 and Consolidated figures for the month ended March 31, 2020),

- **Condensed Interim Special Purpose Consolidated / Combined Statement of Profit and Loss (including Other Comprehensive Income)** for the nine months ended December 31, 2022, nine months ended December 31, 2021 and Financial Year ended March 31, 2022 March 31, 2021 and March 31, 2020 (which comprises Combined figures for the 11 months ended on February 29, 2020 and consolidated figures for the month ended March 31, 2020)

- **Condensed Interim Special Purpose Consolidated / Combined Cash Flow** for the nine months ended December 31, 2022, nine months ended December 31, 2021 and Financial Year ended March 31, 2022, March 31, 2021 and March 31, 2020 (which comprises Combined figures for the 11 months ended on February 29, 2020 and Consolidated figures for the month ended March 31, 2020)

- **Condensed Interim Special Purpose Consolidated Changes in Equity** for the nine months ended December 31, 2022 and Financial Year ended March 31, 2022 March 31, 2021 and March 31, 2020 (which comprises Combined figures for the 11 months ended on February 29, 2020 and Consolidated figures for the month ended March 31, 2020)

- **Condensed Interim Special Purpose Consolidated Statement of Net Assets at Fair Value** as at December 31, 2022, Financial Year ended March 31, 2022, March 31, 2021 and March 31, 2020 (which comprises Combined figures for the 11 months ended on February 29, 2020 and consolidated figures for the month ended March 31, 2020)

- **Condensed Interim Special Purpose Consolidated Statement of Total Returns at Fair Value** for the nine months ended December 31, 2022, Financial Year ended March 31, 2022 and March 31, 2021 and March 31, 2020 (which comprises Combined figures for the 11 months ended on February 29, 2020 and consolidated figures for the month ended March 31, 2020)

- **A Summary of Significant Accounting Policies and Other Explanatory Information**

  (together referred to as **'Condensed Interim Special Purpose Consolidated / Combined Financial Statements'**).

GOKHALE & SATHE MUMBAI FRM No. 103264W CHARTERED ACCOUNTANTS

In our opinion and based on the information and according to the explanations given to us, the **Condensed Interim Special Purpose Consolidated / Combined Financial Statements** gives a true and fair view in accordance with the basis of preparation as specified in Note 2.A. to the Condensed Interim Special Purpose Consolidated / Combined Financial Statements in case of,

a) Condensed Interim Special Purpose Consolidated Balance Sheet, **of the state of affairs** of the Trust Group as at December 31, 2022, as at March 31, 2022, March 31, 2021 and March 31, 2020 (which comprises combined figures for the 11 months ended on February 29, 2020 and consolidated figures for the month ended March 31, 2020)

b) Condensed Interim Special Purpose Consolidated / Combined Statement of Profit and Loss (including Other Comprehensive Income) of the Trust Group's Loss for the nine months ended December 31, 2022, nine months ended December 31, 2021, Financial year ended March 31, 2022, March 31, 2021 and March 31, 2020 (which comprises Combined figures for the 11 months ended on February 29, 2020 and consolidated figures for the month ended March 31, 2020)

c) Condensed Interim Special Purpose Consolidated / Combined Statement of Cash Flow Statement, of the cash movements of the Trust Group for the nine months ended December 31, 2022, nine months ended December 31, 2021, Financial Year ended March 31, 2022, March 31, 2021 and March 31, 2020 (which comprises Combined figures for the 11 months ended on February 29, 2020 and consolidated figures for the month ended March 31, 2020)

d) Consolidated Statement of Changes in Equity of the movement of the unit holders for the nine months ended December 31, 2022, Financial Year ended March 31, 2022, March 31, 2021 and March 31, 2020 (which comprises Combined figures for the 11 months ended on February 29, 2020 and consolidated figures for the month ended March 31, 2020)

e) Consolidated Statement of Net Assets at Fair Value as at December 31, 2022, March 31, 2022 and March 31, 2021 (which comprises Combined figures for the 11 months ended on February 29, 2020 and consolidated figures for the month ended March 31, 2020)

f) Consolidated Statement of Total Returns at Fair Value for the nine months ended December 31, 2022, Financial year ended March 31, 2022 and March 31, 2021 (which comprises Combined figures for the 11 months ended on February 29, 2020 and consolidated figures for the month ended March 31, 2020).

BASIS OF ACCOUNTING AND RESTRICTION ON DISTRIBUTION AND USE

Without modifying our opinion, we draw attention to Note 2.A. to the **Condensed Interim Special Purpose Consolidated Financial Statements**, which describes the **Basis of Accounting** including the approach to and purpose of preparation of the Condensed Interim Special Purpose Consolidated / Combined Financial Statements.

GOKHALE & SATHE MUMBAI FRM No. 103264W CHARTERED ACCOUNTANTS

gokhale & sathe (regd.)
chartered accountants
304/308/309, Udyog Mandir No. 1,
7-C, Bhagoji Keer Marg,
Mahim, Mumbai 400 016

The **Condensed Interim Special Purpose Consolidated / Combined Financial Statements** have been prepared in accordance with the requirements of Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014, as amended from time to time including any guidelines and circulars issued thereunder, including the circular dated October 20, 2016 on disclosure of financial information in offer document / placement memorandum for InvITs ("InvIT Regulations") based on the Indian Accounting Standards as notified under the Companies (Indian Accounting Standards) Rules, 2015 prescribed under section 133 of the Companies Act, 2013 ('the Act'), as applicable ("Ind AS") as more clearly specified in Note 2.A. 'Basis of preparation' to the Condensed Interim Special Purpose Consolidated Financial Statements

Accordingly, since the effective date of transfer was March 1, 2020, for the Financial Year ended March 31, 2022, March 31, 2021 and one month period ended March 31, 2020, Condensed Interim Special Purpose Consolidated Financial Statements have been prepared and for the 11 month period from April 1, 2019 to February 29, 2020, *Condensed Interim Special Purpose Combined Financial Statements have been prepared, as if the Trust structure was in place and 100% interest of the Project SPVs was part of the Trust since April 1, 2018 and have been approved by the Investment Manager of the Trust. *(Financial information for the Financial Year ended March 31, 2020 has been prepared on a consolidated basis for the one month period ended March 31, 2020 and on a Combined basis for the 11 month ended from April 1, 2019 to February 29, 2020 and is shown as a single period of 12 months for the purpose of the presentation and convenience.)*

Consequently, the above-mentioned *Condensed Interim Special Purpose Combined Financial Statements may not necessarily be indicative of financial performance, financial position and cash flows of the Trust Group that would have occurred if it had operated as a single group of entities during the periods presented.

This report is addressed to and is provided to the Trust, Trustee and the Investment Manager solely for the inclusion in the Disclosure Document in connection with the proposed listing of Units of the Trust and may not be suitable for another purpose. Our report should not be used, referred to or distributed for any other purpose or to any other party without our prior written consent other than to the Financial Investors in connection with the proposed listing of units of the Trust. Accordingly, we do not accept or assume any liability or any duty of care for any other purpose or to any other person to whom this report is shown or into whose hands it may come without our prior consent in writing.

RESPONSIBILITY OF THE MANAGEMENT AND THOSE CHARGED WITH GOVERNANCE FOR THE CONDENSED INTERIM SPECIAL PURPOSE CONSOLIDATED / COMBINED FINANCIAL STATEMENTS

The Investment Manager of the Trust is responsible for the preparation of these **Condensed Interim Special Purpose Consolidated / Combined Financial Statements** that give a true and fair view of the Consolidated / Combined financial position, Consolidated / Combined financial performance (including Other Comprehensive Income), Consolidated / Combined Cash Flow, Consolidated Statement of Change in Equity in accordance with the basis of preparation specified in Note 2.A. to the Condensed Interim Special Purpose Consolidated / Combined Financial Statements.

GOKHALE & SATHE MUMBAI FRN No. 103264W CHARTERED ACCOUNTANTS

gokhale & sathe (regd.)
chartered accountants
304/308/309, Udyog Mandir No. 1,
7-C, Bhagoji Keer Marg,
Mahim, Mumbai 400 016

The respective Board of Directors of the Investment Manager and the Project SPVs are responsible for the maintenance of adequate accounting records in accordance with the provisions of the Act; for safeguarding the assets of the Trust and the Project SPVs and for preventing and detecting frauds and other irregularities; the selection and application of appropriate accounting policies; making judgements and estimates that are reasonable and prudent; and the design, implementation and maintenance of adequate Internal Financial Controls, that were operating effectively for ensuring the accuracy and completeness of the accounting records, relevant to the preparation and presentation of the Financial Statements that give a true and fair view and are free from material misstatement, whether due to fraud or error, which have been used for the purpose of preparation of these Special Purpose Consolidated / Combined Financial Statements by the Investment Manager, as aforesaid.

AUDITOR'S RESPONSIBILITY

Our objectives are to obtain reasonable assurance about whether the **Condensed Interim Special Purpose Consolidated / Combined Financial Statements** as a whole are free from material misstatement, whether due to fraud or error, and to issue an Auditor's Report that includes our opinion. Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with Standards on Auditing will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these Financial Statements.

As part of an audit in accordance with Standards on Auditing, we exercise professional judgment and maintain professional skepticism throughout the audit. An audit involves performing procedures to obtain audit evidence about the amounts and the disclosures in the Condensed Interim Special Purpose Consolidated / Combined Financial Statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the Condensed Interim Special Purpose Consolidated / Combined Financial Statements, whether due to fraud or error. In making those risk assessments, the auditor considers Internal Financial Controls relevant to the Project SPVs preparation of the Condensed Interim Special Purpose Consolidated / Combined Financial Statements that give a true and fair view in order to design audit procedures that are appropriate in the circumstances but not for the purpose of expressing an opinion whether the Project SPVs have in place an adequate Internal Financial Controls system over financial reporting and the operating effectiveness of such controls. An audit also includes evaluating the appropriateness of the accounting policies used and the reasonableness of the accounting estimates made by the Investment Manager, as well as evaluating the overall presentation of the Financial Statements. We communicate with those charged with governance of the Investment Manager of the Trust regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

GOKHALE & SATHE
MUMBAI
FRN No. 103264W
CHARTERED ACCOUNTANTS

gokhale & sathe (regd.)
chartered accountants
304/308/309, Udyog Mandir No. 1,
7-C, Bhagoji Keer Marg,
Mahim, Mumbai 400 016

OTHER MATTER

The Financial Statements of ten Project SPVs for the relevant periods have been prepared as per Ind AS and have been audited by the respective auditors of the Project SPVs and have been used for the purpose of preparation of the Condensed Interim Special Purpose Consolidated / Combined Financial Statements by the Investment Manager of the Trust and have been relied upon by us for our audit of the Condensed Interim Special Purpose Consolidated / Combined Financial Statements.

The Project SPVs and the periods for which these were audited by other auditors are as follows:

Sr. No.	Project SPV	Reference Financial Statements	Period	Total Income (In Rs. millions)	Total Assets (In Rs. millions)
1	AE Tollway Limited	Condensed Interim Special Purpose Consolidated Financial Statements	Nine months ended 31st December, 2022	827.22	31,043.90
2	AE Tollway Limited	Condensed Interim Special Purpose Consolidated Financial Statements	Year ended 31st March, 2022	1,130.88	31,271.51
3	AE Tollway Limited	Condensed Interim Special Purpose Consolidated Financial Statements	Nine months ended 31st December, 2021	871.14	31,325.26
4	AE Tollway Limited	Condensed Interim Special Purpose Consolidated Financial Statements	Year ended 31st March, 2021	664.13	31,191.19
5	AE Tollway Limited	Audited Financial Statements	Year ended 31st March, 2020	526.25	30,102.38
6	Kaithal Tollway Limited	Condensed Interim Special Purpose Consolidated Financial Statements	Nine months ended 31st December, 2022	1,126.10	20,278.38
7	Kaithal Tollway Limited	Condensed Interim Special Purpose Consolidated Financial Statements	Year ended 31st March, 2022	1,335.89	20,980.49
8	Kaithal Tollway Limited	Condensed Interim Special Purpose Consolidated Financial Statements	Nine months ended 31st December, 2021	976.33	21,063.81
9	Kaithal Tollway Limited	Condensed Interim Special Purpose Consolidated Financial Statements	Year ended 31st March, 2021	740.79	20,146.57
10	Kaithal Tollway Limited	Audited Financial Statements	Year ended 31st March, 2020	1,139.72	20,572.83
11	Solapur Yedeshi Tollway Limited	Condensed Interim Special Purpose Consolidated Financial Statements	Nine months ended 31st December, 2022	950.76	14,065.76
12	Solapur Yedeshi Tollway Limited	Condensed Interim Special Purpose Consolidated Financial Statements	Year ended 31st March, 2022	867.75	13,649.02
13	Solapur Yedeshi Tollway Limited	Condensed Interim Special Purpose Consolidated Financial Statements	Nine months ended 31st December, 2021	584.31	13,628.24
14	Solapur Yedeshi Tollway Limited	Condensed Interim Special Purpose Consolidated Financial Statements	Year ended 31st March, 2021	728.26	13,987.29
15	Solapur Yedeshi Tollway Limited	Audited Financial Statements	Year ended 31st March, 2020	1,029.92	14,038.14
16	Yedeshi Aurangabad Tollway Limited	Condensed Interim Special Purpose Consolidated Financial Statements	Nine months ended 31st December, 2022	1,926.37	36,589.63
17	Yedeshi Aurangabad Tollway Limited	Condensed Interim Special Purpose Consolidated Financial Statements	Year ended 31st March, 2022	1,602.12	35,877.57

GOKHALE & SATHE MUMBAI FRN No. 103264W CHARTERED ACCOUNTANTS

Sr. No.	Project SPV	Reference Financial Statements	Period	Total Income (In Rs. millions)	Total Assets (In Rs. millions)
18	Yedeshi Aurangabad Tollway Limited	Condensed Interim Special Purpose Consolidated Financial Statements	Nine months ended 31st December, 2021	1,113.85	35,923.95
19	Yedeshi Aurangabad Tollway Limited	Condensed Interim Special Purpose Consolidated Financial Statements	Year ended 31st March, 2021	1,368.00	36,274.20
20	Yedeshi Aurangabad Tollway Limited	Audited Financial Statements	Year ended 31st March, 2020	2,130.16	36,004.98
21	Palsit Dankuni Tollway Private Limited	Condensed Interim Special Purpose Consolidated Financial Statements	Nine months ended 31st December, 2022	9078.28	8,895.63

REPORT ON OTHER LEGAL AND REGULATORY REQUIREMENTS

As required by circular number CIR/IMD/DF/114/2016 dated October 20, 2016 issued by Securities and Exchange Board of India; we report that:

a. We have obtained all information and explanations which, to the best of our knowledge and belief, were necessary for the purpose of our Audit.

b. The Condensed Interim Special Purpose Consolidated / Combined Balance Sheet, Statement of Profit and Loss (including Other Comprehensive Income), Cash Flow Statement, Changes in Equity and Condensed Interim Special Purpose Consolidated Statement of Net Assets at Fair Value and Condensed Interim Special Purpose Consolidated Statement of Total Returns at Fair Value are in agreement with the books of account of the InvIT and the respective Project SPV.

c. The Condensed Interim Special Purpose Consolidated / Combined Financial Statements comply with the Indian Accounting Standards as notified under the Companies (Indian Accounting Standards) Rules, 2015 prescribed under section 133 of the Act and the basis of preparation as specified in Note 2.A. to the Condensed Interim Special Purpose Consolidated / Combined Financial Statements.

The Condensed Interim Special Purpose Consolidated / Combined Financial Statements have been prepared in accordance with the InvIT Regulations and the circulars issued thereunder.

For Gokhale & Sathe,
Chartered Accountants,
Firm's Registration No.: 103264W

SD/-
CA Kaustubh Deshpande,
Partner
Membership No.: 121011
UDIN: 23121011BGXXTY3904
Place: Mumbai
Date: 22nd March, 2023

IRB Infrastructure Trust
Condensed Interim Special Purpose Consolidated / Combined Balance sheet

(Amount in Millions.)

	Notes	As at December 31, 2022	As at March 31, 2022	As at March 31, 2021	As at March 31, 2020
ASSETS					
Non-current assets					
Property, Plant and Equipment	4	7.91	8.85	10.59	13.18
Goodwill		604.54	604.54	604.54	604.54
Other Intangible assets	4	2,24,460.94	2,21,859.48	2,11,717.65	1,99,478.98
Intangible assets under development		4,477.65	1,290.89	4,684.26	13,853.63
Financial assets					
i) Others	7	0.33	2.74	3.28	1.06
Other non-current assets	9	174.07	656.55	0.14	-
Deferred tax assets (net)	9	733.22	287.67	-	-
		2,30,458.65	**2,24,710.72**	**2,17,020.47**	**2,13,951.39**
Current assets					
Financial assets					
i) Investments	5	1,140.30	659.54	572.50	-
ii) Trade receivables	6	51.65	51.55	100.24	352.12
iii) Cash and cash equivalents	10	2,248.13	287.23	413.49	189.70
iv) Bank balance other than (iii) above	12(a)	4,457.39	2,469.97	1,744.35	1,576.40
v) Others	7	1,091.34	1,604.18	635.99	400.26
Current tax assets (net)	11	96.59	114.22	147.11	207.90
Other current assets	12	1,739.67	1,677.46	2,166.40	3,399.05
		10,825.07	**6,864.15**	**5,780.08**	**6,125.43**
Total assets		**2,41,283.72**	**2,31,574.87**	**2,22,800.55**	**2,20,076.82**
EQUITY AND LIABILITIES					
Equity					
Equity share capital	13	87,929.33	85,504.33	81,688.00	76,582.50
Other equity	14				
Other reserves		(9,559.80)	(8,108.29)	(3,669.05)	(312.75)
Total Equity		**78,369.53**	**77,396.04**	**78,018.95**	**76,269.75**
Non-controlling interests		0.68	-	-	-
		78,370.21	**77,396.04**	**78,018.95**	**76,269.75**
Non-current liabilities					
Financial liabilities					
i) Borrowings	15	97,700.23	92,559.82	89,161.31	77,374.13
ii) Other financial liabilities	17	35,485.25	35,168.79	24,720.81	35,070.78
iii) Trade payables	19(a)				
a) total outstanding dues of micro enterprises and small enterprises		-	-	-	-
b) total outstanding dues of creditors other than micro enterprises and small enterprises		1,308.35	5,998.85	2,463.41	-
Provisions	18	2,529.68	1,350.57	357.84	64.96
Deferred tax liabilities (net)	8	-	-	424.33	395.71
		1,37,023.51	**1,35,078.03**	**1,17,127.70**	**1,12,905.58**
Current liabilities					
Financial liabilities					
i) Borrowings	15	6,098.47	4,719.18	4,784.87	326.78
ii) Trade payables	16				
a) total outstanding dues of micro enterprises and small enterprises		1.77	3.69	13.18	14.36
b) total outstanding dues of creditors other than micro enterprises and small enterprises		17,145.59	11,214.65	2,547.07	2,731.74
iii) Other financial liabilities	17	2,432.23	3,023.13	20,198.86	27,666.07
Other current liabilities	19	57.84	140.15	109.78	162.54
Current tax liabilities (net)		154.10	-	0.14	-
		25,890.00	**19,100.80**	**27,653.90**	**30,901.49**
Total liabilities		**1,62,913.51**	**1,54,178.83**	**1,44,781.60**	**1,43,807.07**
Total equity and liabilities		**2,41,283.72**	**2,31,574.87**	**2,22,800.55**	**2,20,076.82**

The accompanying summary of significant accounting policies and other explanatory information (notes) are an integral part of Consolidated / Combined Financial Statements.

As per our report of even date
For Gokhale & Sathe
Chartered Accountants
ICAI registration number: 103264W

For and on behalf of the Board of Directors of
MMK Toll Road Private Limited
(As Investment Manager to IRB Infrastructure Trust)
CIN : U45200MH2002PTC135512

SD/-
Kaustubh Deshpande
Partner
Membership No. 121011

SD/-
Virendra D. Mhaiskar
Chairman
DIN :00183554

SD/-
Dhananjay K. Joshi
Chief Executive officer

SD/-
Shilpa Todankar
Chief Financial Officer

SD/-
Kaustubh Shevade
Company Secretary

Place: Mumbai
Date: 22/03/2023

Place: Mumbai
Date: 22/03/2023

IRB Infrastructure Trust
Condensed Interim Special Purpose Consolidated / Combined Statement of Profit and Loss

(Amount in Millions.)

Particulars	Notes	For nine month ended December 31, 2022	For nine month ended December 31, 2021	For the year ended March 31, 2022	For the year ended March 31, 2021	For the year ended March 31, 2020
Income						
Revenue from operations	20	19,896.67	9,439.09	12,404.84	10,361.51	11,649.12
Other income	21	161.32	70.72	100.13	112.71	180.55
Total income		**20,057.99**	**9,509.81**	**12,504.97**	**10,474.22**	**11,829.67**
Expenses						
Cost of material consumed		-	-	-	-	46.44
Road work and site expenses	22	11,302.66	3,035.23	3,989.80	3,983.41	4,211.94
Employee benefits expenses	23	-	-	-	-	236.12
Depreciation and amortisation expenses	24	1,958.56	1,167.18	1,674.90	1,255.69	1,753.97
Finance costs	25	7,688.90	7,069.59	9,538.70	8,228.17	7,620.92
Investment Manager Fees		42.39	30.57	42.48	46.25	26.92
Other expenses	26	595.49	1,969.21	2,406.43	138.32	158.72
Total expenses		**21,588.00**	**13,271.78**	**17,652.31**	**13,651.84**	**14,055.03**
Profit/(loss) before tax		**(1,530.02)**	**(3,761.97)**	**(5,147.34)**	**(3,177.62)**	**(2,225.36)**
Tax expenses						
Current tax		351.25	0.38	8.87	46.20	141.61
Deferred tax		(445.56)	(511.15)	(720.23)	369.63	99.75
MAT Credit utilisation / (Entitlement)		-	-	-	(340.97)	-
Total tax expenses		**(94.30)**	**(510.77)**	**(711.36)**	**74.86**	**241.36**
Profit/(loss) after tax		**(1,435.72)**	**(3,251.20)**	**(4,435.98)**	**(3,252.48)**	**(2,466.72)**
Other comprehensive income						
Item that will not be reclassified to profit or loss:						
(a) Re-measurement (loss)/gain on defined benefit plans (net of taxes)		-	-	-	-	1.07
Other comprehensive income/ (loss) for the year/ period, net of tax		**-**	**-**	**-**	**-**	**1.07**
Total comprehensive income /(loss) for the year/period		**(1,435.72)**	**(3,251.20)**	**(4,435.98)**	**(3,252.48)**	**(2,465.65)**
Profit/(loss) after tax		**(1,435.72)**	**(3,251.20)**	**(4,435.98)**	**(3,252.48)**	**(2,466.72)**
Attributable to:						
Owners of the Project SPV Group		(1,436.19)	(3,251.20)	(4,435.98)	(3,252.48)	(2,466.72)
Non-controlling interests		0.46	-	-	-	-
Total comprehensive income for the year/period						
Attributable to:						
Equity holders of the Project SPV Group		(1,436.19)	(3,251.20)	(4,435.98)	(3,252.48)	(2,465.65)
Non-controlling interests		-	-	-	-	-

The accompanying summary of significant accounting policies and other explanatory information (notes)are an integral part of Consolidated /Combined Financial Statements.

Earnings per equity share (of Rs 10 each) (Refer note 38)						
Basic		(1.64)	(3.88)	(5.26)	(4.14)	(4.14)
Diluted		(1.64)	(3.88)	(5.26)	(4.14)	(4.14)

As per our report of even date
For Gokhale & Sathe
Chartered Accountants
ICAI registration number: 103264W

SD/-
Kaustubh Deshpande
Partner
Membership No. 121011

Place: Mumbai
Date: 22/03/2023

For and on behalf of the Board of Directors of
MMK Toll Road Private Limited
(As Investment Manager to IRB Infrastructure Trust)
CIN : U45200MH2002PTC135512

SD/-
Virendra D. Mhaiskar
Chairman
DIN :00183554

SD/-
Dhananjay K. Joshi
Chief Executive officer
DIN: 07089953

SD/-
Shilpa Todankar
Chief Financial Officer

SD/-
Kaustubh Shevade
Company Secretary

Place: Mumbai
Date: 22/03/2023

IRB Infrastructure Trust
DISCLOSURES PURSUANT TO SEBI CIRCULARS
(SEBI Circular No. CIR/IMD/DF/114/2016 dated 20-Oct-2016 and No. CIR/IMD/DF/127/2016 dated 29-Nov-2016

A. Consolidated statement of net assets at fair value

(Rs. in Millions)

	As at December 31, 2022		**As at March 31, 2022**		**As at March 31, 2021**		**As at March 31, 2020**	
Particulars	**Book value**	**Fair value**	**Book value**	**Fair value**	**Book value**	**Fair value**	**Book value**	**Fair value**
A. Assets	2,41,283.74	2,90,355.50	2,31,574.87	2,52,287.18	2,22,800.55	2,45,589.09	2,20,076.81	2,15,070.07
B. Liabilities (at book value)	1,62,913.50	1,13,705.48	1,54,178.83	1,05,330.91	1,42,318.19	99,657.57	1,43,807.07	84,525.05
C. Net Assets (A-B)	78,370.24	1,76,650.02	77,396.04	1,46,956.29	80,482.36	1,45,931.53	76,269.74	1,30,545.02
D. Number of units (in millions)	879.29	879.29	855.04	855.04	816.88	816.88	765.83	765.83
E. NAV (C/D) (Amount in Rs.)	**89.13**	**200.90**	**90.52**	**171.87**	**98.52**	**178.65**	**99.59**	**170.46**

B. Consolidated statement of total returns at fair value :

(Rs. in Millions)

Particulars	**For the period ended December 31, 2022**	**For the year ended March 31, 2022**	**For the year ended March 31, 2021**	**For the year ended March 31, 2020**
Total Comprehensive Income (As per the Statement of Profit and Loss)	(1,435.72)	(4,435.98)	(3,252.48)	(2,465.65)
Add/Less: other changes in fair value (e.g., in investment property, property, plant & equipment (if cost model is followed)) not recognized in total comprehensive income	98,279.78	69,560.25	65,449.17	54,275.28
Total Return	**96,844.06**	**65,124.28**	**62,196.69**	**51,809.63**

Notes :
Fair value of assets as at December 31, 2022 and other changes in fair value for the year then ended as disclosed in the above tables are derived based on the fair valuation reports issued by the independent valuer appointed under the InvIT Regulations.

As per our report of even date
For Gokhale & Sathe
Chartered Accountants
ICAI Firm Registration Number: 103264W

SD/-
Kaustubh Deshpande
Partner
Membership No. 121011

Place: Mumbai
Date: 22/03/2023

For and on behalf of the Board of Directors of
(Investment Manager of IRB Infrastructure Trust)

SD/-
Virendra D.Mhaiskar
Chairman
DIN : 00183554

SD/-
Dhananjay K. Joshi
Chief Executive officer

SD/-
Shilpa Todankar
Chief Finance officer

SD/-
Kaustubh Shevade
Company secretary

Place: Mumbai
Date: 22/03/2023

IRB Infrastructure Trust
Condensed Interim Special Purpose Consolidated / Combined Cash Flow Statement

(Amount in Millions.)

Particulars	For nine month ended December 31, 2022	For nine month ended December 31, 2021	For the year ended March 31, 2022	For the year ended March 31, 2021	For the year ended March 31, 2020
Cash flow from operating activities					
Profit/(loss) before tax	(1,530.02)	(3,761.97)	(5,147.34)	(3,177.62)	(2,225.36)
Profits upto 29th February 2020	-	-	-	-	604.54
Adjustment to reconcile profit before tax to net cash flows:					
Depreciation and amortisation	1,958.56	1,167.18	1,674.90	1,255.69	1,753.97
Resurfacing expenses	1,179.10	720.92	992.73	292.88	64.96
Fair value gain on mutual funds	(7.32)	0.54	(0.78)	(1.43)	0.01
Net (gain) on sale of current Investment	(42.12)	(9.15)	(13.93)	(13.08)	(34.11)
Finance costs	7,688.90	7,069.59	9,538.70	8,228.17	7,620.92
Interest income	(110.53)	(58.67)	(81.69)	(82.04)	(115.64)
Gain/(loss) on fair value measurement of other payable	356.63	1,764.21	2161.31	(2.86)	-
Unit issue expenses	(15.33)	-	-	-	-
Operating profit before working capital changes	**9,477.86**	**6,892.65**	**9,123.91**	**6,499.69**	**7,669.30**
Movement in working capital:					
Increase/ (decrease) in trade payables	484.04	10,908.12	12,193.54	2,277.55	(5,783.13)
Increase/ (decrease) in provisions	-	-	-	-	(9.81)
Increase/ (decrease) in other financial liabilities	(274.45)	298.76	306.46	(2,516.37)	35,726.21
(Decrease)/ increase in other liabilities	(438.94)	(42.75)	30.37	(52.75)	55.12
Decrease / (increase) in trade receivables	(0.10)	78.07	48.69	251.88	(338.10)
Decrease / (increase) in inventories	-	-	-	-	27.86
(Increase) / decrease in loans	-	-	-	(4.53)	4.78
(Increase) / decrease in other financial assets	496.71	(977.48)	(989.59)	(213.15)	(42.77)
(Increase) / decrease in other assets	420.27	(81.47)	(167.46)	1,232.51	3,006.76
Cash generated from operations	**10,165.39**	**17,075.89**	**20,545.91**	**7,474.83**	**40,316.21**
Taxes paid (net)	(179.49)	35.90	32.09	14.70	(222.33)
Net cash flows generated from operating activities	**9,985.90**	**17,111.79**	**20,578.00**	**7,489.54**	**40,093.88**
Cash flows from investing activities					
Purchase of property, plant and equipment including CWIP, intangible assets including intangible assets under development and capital advances	(7,745.84)	(16,912.44)	(17,617.12)	(18,933.90)	(48,328.12)
Proceeds from sale/ (purchase) of current investments (net)	(431.32)	164.74	(72.33)	(557.99)	218.48
Investments in bank deposits (having original maturity of more than three months) (net)	(1987.42)	(477.30)	(725.62)	(167.95)	(126.37)
Interest received	129.08	78.17	103.63	61.79	149.03
Net cash flows (used in) investing activities	**(10035.50)**	**(17146.83)**	**(18311.44)**	**(19598.04)**	**(48086.99)**
Cash flows from financing activities					
Proceeds from non-current borrowings	31,668.76	3,443.19	4,066.31	9,204.86	17,032.83
Repayment of non-current borrowings	(25772.63)		(775.43)	(39.62)	(30,035.08)
Proceeds/ (Repayment) of current borrowings (net)	(267.50)	(130.83)	-	4,155.57	(7,085.60)
Proceed of current borrowings	1532.48		4,759.00		
Repayment of current borrowings			(4828.83)		
Issue of equity share capital	2,425.22	3,816.33	3,816.33	5,105.50	60,945.81
Unit issue expenses	0.00	(3.26)	(3.26)	(103.82)	-
Issue of sub-ordinate debt	-	-	-	-	(25,969.07)
Finance cost paid	(7,575.83)	(7,010.81)	(9,426.95)	(5,990.16)	(7,031.92)
Net cash flows generated from financing activities	**2,010.50**	**114.63**	**(2,392.82)**	**12,332.32**	**7,856.97**
Net increase / (decrease) in cash and cash equivalents (A+B+C)	**1,960.90**	**79.59**	**(126.26)**	**223.81**	**(136.13)**
Cash and cash equivalents at the beginning of the year / period	287.23	413.49	413.49	189.70	325.82
Cash and cash equivalents at the end of the year (refer note 10)	**2,248.13**	**493.08**	**287.23**	**413.49**	**189.70**
Components of cash and cash equivalents					
Balances with scheduled banks:					
- Trust, retention and other escrow accounts	1,833.69	143.43	161.56	113.94	74.14
- Others	279.80	172.82	118.03	288.60	105.39
- In deposit accounts with original maturity less than 3 months	124.50	169.32	-	-	-
Cash on hand	10.14	7.51	7.64	10.96	10.17
Total cash and cash equivalents	**2,248.13**	**493.08**	**287.23**	**413.49**	**189.70**

IRB Infrastructure Trust
Condensed Interim Special Purpose Consolidated / Combined Cash Flow Statement

(Amount in Millions.)

Particulars	For nine month ended December 31, 2022	For nine month ended December 31, 2021	For the year ended March 31, 2022	For the year ended March 31, 2021	For the year ended March 31, 2020
Debt reconciliation statement in accordance with Ind AS 7					
Opening balances					
Long term borrowing	94,124.22	90,833.34	90,833.34	78,815.63	91,817.88
Short term borrowing	4,085.74	4,155.57	4,155.57	-	7,085.60
Movements					
Cash Flows					
Long term borrowing	5896.12	590.72	3,290.88	9,165.24	(13,002.25)
Short term borrowing	1264.98	(130.83)	(69.83)	4,155.57	(7,085.60)
Non-cash changes					
Long term borrowing	-	2,852.47	-	2,852.47	-
Short term borrowing	-	-	-	-	-
Closing balances					
Long term borrowing	1,00,020.34	94,276.53	94,124.22	90,833.34	78,815.63
Short term borrowing	5,350.72	4,024.74	4,085.74	4,155.57	-

Notes :
1. All figures in bracket are outflow.
2. Taxes paid are treated as arising from operating activities and are not bifurcated between investing and financing activities.
3. The Consolidated cash flow statement has been prepared under Indirect Method as per Ind AS 7 "Statement of Cash Flows".

The accompanying summary of significant accounting policies and other explanatory information (notes)are an integral part of Consolidated / Combined Financial Statements.

As per our report of even date
For Gokhale & Sathe
Chartered Accountants
ICAI registration number: 103264W

For and on behalf of the Board of Directors of
MMK Toll Road Private Limited
(As Investment Manager to IRB Infrastructure Trust)
CIN : U45200MH2002PTC135512

SD/-
Kaustubh Deshpande
Partner
Membership No. 121011

SD/-
Virendra D.Mhaiskar
Chairman
DIN :00183554

SD/-
Dhananjay K. Joshi
Chief Executive officer

SD/-
Shilpa Todankar
Chief Finance officer

SD/-
Kaustubh Shevade
Company Secretary

Place: Mumbai
Date: 22/03/2023

Place: Mumbai
Date: 22/03/2023

Statement of changes in equity

A. Unit capital:

(Amount in Millions.)

	December 31, 2022		March 31, 2022		March 31, 2021		March 31, 2020	
i) Units issued, subscribed and fully paid	**No.**	**Rs.**	**No.**	**Rs.**	**No.**	**Rs.**	**No.**	**Rs.**
Units having face value of Rs. 100/-								
Balance at the beginning of the year	85,50,43,265	85,504.33	81,68,80,000	81,688.00	76,58,25,000	76,582.50	-	-
Issue of Unit capital (Note 15)	2,42,50,000	2,425.00	3,81,63,265	3,816.33	5,10,55,000	5,105.50	76,58,25,000	76,582.50
Balance at the end of the year/period	**87,92,93,265**	**87,929.33**	**85,50,43,265**	**85,504.33**	**81,68,80,000**	**81,688.00**	**76,58,25,000**	**76,582.50**

The Project SPVs have only one class of equity shares having par value of Rs. 10/- per share.

B. Other equity

	December 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
i) Retained earnings				
Balance at the beginning of the year/period	(8,108.29)	(3,669.05)	(312.75)	1548.37
Profit/(loss) for the year/period	(1,436.19)	(4,435.98)	(3,252.48)	(2,466.72)
Pre-incorporation profit				604.54
Unit Issue expenses	(15.33)	(3.26)	(103.82)	
Balance at the end of the year/period	**(9,559.80)**	**(8,108.29)**	**(3,669.05)**	**(313.81)**
ii) Other items of other comprehensive income				
a. Re-measurement gains/ (losses) on defined benefit plans				
Balance at the beginning of the year	-	-	-	-
Increase/(decrease) during the year/period	-	-	-	1.07
Balance at the end of the year/period	**-**	**-**	**-**	**1.07**
b. Mark to market (loss) on fair value measurement of investments				
At the beginning of the year/period	-	-	-	-
Increase/(decrease) during the year/period	-	-	-	-
At the end of the year/period	**-**	**-**	**-**	**-**
Balance at the end of the year of other equity	**(9,559.80)**	**(8,108.29)**	**(3,669.05)**	**(312.75)**

As per our report of even date attached

For Gokhale & Sathe
Chartered Accountants
ICAI registration number: 103264W

SD/-
Kaustubh Deshpande
Partner
Membership No. 121011

Place: Mumbai
Date: 22/03/2023

For and on behalf of the Board of Directors of
MMK Toll Road Private Limited
(As Investment Manager to IRB Infrastructure Trust)
CIN : U45200MH2002PTC135512

SD/-
Virendra D. Mhaiskar
Chairman
DIN :00183554

SD/-
Dhananjay K. Joshi
Chief Executive officer

SD/-
Shilpa Todankar
Chief Financial Officer

SD/-
Kaustubh Shevade
Company Secretary

Place: Mumbai
Date: 22/03/2023

1 **Corporate Information**

The IRB Infrastructure Trust (the "Fund" / "Trust") is a trust settled pursuant to the indenture of trust dated August 27, 2019 which is registered under the Registration Act, 1908 and under the Securities Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014 as amended from time to time. The Fund is settled by the Sponsor, IRB Infrastructure Developers Limited ("IRB" or the "Sponsor"), an infrastructure development company in India. The Trustee to the Fund is IDBI Trusteeship Services Limited (the "Trustee"). Investment manager for the Fund is MMK Toll Road Private Limited (the "Investment Manager"). The Trust has received registration certificate from SEBI on November 25, 2019.

The Fund has been formed to invest in infrastructure assets primarily being in the road sector in India. The Fund's road projects are eligible infrastructure projects under the InvIT Regulations and held through special purpose vehicles ("Project SPVs" together as "Project SPV Group"). The Fund's portfolio subsequent to the completion of the proposed offering will comprise of ten road projects as listed below:-

Project SPV Name**	Residual Concession life*	Shareholding	Nature of Investment	Status	Principal Activities	Country of incorporation
IRB Westcoast Tollway Limited (IRBWTL)	19 years 2 Months 2 days	100%	Subsidiary	Tolling and Construction	Construction and operation of road including toll collection.	India
Solapur Yedeshi Tollway Limited (SYTL)	21 years 0 Months 19 days	100%	Subsidiary	Operating		India
Yedeshi Aurangabad Tollway Limited (YATL)	18 years 5 Months 30 days	100%	Subsidiary	Operating		India
Kaithal Tollway Limited (KTL)	19 years 6 Months 14 days	100%	Subsidiary	Operating		India
AE Tollway Limited (AETL)	17 years 6 Months 31 days	100%	Subsidiary	Operating		India
Udaipur Tollway Limited (UTL)	15 years 8 Months 2 days	100%	Subsidiary	Operating		India
CG Tollway Limited (CGTL)	14 years 10 Months 3 days	100%	Subsidiary	Operating		India
Kishangarh Gulabpura Tollway Limited (KGTL)	15 years 1 Months 20 days	100%	Subsidiary	Operating		India
IRB Hapur Moradabad Tollway Limited (IRBHMTL)	18 years 4 Months 26 days	100%	Subsidiary	Operating		India
Palsit Dankuti Tollway Private Limited (PDTPL)	16 years 2 Months 31 days	100%	Subsidiary	Tolling and Construction		India

* Represents residual concession life as at December 31, 2022 as per original concession period (without considering extension of concession period, if any).

** Of the above Project SPVs, IRBWTL, SYTL, YATL, AETL, CGTL, UTL and IRBHMTL have been converted to public companies on November 13, 2019 and KTLand KGTL November 14, 2019 respectively.

2 **Basis of preparation**

A. Statement of compliance

The Condensed Consolidated/ Combined Financial Statements of Project SPV Group comprises of Consolidated Balance Sheet, of the state of affairs of the Project SPV Group as at December 31 2022, at March 31 2022, at 31 March 2021 and at 31 March 2020, the consolidated statement of profit and loss (including other comprehensive income) of the Project SPV group for nine month ended December 31, 2022 and December 31, 2021, for the year ended March 31 2022, March 2021 and March 31, 2020 (which comprises combined figures for the 11 months ended on February 29, 2020 and consolidated figures for the month ended March 31, 2020), the consolidated statement of cash flow statement, of the cash movements of the Project SPV Group for nine month ended December 31, 2022 and December 31, 2021, for the year March 31, 2021 and March 31, 2020 (which comprises combined figures for the 11 months ended on February 29, 2020 and consolidated figures for the month ended March 31, 2020) and the consolidated statement of changes in equity of the movement of the unit holders for nine month ended December 31, 2022 ,for the year ended March 31 2022, March 31, 2021 and March 31, 2020, the consolidated statement of net assets at fair value as at December 31 2022, March 31 2022, March 31, 2021 and March, 2020 and the consolidated statement of total returns at fair value for the period ended December 31, 2022 ,for the year ended March 31, 2022 , March 31, 2021and March 31, 2020 a summary of significant accounting policies, notes and other explanatory Information. The Special purpose Consolidated / Combined Financial Statement has been prepared for inclusion in the Letter of Offer to be issued in connection with the proposed Listing of the Trust.

The Condensed Consolidated/ Combined Financial Statements of the Project SPV Group have been prepared in accordance with Indian Accounting Standards (Ind AS) as per the Companies (Indian Accounting Standards) Rules, 2015 notified under Section 133 of the Act, read with other relevant provisions of the Act.The Condensed Consolidated/ Combined Financial Statements have been prepared on a historical cost basis, except for certain assets and liabilities which have been measured at fair value.

For all periods upto and including the year ended March 31, 2020, the Project SPVs prepared its financial statements in accordance with accounting standards notified under the Section 133 of the Companies Act 2013, read together with paragraph 7 of the Companies (Accounts) Rules, 2014 (Indian GAAP). For the year ended March 31, 2021, the Project SPVs prepared their financial statements in accordance with Indian Accounting Standards (Ind AS) as prescribed under Section 133 of Companies Act, 2013 read with relevant rule and other accounting principles.

In accordance with the requirements of Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations 2014, as amended from time to time including by circulars dated October 20, 2016, November 29, 2016 and any further guidelines and circulars (the "InvIT Regulations"), since the Fund is newly set up on August 27, 2019, to present the financial position and performance of the proposed Project SPV Group, the historical Combined Financial Statements have been prepared, as if the Fund structure was in place and 100% interest of the Project SPVs was part of the Fund since April 1, 2017.

The Condensed Consolidated/ Combined Financial Statements are special purpose financial statements of the fund and have been prepared to meet the requirements of InvIT Regulations and for inclusion in the Letter of Offer in connection with the proposed Listing of Trust. As a result, the Condensed Consolidated/ Combined Financial Statements may not be suitable for another purpose.

The Project SPVs were transferred to the Trust on February 25, 2020 by the Sponsor pursuant to the Formation Transactions undertaken as part of the initial offer through private placement of Units. The effective date for consolidation was March 1, 2020.Accordingly, since the transfer date was 1st March 2020, for the year ended March 31 2022, for the year ended March 31 2021 and month ended March 31, 2020 Condensed Consolidated financial statements have been prepared and 11 months ended 29th February 2020 Condensed Consolidated/ Combined Financial Statements* have been prepared, as if the Trust structure was in place and 100% interest of the Project SPVs was part of the Trust since April 1, 2017 and have been approved by the Investment Manager of the Trust

The Condensed Consolidated/ Combined Financial Statements are presented in Rs. in millions, except when otherwise indicated.

B Basis of preparation of Combined Financial Statements

The Condensed Consolidated/ Combined Financial Statements comprise the financial statements of the Project SPV Group.

Condensed Consolidated/ Combined Financial Statements are prepared using uniform accounting policies for like transactions and other events in similar circumstances.

The financial statements of all Project SPVs used for the purpose of combination are drawn up to the same reporting date i.e. year ended on March 31 and period ended on December 31

Combination procedure:

(a) Combine like items of assets, liabilities, equity, income, expenses and cash flows of Project SPVs.

(b) Eliminate in full intra Project SPVs assets and liabilities, income, expenses and cash flows relating to transactions between Project SPVs of the Project SPV Group (profits or losses resulting from intra Project SPV Group transactions that are recognised in assets, such as inventory and property, plant and equipment, are eliminated in full). Profit or loss and each component of other comprehensive income (OCI) are attributed to the equity holders of the Project SPV Group and to the non-controlling interests, even if this results in the non-controlling interests having a deficit balance.

C Basis of preparation of Consolidated Financial Statements

The Condensed Consolidated/ Combined Financial Statements comprise the financial statements of the Project SPV Group.

Condensed Consolidated/ Combined Financial Statements are prepared using uniform accounting policies for like transactions and other events in similar circumstances.

The financial statements of all Project SPVs used for the purpose of combination are drawn up to the same reporting date i.e. year ended on March 31 and period ended on December 31

Consolidation procedure:

(a) Combine like items of assets, liabilities, equity, income, expenses and cash flows of Project SPVs.

(b) Eliminate in full intra Project SPVs assets and liabilities, income, expenses and cash flows relating to transactions between Project SPVs of the Project SPV Group (profits or losses resulting from intra Project SPV Group transactions that are recognised in assets, such as inventory and property, plant and equipment, are eliminated in full). Profit or loss and each component of other comprehensive income (OCI) are attributed to the equity holders of the Project SPV Group and to the non-controlling interests, even if this results in the non-controlling interests having a deficit balance.

3 **Summary of significant accounting policies**

3.01 **Taxes**

Current income tax

Current income tax assets and liabilities are measured at the amount expected to be recovered from or paid to the taxation authorities in accordance the Income Tax Act, 1961. The tax rates and tax laws used to compute the amount are those that are enacted or substantively enacted at the reporting date in the country where the Company operates and generates taxable income.

3.02 **Earnings per unit**

Basic earnings per unit are calculated by dividing the net profit or loss for the period attributable to unitholders by the weighted average number of units outstanding during the period. For the purpose of calculating diluted earnings per unit, the net profit or loss for the period attributable to unitholders and the weighted average number of units outstanding during the period are adjusted for the effects of all dilutive potential units.

Note 4 : Property, Plant and Equipment and Capital work in progress

(Amount in Millions.)

	Premises	Computer	Office Equipments	Furniture and Fixture	Total
Cost or deemed cost					
At 31 March 2019	**11.32**	**0.38**	**1.18**	**0.05**	**12.93**
Additions	4.78	0.01	0.21	0.34	5.34
Disposals/ Adjustments					-
At 31 March 2020	**16.09**	**0.30**	**1.40**	**0.39**	**18.18**
Additions					-
Disposals/ Adjustments					-
At 31 March 2021	**16.09**	**0.30**	**1.40**	**0.39**	**18.18**
Additions					-
Disposals/ Adjustments					-
At 31 December 2021	**16.09**	**0.30**	**1.40**	**0.39**	**18.18**
Additions					
Disposals/ Adjustments					
At 31 March 2022	**16.09**	**0.30**	**1.40**	**0.39**	**18.18**
Additions					-
Disposals/ Adjustments					-
At 31 December 2022	**16.09**	**0.30**	**1.40**	**0.39**	**18.18**
Depreciation					
At 31 March 2019	**1.23**	**0.21**	**0.57**	**0.02**	**2.03**
Additions	2.31	0.05	0.40	0.20	2.97
Disposals/ Adjustments	-	-	-	-	-
At 31 March 2020	**3.55**	**0.26**	**0.98**	**0.21**	**5.00**
Additions	2.24	0.02	0.21	0.12	2.59
Disposals/ Adjustments	-	-	-	-	-
At 31 March 2021	**5.79**	**0.28**	**1.18**	**0.34**	**7.59**
Additions	1.21	0.00	0.07	0.03	1.32
Disposals/ Adjustments	-	-	-	-	-
At 31 December 2021	**7.00**	**0.29**	**1.25**	**0.37**	**8.91**
Additions	0.40	0.00	0.02	0.01	0.43
Disposals/ Adjustments	-	-	-	-	-
At 31 March 2022	**7.40**	**0.28**	**1.28**	**0.38**	**9.33**
Additions	0.91	0.00	0.03	0.01	0.95
Disposals/ Adjustments	-	-	-	-	-
At 31 December 2022	**8.30**	**0.29**	**1.31**	**0.39**	**10.27**
Net Book value					
At 31 December 2022	**7.79**	**0.01**	**0.09**	**0.01**	**7.91**
At 31 March 2022	**8.69**	**0.01**	**0.12**	**0.02**	**8.85**
At 31 December 2021	**9.09**	**0.02**	**0.14**	**0.03**	**9.28**
At 31 March 2021	**10.30**	**0.01**	**0.22**	**0.05**	**10.59**
At 31 March 2020	**12.54**	**0.04**	**0.42**	**0.18**	**13.18**

Net Book value	**December 31, 2022**	**March 31, 2022**	**March 31, 2021**	**March 31, 2020**
Property, Plant and Equipment	7.91	8.85	10.59	13.18

Note 4 : Intangible Assets and Intangible Assets under development

Intangible Assets	(Amount in Millions.)	
	Toll Collection Rights	**Total**
Cost or deemed cost		
At 31 March 2019	**1,37,348.36**	**1,37,348.36**
Additions	65,504.30	65,504.30
Deletions	-	-
Adjustments	-	-
At 31 March 2020	**2,02,852.66**	**2,02,852.66**
Additions	13,491.76	13,491.76
Deletions		-
Adjustments	-	-
At 31 March 2021	**2,16,344.42**	**2,16,344.42**
Additions	8,148.55	8,148.55
Deletions		-
Adjustments	-	-
At 31 December 2021	**2,24,492.98**	**2,24,492.98**
Additions	3,666.44	3,666.44
Deletions		-
Adjustments	-	-
At 31 March 2022	**2,28,159.42**	**2,28,159.42**
Additions	4,887.68	4,887.68
Deletions		-
Adjustments	(328.61)	(328.61)
At 31 December 2022	**2,32,718.49**	**2,32,718.49**
Amortisation		
At 31 March 2019	**1,622.68**	**1,622.68**
Additions	1,751.00	1,751.00
Deletions	-	-
Adjustments	-	-
At 31 March 2020	**3,373.68**	**3,373.68**
Additions	1,253.09	1,253.09
Deletions	-	-
Adjustments	-	-
At 31 March 2021	**4,626.78**	**4,626.78**
Additions	1,165.86	1,165.86
Deletions	-	-
Adjustments	-	-
At 31 December 2021	**5,792.63**	**5,792.63**
Additions	507.30	507.30
Deletions	-	-
Adjustments	-	-
At 31 March 2022	**6,299.93**	**6,299.93**
Additions	1,957.61	1,957.61
Deletions	-	-
Adjustments	-	-
At 31 December 2022	**8,257.55**	**8,257.55**
Net Book value		
At 31 December 2022	2,24,460.94	
At 31 March 2022	2,21,859.48	
At 31 December 2021	2,18,700.35	
At 31 March 2021	2,11,717.65	
At 31 March 2020	1,99,478.98	

Particulars	**December 31, 2022**	**March 31, 2022**	**March 31, 2021**	**March 31, 2020**
Toll Collection Rights	2,24,460.94	2,21,859.48	2,11,717.65	1,99,478.98
Total	**2,24,460.94**	**2,21,859.48**	**2,11,717.65**	**1,99,478.98**

Intangible assets under development

Particulars	**December 31, 2022**	**March 31, 2022**	**March 31, 2021**	**March 31, 2020**
Toll Collection Rights				
At the beginning of the year	1,290.89	4,684.26	13,853.63	34,156.49
Add : development during the year	7,897.61	835.34	1,274.74	45,201.44
	9,188.50	5,519.60	15,128.37	79,357.93
Less : Transfer to Intangible Asset (Toll Collection Rights)	4,710.85	4,228.70	10,444.11	65,504.30
Closing balance	**4,477.65**	**1,290.89**	**4,684.26**	**13,853.63**
Total	**4,477.65**	**1,290.89**	**4,684.26**	**13,853.63**

Tangible and Intangible assets given as security

Tangible and Intangible assets are subject to first charge to secured long-term borrowings from the lenders.

(Amount in Millions.)

Particulars	December 31, 2022				March 31, 2022				March 31, 2021				March 31, 2020			
	Face Value Rs.	No of Shares / Units	Current	Non-current	Face Value Rs.	No of Shares / Units	Current	Non-current	Face Value Rs.	No of Shares / Units	Current	Non-current	Face Value Rs.	No of Shares / Units	Current	Non-current
Financial Assets																
Note 5 : Investment																
i) Investments in Mutual Funds (quoted)																
Fair Value Through Profit or Loss (FVTPL)																
Canara Robeco Liquid Fund - Direct Plan - Growth	1,000		-	-	1,000		-	-	1,000		-	-	1,000	-	-	-
IDBI Mutual Fund - Direct Plan - Growth	1,000			-	1,000			-	1,000			-	1,000			-
IDBI Ultra Short term Fund- Direct Growth	1,000		-	-	1,000		-	-	1,000		-	-	1,000			-
IDBI Liquid Fund - Direct Plan - Growth	1,000	33,537.20	79.91		1,000	48,116.73	110.24		1,000		349.34					
ABSL Savings Fund - Direct Plan - Growth	100		-	-	100		-	-	100		-	-	100			-
ABSL Liquid Fund - Direct Plan - Growth	100		-	-	100	53,926.78	18.50	-	100		23.00	-	100			-
SBI Liquid Fund - Direct Growth	1,000	3,00,132.66	1,043.87	-	1,000	1,53,238.96	510.75	-	1,000		43.00	-	1,000			-
SBI Overnight Fund - Direct Growth	1,000		-		1,000	5,790.54	20.04		1,000		157.16					
SBI Magnum Ultra Short Duration Fund - Direct Plan - Growth	1,000	-	-	-	1,000	-	-	-	1,000	-	-	-	1,000			-
L & T Liquid Fund - Direct Plan - Growth	1,000	14,301.16	16.52													
			1,140.30	**-**			**659.54**	**-**			**572.50**	**-**			**-**	**-**
Total			**1,140.30**	**-**			**659.54**	**-**			**572.50**	**-**			**-**	**-**

(Amount in Millions.)

	December 31, 2022		March 31, 2022		March 31, 2021		March 31, 2020	
	Current	Non-current	Current	Non-current	Current	Non-current	Current	Non-current
Note 6 : Trade receivable								
(Unsecured, considered good)								
Related parties	0.61		0.51					
Others	51.03	-	51.03	-	100.24	-	352.12	-
Total	**51.65**	**-**	**51.55**	**-**	**100.24**	**-**	**352.12**	**-**
Less: Allowances for expected credit loss/ bad and doubtful debt	-	-	-	-	-	-	-	-
Total	**51.65**	**-**	**51.55**	**-**	**100.24**	**-**	**352.12**	**-**

The Group has not identifed any credit impairment loss as at March 31, 2022, March 31, 2021 and March 31, 2020.

	Current	Non-current	Current	Non-current	Current	Non-current	Current	Non-current
Note 7 : Other financial assets								
(Unsecured, considered good)								
Interest accrued on fixed deposits	7.09	-	25.64	-	47.57	-	27.32	-
Interest receivable from banks	3.73	-	23.99	-	117.00	-		
Retention money receivable	517.55	-	526.28	-	446.62	-	363.97	-
BG Margin receivable	-	-	-	-	-	0.54	-	0.54
Receivable from Government Authorities (NHAI)	464.85	-	965.24	-	1.44	-	1.35	0.06
Other receivable	87.12	-	56.15	-	16.47	-	2.99	-
Security and other deposits	10.99	0.33	6.89	2.74	6.89	2.74	4.63	0.46
Total	**1,091.34**	**0.33**	**1,604.18**	**2.74**	**635.99**	**3.28**	**400.26**	**1.06**

(Amount in Millions.)

	December 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
Note 8 : Deferred tax assets				
Deferred tax liabilities (net):				
Deferred tax liabilities:				
Difference in Depreciation and other differences in block of Property, Plant and equipment and Intangible assets as per tax books & financial books	-	1,350.50	2,636.80	1,356.49
Deferred tax assets:				
Effect of expenditure debited to profit and loss account in the current year but allowed for tax purposes in following years				
Deferred tax liabilities (net)	**-**	**1,350.50**	**2,636.80**	**1,356.49**
Deferred tax assets:				
Deferred tax assets:				
Depreciation	-	428.55	1,629.65	
MAT credit entitlement	-	582.83	582.82	(960.78)
Expenses allowed for tax purposes on payment basis				
- Gratuity				
Deferred Tax assets on Fair valuation	733.22	626.79		
Deferred Tax Assets	**733.22**	**1,638.17**	**2,212.47**	**(960.78)**
Deferred Tax liabilities:				
Difference in Depreciation/ amortisation and other differences				
Tax losses	-	-	-	-
	(733.22)	**(287.67)**	**424.33**	**395.71**

	December 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
Note 9 : Other non - current assets				
(Unsecured, considered good)				
Capital advances	-	-	0.14	-
Duties and taxes receivable	174.07	656.55	-	-
Total	**174.07**	**656.55**	**0.14**	**-**

(Amount in Millions.)

	December 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020

IRB Infrastructure Trust

Notes to Condensed Interim Special Purpose Consolidated / Combined Financial Statements

Note 10 : Cash and cash equivalents

Cash and Bank balances				
Balances with banks:				
-on current accounts	279.80	118.03	288.60	105.39
-on trust, retention and other escrow accounts*	1,833.69	161.56	113.94	74.14
Deposits with banks				
-Original maturity less than 3 months	124.50	-	-	-
Cash on hand	10.14	7.64	10.96	10.17
Total	**2,248.13**	**287.23**	**413.49**	**189.70**

Note 12(a) : Bank balance other than cash and cash equivalent

	December 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
Maturity more than 3 months less than 12 months				
Other deposits	15.09	102.53	76.09	126.37
Debt service reserve account with banks /earmarked balance**	2,690.30	2,365.43		
Major Maintenance Reserve account with banks /earmarked balance	1,390.00			
Maturity more than 12 months				
Debt service reserve account with banks /earmarked balance**	360.00	-	1,668.23	1,450.00
Margin money deposits against bank guarantees **				
Other deposits	2.00	2.00	0.03	0.03
Total	**4,457.39**	**2,469.97**	**1,744.35**	**1,576.40**

Debt service reserve account/ major maintenance reserve account and trust, retention and other escrow accounts

Bank deposits are marked lien / pledged against the non current secured loan as per term loan agreement with the lender, further the lenders have first charge on trust, retention and other escrow accounts.

* First charge on above to the extent of amount payable as per the waterfall mechanism as defined in the Concession Agreement / Common Loan Agreement.

** The deposits to the extent of Rs. 3,050.30 millions (March 31, 2022 : Rs. 2,365.43 millions, March 31, 2021 : Rs. 1,668.23 millions ,March 31, 2020 : Rs. 1,450.00 millions,) maintained by the Project SPV Group with bank includes time deposits, which are held against Debt Service Reserve (DSR), are considered as current portion under the head "Other bank balances" since the same are encashable by the lenders in the event of default by the Project SPV Group, if any.

Current deposits are made for varying periods of between one day and three months, depending on the immediate cash requirements of the group and earn interest at the respective current deposit rates. Other time deposits earn interest at the rate of 3.51 % to 7.75% p.a.

Refer note 15 for details of security against term loans.

For the purpose of statement of cash flows, cash and cash equivalents comprise the following:

	December 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
Balance with banks:				
-on current accounts	279.80	118.03	288.60	105.39
-on trust, retention and other escrow accounts	1,833.69	161.56	113.94	74.14
Fixed deposits less than 3 months	**124.50**	**-**	**-**	**-**
Cash on hand	10.14	7.64	10.96	10.17
Less: Bank overdraft	-	-	-	-
Total	**2,248.13**	**287.23**	**413.49**	**189.70**

Note 11 : Current tax assets (net)

Advance income-tax (net of provision for tax)	96.59	114.22	147.11	207.90
Total	**96.59**	**114.22**	**147.11**	**207.90**

Note 12 : Other current assets

(Unsecured, considered good unless otherwise stated)				
Advance with suppliers				
- Related parties (refer note 37)	451.21	502.89	1,014.28	2,025.22
- Others	39.85	32.22	22.05	70.69
Mobilisation advances (refer note 37)	33.68	435.80	610.61	1,170.47
Prepaid expenses	26.99	0.51	47.68	20.70
Bank Guarantee margin receivable -related party				
Duties and taxes receivable	1,187.93	706.04	471.78	111.97
Total	**1,739.67**	**1,677.46**	**2,166.40**	**3,399.05**

Note : 13 : Unit capital **(Amount in Millions.)**

	December 31, 2022		December 31, 2021		March 31, 2022		March 31, 2021		March 31, 2020	
A) Unit capital										
Authorised Unit capital										
Units having face value of Rs.100 each	87,92,93,265	87,929.33	85,50,43,265	85,504.33	85,50,43,265	85,504.33	81,68,80,000	81,688.00	76,58,25,000	76,582.50
	87,92,93,265	**87,929.33**	**85,50,43,265**	**85,504.33**	**85,50,43,265**	**85,504.33**	**81,68,80,000**	**81,688.00**	**76,58,25,000**	**76,582.50**
Issued Unit capital										
Units having face value of Rs.100 each	87,92,93,265	87,929.33	85,50,43,265	85,504.33	85,50,43,265	85,504	81,68,80,000	81,688	76,58,25,000	76,582.50
Total	**87,92,93,265**	**87,929.33**	**85,50,43,265**	**85,504.33**	**85,50,43,265**	**85,504**	**81,68,80,000**	**81,688**	**76,58,25,000**	**76,582.50**

Terms / rights attached to equity shares

The Project SPVs have only one class of equity shares having par value of Rs. 100/- per share Each holder of equity shares is entitled to one vote per share. The Project SPVs declares and pays dividend in Indian rupees.

In the event of liquidation of the Project SPV, the holders of equity shares will be entitled to receive remaining assets of the Project SPV, after distribution of all preferential amounts. The distribution will be in proportion to the number of equity shares held by the shareholders.

Reconciliation of the number of unit outstanding and the amount of Unit capital:

	December 31, 2022		December 31, 2021		March 31, 2022		March 31, 2021		March 31, 2020	
Units issued, subscribed and fully paid	**No. of units**	**Rs.**	**No. of units**	**Rs.**	**No. of units**	**Rs.**	**No. of units**	**Rs.**	**No. of units**	**Rs.**
Units having face value of Rs. 100/-										
At the beginning of the year	85,50,43,265	85,504	81,68,80,000	81,688.00	81,68,80,000	81,688.00	76,58,25,000	76,582.50	-	-
Increase/(decrease) during the year/period	2,42,50,000	2,425.00	3,81,63,265	3,816.33	3,81,63,265	3,816.33	5,10,55,000	5,105.50	76,58,25,000	76,582.50
At the end of the year/period	**87,92,93,265**	**87,929.33**	**85,50,43,265**	**85,504.33**	**85,50,43,265**	**85,504.33**	**81,68,80,000**	**81,688.00**	**76,58,25,000**	**76,582.50**

Note : 14 : Other equity

Attributable to the equity holders

(Amount in Millions.)

Other reserves	**December 31, 2022**	**March 31, 2022**	**March 31, 2021**	**March 31, 2020**
Retained earnings				
At the beginning of the year	(8,108.29)	(3,669.05)	(312.75)	1,548.37
Profit for the year/period (Refer Note below)	(1,436.19)	(4,435.98)	(3,252.48)	(2,466.72)
Less: Appropriations				
Pre-incoporation Profits	-	-	-	604.54
Unit Issue expenses	(15.33)	(3.26)	(103.82)	-
Other comprehensive income/(loss) for the year/period				
- Re-measurement gains/ (losses) on defined benefit plans	-	-	-	1.07
At the end of the year/period	**(9,559.80)**	**(8,108.29)**	**(3,669.05)**	**(312.75)**
Total	**(9,559.80)**	**(8,108.29)**	**(3,669.05)**	**(312.75)**

Note : Reconciliation for March 20 profit

Profit as per March 20 Financials (for March-20 month)	(312.75)	(312.75)	(312.75)	(312.75)
Profit for 11 Months	(2,939.73)	312.75	312.75	(2,153.97)
Profit for the year March -20	**(3,252.48)**	**-**	**-**	**(2,466.72)**

(Amount in Millions.)

	December 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
Financial liabilities				
Note : 15 : Borrowings				
Non-current Borrowings				
Term loans				
Indian rupee loan from banks (secured)				
Project loans for SPVs	59,626.01	78,298.59	74,939.04	64,014.66
Less : current maturities expected to be settled within 12 month from balance sheet date	(519.53)	(429.15)	(467.24)	(250.05)
Total (a)	**59,106.49**	**77,869.44**	**74,471.80**	**63,764.61**
Indian rupee loan from financial institutions (secured)				
Project loans for SPVs	6,927.70	10,328.45	10,330.67	9,310.82
Less : current maturities expected to be settled within 12 month from balance sheet date	(15.02)	(59.79)	(99.91)	(55.26)
Total (b)	**6,912.68**	**10,268.66**	**10,230.76**	**9,255.56**
Non-convertible debentures (secured)	33,466.63	5,497.18	5,563.63	5,490.14
Less : current maturities expected to be settled within 12 month from balance sheet date	(137.86)	(110.76)	(62.15)	(21.47)
Total (c)	**33,328.77**	**5,386.42**	**5,501.48**	**5,468.67**
Less: Unamortised transaction cost **(d)**	(1,647.71)	(964.70)	(1,042.72)	(1,114.71)
Total non current borrowings (e = a + b + c + d)	**97,700.23**	**92,559.82**	**89,161.31**	**77,374.13**
Current Borrowings				
Short-term borrowings (secured)				
Current maturity of long term loans				
Indian rupee loan from banks (secured)	519.53	429.15	467.24	250.05
Indian rupee loan from financial institutions (secured)	15.02	59.79	99.91	55.26
Non convertible debentures (secured)	137.86	110.76	62.15	21.47
Interest accrued but not due on borrowings	1.72	33.73	-	-
Other financial liabilities	73.62	-	-	-
(Unsecured, repayable on demand and interest free)				
Loan from related parties (refer note 37)	5350.72	4,085.74	4,155.57	-
Total current borrowings (f)	**6,098.47**	**4,719.18**	**4,784.87**	**326.78**
less: Amount clubbed under "other current financial liabilities"				
Net current borrowings	**6,098.47**	**4,719.18**	**4,784.87**	**326.78**
Total borrowings (e+f)	**1,03,798.70**	**97,279.00**	**93,946.18**	**77,700.91**
Aggregate secured loans	98,372.64	93,159.52	89,790.62	77,700.91
Aggregate unsecured loans	5,350.72	4,085.74	4,155.57	-

(i) Project loans for SPVs

December 31, 2022: Rs. 1,00,020.34 millions; March 31, 2022: Rs. 94,124.22 millions; March 31, 2021: Rs. 90,833.34 millions; March 31, 2020: Rs. 78,815.63 millions; pertains to term loans taken by SPV's (Special Purpose Vehicles) for Project financing.

Rate of interest

Rate of interest on the Indian Rupee loan from banks and financial institutions varies from 8.30% to 10.75% p.a. (March 31, 2022: 8.25% to 10.40%) and are secured by pledge of shares of its subsidiaries and subservient charge on the current assets of the company to the extent of 125% of the outstanding loan.

Nature of security

i) Secured by first charge on the movable/immovable asset by way of mortgage/hypothecation; first charge on all intangible assets, present and future; assignment of all receivables; book debts and all rights and interest in project, both present and future, excluding the Project Assets of respective companies;

ii) Secured by first charge on the Escrow Account, Debt Service Reserve Account and any other reserves and other bank accounts of the respective Companies.

iii) An irrevocable and unconditional corporate guarantee from IRB Infrastructure Developers Limited to meet shortfall (if any) between debt due and termination payments received from Concessioning Authority in case of termination of Concession Agreement for any reason in case of Project SPV's.

Repayment terms

The Indian rupee loans are repayable in structured monthly installments commencing after commercial operation date such that the total tenor does not exceed 17 years and repayable as per the repayment schedule specified in common loan agreement with the Lenders.

Note : 16 : Trade payables	December 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
Total outstanding dues of micro enterprises and small enterprises	1.77	3.69	13.18	14.36
Total outstanding dues of creditors other than micro and small enterprises				
- Related parties (refer note 37)	15,910.08	10,022.93	1,655.04	2,546.50
- Others	1,235.51	1,191.71	892.03	185.24
Total	**17,147.36**	**11,218.34**	**2,560.24**	**2,746.10**

(Amount in Millions.)

	December 31, 2022		March 31, 2022		March 31, 2021		March 31, 2020	
	Current	Non-current	Current	Non-current	Current	Non-current	Current	Non-current
Note 17 : Other financial liabilities								
Interest accrued but not due on borrowings	-	-	-	-	-	-	686.46	-
Premium obligation/ Negative grant to NHAI	-	-	-	-	-	-	78.53	-
Obligation for construction	1,145.75	-	2,009.01	-	11,204.52	-	19,392.33	6,423.69
Directors sitting fees payable	0.47	-	0.36	-	0.25	-	0.66	-
Deposit	1.16	-	1.13	-	1.07	-	1.18	-
Retention money payable								
- Related parties (refer note 37)	405.95	-	256.48	-	190.34	-	182.84	-
- Others	299.82	2.55	336.92	-	318.04	3.05	209.32	6.48
Revenue share payable	311.89	-	225.81	-	51.97	-	-	-
Other payable								
- Related parties (refer note 37)	267.19	35,482.70	193.42	35,168.79	8,432.67	24,717.75	7,114.74	28,640.61
- Others	-	-	-	-	-	-	0.01	-
Total	**2,432.23**	**35,485.25**	**3,023.13**	**35,168.79**	**20,198.86**	**24,720.81**	**27,666.07**	**35,070.78**

Break up of financial liabilities carried at amortised cost

	December 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
Borrowings (secured)	98,372.64	93,159.52	89,790.62	77,700.91
Borrowings (unsecured)	5,350.72	4,085.74	4,155.57	-
Trade payables	17,147.36	11,218.34	2,560.24	2,746.10
Other financial liabilities	37,917.48	38,191.92	44,919.67	62,736.85
Total financial liabilities carried at amortised cost	**1,58,788.20**	**1,46,655.53**	**1,41,426.11**	**1,43,183.86**

	December 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
Note : 19(a) : Trade payables				
a) Total outstanding dues of micro enterprises and small enterprises micro and small enterprises				
'- Related parties	1,308.35	5998.85	2463.41	-
'- Others	-	-	-	-
	1,308.35	**5,998.85**	**2,463.41**	**-**

Note 18 : Provisions

	December 31, 2022		March 31, 2022		March 31, 2021		March 31, 2020	
	Current	Non-current	Current	Non-current	Current	Non-current	Current	Non-current
Others								
- Resurfacing expenses	-	-	-	-	-	-	-	-
Major maintenance expenses	-	2,529.68	-	1,350.57	-	357.84	-	64.96
Total	**-**	**2,529.68**	**-**	**1,350.57**	**-**	**357.84**	**-**	**64.96**

The movement in provision for resurfacing expenses is as follows:

	December 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
Opening balance	1,350.57	357.84	64.96	-
Obligation on new toll projects	1,179.10	992.73	292.88	64.96
Utilised / reversed during the year/period	-	-	-	-
Closing balance	**2,529.68**	**1,350.57**	**357.84**	**64.96**

The above provisions are based on current best estimation of expenses that may be required to fulfill the resurfacing obligation as per the service concession agreement with regulatory authorities. It is expected that significant portion of the costs will be incurred over the period. The actual expense incurred may vary from the above. No reimbursements are expected from any sources against the above obligation.

	December 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
Note 19 : Other current liabilities				
Duties and taxes payable	23.81	129.65	59.05	51.53
Advance from customer- Others	34.03	10.50	50.73	111.01
Total	**57.84**	**140.15**	**109.78**	**162.54**

(Amount in Millions.)

	December 31, 2022	December 31, 2021	March 31, 2022	March 31, 2021	March 31, 2020
Note 20 : Revenue from operations					
Contract revenue (road construction)	8,444.95	841.33	1,054.48	1,863.70	3,854.01
Income arising out of toll collection (net)	11,597.34	7,795.41	10,598.07	8,549.77	7,795.11
Revenue share to NHAI- Fastag	(145.85)	(162.82)	(212.87)	(51.97)	-
Other operating revenue	0.23	965.16	965.16	-	-
Total	**19,896.67**	**9,439.09**	**12,404.84**	**10,361.51**	**11,649.12**

(Amount in Millions.)

	December 31, 2022	December 31, 2021	March 31, 2022	March 31, 2021	March 31, 2020
Note 21 : Other income					
Interest income on					
- Bank deposits	104.16	50.69	73.64	74.46	114.37
- Others	6.37	7.97	8.05	7.59	1.27
Profit on sale of investments	42.12	9.15	13.93	13.08	34.11
Fair value gain on mutual funds	7.32	(0.54)	0.78	1.43	(0.01)
Other non operating income	1.35	3.44	3.73	13.28	30.81
Gain/(loss) on fair value measurement of other payable	-	-	-	2.86	-
Total	**161.32**	**70.72**	**100.13**	**112.71**	**180.55**
Note 22 : Road work and site expenses					
Contract expenses	8,188.85	832.19	1,036.47	1,807.12	3,905.21
Operation and maintenance expenses	3,069.20	2,157.60	2,899.41	2,113.67	143.35
Site and other direct expenses	-	-	-	41.03	0.50
Sub-contracting / Security expenses	0.35	0.36	0.72	5.31	153.04
Technical consultancy and supervision charges	44.26	45.10	53.20	16.28	9.84
Total	**11,302.66**	**3,035.23**	**3,989.80**	**3,983.41**	**4,211.94**
Note 23 : Employee benefits expense					
Salaries, wages and bonus	-	-	-	-	193.03
Contribution to provident and other funds	-	-	-	-	6.81
Gratuity expenses	-	-	-	-	5.13
Staff welfare expenses	-	-	-	-	31.15
Total	**-**	**-**	**-**	**-**	**236.12**
Note 24 : Depreciation and amortisation expenses					
Depreciation on property, plant and equipment (refer note 4)	0.95	1.32	1.74	2.59	2.97
Amortisation on intangible assets (refer note 4)	1,957.61	1,165.86	1,673.16	1,253.09	1,751.00
Total	**1,958.56**	**1,167.18**	**1,674.90**	**1,255.69**	**1,753.97**
Note 25 : Finance cost					
Interest expense					
- Banks and financial institutions	5,794.26	6,498.66	8,670.13	8,046.33	7,446.80
- Debentures	904.40	-	-	-	-
- Unwinding of retention money	36.70	36.70	48.71	48.70	48.84
Other borrowing costs					
- Amortisation of Transaction cost	86.52	58.78	78.02	78.43	83.27
- Unwinding of discount on provision of MMR	107.28	29.73	39.64	5.47	-
- Interest unwinding of Trade Payable- Associates	610.50	404.84	655.78	-	-
- Others	149.25	40.88	46.44	49.24	42.01
Total	**7,688.90**	**7,069.59**	**9,538.70**	**8,228.17**	**7,620.92**

(Amount in Millions.)

	December 31, 2022	December 31, 2021	March 31, 2022	March 31, 2021	March 31, 2020
Note 26 : Other expenses					
Power and fuel	-	-	-	-	39.75
Rent	0.01	0.20	0.24	0.29	8.61
Rates and taxes	80.80	27.06	31.64	15.40	8.26
Water charges	-	-	-	-	1.44
Insurance	8.13	0.85	1.12	11.43	8.07
Repairs and maintenance					
- Plant and machinery	-	-	-	-	13.08
- Others	-	-	-	-	-
Travelling and conveyance	-	-	-	-	11.39
Vehicle expenses	-	-	-	-	4.54
Communication cost	-	-	-	-	0.84
Printing and stationery	-	-	-	-	9.20
Director sitting fees	1.24	1.15	1.61	1.24	1.91
Legal and professional expenses	140.68	167.87	192.64	69.25	8.99
Payment to auditor (including service tax/ GST)	3.85	2.64	3.13	3.88	2.58
Corporate social responsibilities expenditure	-	-	8.00	31.4	19.00
Donations	-	-	-	-	0.02
Bank charges	1.81	4.50	5.54	3.01	5.40
Miscellaneous expenses	2.34	0.72	1.19	2.43	15.66
fair value loss on measurement of other payable	356.63	1,764.21	2,161.31	-	-
Total	**595.49**	**1,969.21**	**2,406.43**	**138.32**	**158.72**

(Rs in millions)

Note 27 : Commitment and Contingencies

a. Leases
Rent / lease payments under operating lease are recognised as an expense in the Consolidated Statement of profit and loss on a straight line basis over the lease term.

Operating lease

	Dec 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
a) Future lease rental payments under non-cancellable operating lease are as follows:-				
i) Not later than one year	-	-	-	-
ii) Later than one year and not more than five year	-	-	-	-
iii) Later than five year	-	-	-	-
b) Lease payment recognised in the consolidated statement of profit and loss	0.01	0.24	0.29	8.61
c) General description of the leasing agreement				
i) Leased assets – accommodation for employees	-	-	-	-
ii) Future lease rentals are determined on agreed terms	-	-	-	-

b. Capital commitments

	Dec 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
Estimated value of contracts in capital account remaining to be executed	15,421.55	625.98	10,679.14	2,493.29

c. Contingent liabilities
Contingent liabilities not provided for

	Dec 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
Guarantees given by the Group to suppliers, government bodies and performance guarantee				
For Service Tax, ESIC, Custom Duty, Other Finance expenses and Stamp duty matters				
Total	-	-	-	-

The Hon'ble Supreme Court of India ("SC") by their order dated February 28, 2019, in the case of Surya Roshani Limited others v/s EPFO, set out the principles based on which allowances paid to the employees should be identified for inclusion in basic wages for the purposes of computation of Provident Fund contribution. Subsequently, a review petition against this decision has been filed and is pending before the SC for disposal. In view of the management, the liability for the period from date of the SC order to March 31, 2019 is not significant. Further, pending decision on the subject review petition and directions from the EPFO, the impact for the past period, if any, is not ascertainable and consequently no effect has been given in the accounts.

Note 28 : Fair values

The carrying values of financials instruments of the Group are reasonable and approximations of fair values.

	Carrying amount				Fair Value			
	December 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020	December 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
Financial assets								
Financial assets measured at amortised cost								
Loans	-	-	-	-	-	-	-	-
Other Financial assets	1,091.67	1,606.92	639.27	401.32	1,091.67	1,606.92	639.27	401.32
Financial assets measured at fair value through statement of Profit & Loss								
Investments (Quoted)	1,140.30	659.54	572.50	-	1,140.30	659.54	572.50	-
Financial assets measured at								
Investments (Unquoted)					-	-	-	-
Trade receivable	51.65	51.55	100.24	352.12	51.65	51.55	100.24	352.12
Cash and cash equivalents	2,248.13	287.23	413.49	189.70	2,248.13	287.23	413.49	189.70
Other Bank balances	4,457.39	2,469.97	1,744.35	1,576.40	4,457.39	2,469.97	1,744.35	1,576.40
Financial liabilities								
Financial liabilities measured at								
Trade payables	18,455.71	17,217.19	5,023.65	2,746.10	18,455.71	17,217.19	5,023.65	2,746.10
Borrowings	1,03,798.70	97,279.00	93,946.18	77,700.91	1,03,798.70	97,279.00	93,946.18	77,700.91
Other financial liabilities	37,917.48	38,191.92	44,919.67	62,736.85	37,917.48	38,191.92	44,919.67	62,736.85

The management assessed that the fair value of cash and cash equivalents, trade receivables, trade payables, bank overdrafts and other current liabilities approximate their carrying amounts largely due to the short-term maturities of these instruments.

The fair value of the financial assets and liabilities is included at the amount at which the instrument could be exchanged in a current transaction between willing parties, other than in a forced or liquidation sale.

The discount for lack of marketability represents the amounts that the Group has determined that market participants would take into account when pricing the investments.

(Rs in millions)

Note 29 : Fair value hierarchy

All financial instruments for which fair value is recognised or disclosed are categorised within the fair value hierarchy described as follows, based on the lowest level input that is significant to the fair value measurement as a whole.

Level 1: Quoted (unadjusted) price in active market for identical assets or liabilities

Level 2: Valuation technique for which the lowest level input that has a significant effect on the fair value measurement are observed, either directly or indirectly

Level 3: Valuation technique for which the lowest level input has a significant effect on the fair value measurement is not based on observable market data.

Quantitative disclosures fair value measurement hierarchy for financial instruments as at December 31, 2022:

	As on Dec 31, 2022	Fair value measurement at end of the reporting period using		
		Level 1	Level 2	Level 3
Assets				
Investments (Quoted)	**1,140.30**	1,140.30	-	-
Trade Receivable	**51.65**	-	-	51.65
Cash and cash equivalents	**2,248.13**	-	-	2,248.13
Bank balance other than above	**4,457.39**	-	-	4,457.39
Loans	**-**	-	-	-
Other Financial assets	**1,091.67**			1,091.67
Liabilities				
Borrowings	**1,03,798.70**	-	-	1,03,798.70
Trade Payable	**18,455.71**	-	-	18,455.71
Other financial liabilities	**37,917.48**	-	-	37,917.48

Quantitative disclosures fair value measurement hierarchy for financial instruments as at March 31, 2022:

	As on Mar 31, 2022	Fair value measurement at end of the reporting year using		
		Level 1	Level 2	Level 3
Assets				
Investments (Quoted)	**659.54**	659.54	-	-
Trade Receivable	**51.55**	-	-	51.55
Cash and cash equivalents	**287.23**	-	-	287.23
Bank balance other than above	**2,469.97**	-	-	2,469.97
Loans	**-**	-	-	-
Other Financial assets	**1,606.92**			1,606.92
Liabilities				
Borrowings	**97,279.00**	-	-	97,279.00
Trade Payable	**17,217.19**	-	-	17,217.19
Other financial liabilities	**38,191.92**	-	-	38,191.92

Quantitative disclosures fair value measurement hierarchy for financial instruments as at March 31, 2021:

	As on March 31, 2021	Fair value measurement at end of the reporting year using		
		Level 1	Level 2	Level 3
Assets				
Investments (Quoted)	**572.50**	572.50	-	-
Trade Receivable	**100.24**	-	-	100.24
Cash and cash equivalents	**413.49**	-	-	413.49
Bank balance other than above	**1,744.35**	-	-	1,744.35
Loans	**-**	-	-	-
Other Financial assets	**639.27**			639.27
	-			
Liabilities	**-**			
Borrowings	**93,946.18**	-	-	93,946.18
Trade Payable	**5,023.65**	-	-	5,023.65
Other financial liabilities	**44,919.67**	-	-	44,919.67

Quantitative disclosures fair value measurement hierarchy for financial instruments as at March 31, 2020:

	As on March 31, 2020	Fair value measurement at end of the reporting year using		
		Level 1	Level 2	Level 3
Assets				
Investments (Quoted)	-	-		
Investments (Unquoted) **	-	-		

Note 30 : Events after reporting period

No subsequent event has been observed which may require an adjustment to the balance sheet.

Note 31: Information on segment reporting pursuant to Ind AS 108 - Operating Segments

The Project SPV Group has identified business segment in accordance with Indian Accounting Standard 108 "Operating Segment" notified under section 133 of the Companies Act 2013, read together with relevant rules issued thereunder. The Group has identified Built, Operate and Transfer ('BOT') as its single reportable segment. Moreover the Group's activities are restricted within India and hence no separate geographical segment disclosure is considered necessary.

Note 32: Capitalisation Statement

Particulars	**As at Dec 31, 2022**
Shareholders' Funds:	
Unit Capital	87929.33
Subordinate Debt	-
Other Equity	(9,559.80)
Minority interest	0.68
Total Shareholders' Funds	**78370.21**
Borrowings	
Borrowings from related parties	5350.72
Long term borrowings	99347.94
Current maturities of long term borrowings	672.41
Total Debt	**105371.07**
Total Capitalisation	**183741.28**

Note 33 : Significant accounting judgement, estimates and assumptions

The preparation of the Fund's financial statements requires management to make judgments, estimates and assumptions that affect the reported amounts of revenue, expenses, assets and liabilities and the accompanying disclosures and the disclosure of contingent liabilities. Uncertainty about these assumptions and estimates could result in out comes that require a material adjustment to the carrying amount of assets or liabilities affected in future periods.

Judgement

In the process of applying the Fund’s accounting policies, management has made the following judgements, which have the most significant effect on the amounts recognised in the financial statements.

Classification of unit holders Funds

Under the provisions of the InvIT Regulations, Fund is required to distribute to Unit holders not less than ninety percent of the net distributable cash flows of Fund for each financial year. Accordingly, a portion of the unit holders’ Funds contains a contractual obligation of the Fund to pay to its Unit holders cash distributions. The Unit holder's Funds could therefore have been classified as compound financial instrument which contain both equity and liability components in accordance with Ind AS 32-Financial Instruments: Presentation.

However, in accordance with SEBI Circulars(No.CIR/IMD/DF/114/2016 dated 20-Oct-2016 and No.CIR/IMD/DF/127/2016 dated 29-Nov-2016) issued under the InvIT Regulations, the unit holders’ Funds have been classified as equity in order to comply with the mandatory requirements of Section H of Annexure A to the SEBI Circular dated 20-Oct-2016 dealing with the minimum disclosures for key financial statements. In line with the above, the income distribution payable to unit holders is recognized as liability when the same is approved by the Investment Manager.

Estimates and assumptions

The key assumptions concerning the future and other key sources of estimation uncertainty at the reporting date, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities or fair value disclosures within the next financial year, are described below. The Fund based its assumptions and estimates on parameters available when the financial statements were prepared. Existing circumstances and assumptions about future developments, however, may change due to market changes or circumstances arising that are beyond the control of the Fund. Such charges are reflected in the assumptions when they occur.

Impairment of non-financial assets

Non-financial assets of the Fund primarily comprise of investments in subsidiaries, Impairment exists when the carrying value of an asset or cash generating unit exceeds its recoverable amount, which is the higher of its fair value less costs of disposal and its value in use. The recordable amounts for the investments in subsidiaries are based on value in use of the underlying projects. The value in use calculation is based on a DCF model. The cash flows are derived from budgets / forecasts over the life of the projects.

IRB Infrastructure Trust
Notes to Condensed Interim Special Purpose Consolidated / Combined Financial Statements

Note 34 : Debt payment history

(Amount in Millions.)

Particulars	Opening Balance as on April 1, 2022	Loan availed during the period	Loan repaid during the period	Closing Balance as at December 31, 2022
Secured loan from Bank and Financial Institution	88,627.04	3,608.76	25,682.08	66,553.71
Debenture	5,497.18	28,060.00	90.55	33,466.63
Loan from related party	4,085.74	1532.48	267.5	5,350.72
Total	**98,209.96**	**33,201.24**	**26,040.13**	**1,05,371.07**

Particulars	Opening Balance as on April 1, 2021	Loan availed during the period	Loan repaid during the period	Closing Balance as at March 31, 2022
Secured loan from Bank and Financial Institution	85,269.71	4,066.31	708.98	88,627.04
Debenture	5,563.63		66.45	5,497.18
Loan from related party	4,155.57	3746.5	3816.326547	4,085.74
Total	**94,988.91**	**7,812.81**	**4,591.75**	**98,209.96**

Particulars	Opening Balance as on April 1, 2020	Loan availed during the period	Loan repaid during the period	Closing Balance as at March 31, 2021
Secured loan from Bank and Financial Institution	73,325.49	12,057.15	112.93	85,269.71
Debenture	5,490.14	94.65	21.16	5,563.63
Loan from related party	-	4,155.57	-	4,155.57
Total	**78,815.63**	**16,307.38**	**134.10**	**94,988.91**

Particulars	Opening Balance as on April 1, 2019	Loan availed during the period	Loan repaid during the period	Closing Balance as at March 31, 2020
Secured loan from Bank and Financial Institution	86,162.98	17273.641	30,111.13	73,325.49
Debenture	5,498.17	-	8.02	5,490.14
Loan from related party	-	-	-	0.00
Total	**91,661.14**	**17,273.64**	**30,119.16**	**78,815.63**

Note 35 : Operating cashflows

Projectwise operating cashflow for the period ended December 31, 2022 : (Amount in Millions.)

	AETL	CGTL	IRBHM	IRBWC	KGTL	KTL	PDTPL	SYTL	UTL	YATL
Cash flow from operating activities										
Profit before tax	(1,334.75)	(909.29)	(145.64)	(879.36)	58.68	(621.93)	1,486.77	(215.83)	(1,488.40)	(190.31)
Adjustments :										
Depreciation and amortisation expenses	227.98	276.57	258.80	125.07	149.53	139.03	41.11	132.88	252.17	355.43
Resurfacing expenses	159.28	99.96	180.13	1,137.53	73.78	163.95	-	55.96	351.37	94.67
Finance costs	1,516.30	1,056.86	1,238.29	(0.01)	953.57	1,302.63	74.54	812.10	1,334.27	1,417.27
Fair Value gain on mutual funds	(0.06)	(0.88)	(1.26)	(1.22)	(4.88)	(0.03)	(0.02)	-	0.00	(0.02)
(Gain) / loss on sale of Investment	(1.76)	(8.68)	(5.34)		(7.32)	(1.29)	(7.64)	(3.19)	(1.51)	(3.86)
Interest Income on										
- Bank deposits	(14.47)	(14.29)		(11.16)	(5.37)	(3.83)	-	(14.39)	(12.04)	(28.63)
- Others	(0.11)	(3.03)	(1.12)	(0.43)	(0.25)	(0.02)	-	-	(1.18)	(0.25)
Operating profit/(loss) before working capital changes	**552.41**	**497.22**	**1,523.86**	**370.42**	**1,217.74**	**978.52**	**1,594.76**	**767.53**	**434.68**	**1,644.31**
Movement in working capital:										
Decrease/(increase) in Trade receivables	-	-	(0.10)	-	-	-	-	-	-	-
Decrease/(increase) in others financial assets	(10.76)	(16.43)	11.30	2.47	(24.71)	579.32	(6.79)	(1.60)	(3.59)	(27.55)
Decrease/(increase) in other assets	(0.50)	(0.44)	94.64	139.46	185.86	6.46	160.34	6.51	(7.78)	3.54
Increase/(decrease) in trade payables	12.87	250.48	(226.98)	(1,167.45)	(767.98)	(1.78)	2,675.61	(0.56)	97.14	(38.65)
Increase/(decrease) in other financial liabilities	(929.84)	71.90	(633.59)	15.91	2.04	3.62	64.83	(28.42)	11.26	299.18
Increase/(decrease) in other liabilities	0.02	23.24	(50.09)	(33.36)	(37.73)	0.88	(1.75)	1.06	6.41	0.49
Increase/(decrease) in provisions	(0.00)	-	-	-	-	-	-	-	-	-
Cash generated from/(used in) operations	**(375.80)**	**825.97**	**719.04**	**(672.53)**	**575.22**	**1,567.03**	**4,486.99**	**744.53**	**538.11**	**1,881.33**
Direct taxes paid (net of refunds)	6.53	8.40	7.62	5.73	(0.35)	(11.77)	(206.40)	(1.55)	11.68	0.64
Net cash flows from/(used in) operating activities	**(369.27)**	**834.37**	**726.65**	**(666.81)**	**574.87**	**1,555.26**	**4,280.59**	**742.97**	**549.79**	**1,881.97**

Projectwise operating cashflow for the year ended March 31, 2022 :

	AETL	CGTL	IRBHM	IRBWC	KGTL	KTL	PDTPL	SYTL	UTL	YATL
Cash flow from operating activities										
Profit before tax	(1,669.20)	(214.19)	(284.76)	(815.15)	(405.16)	(896.17)	(0.29)	(543.86)	(1,375.04)	(836.96)
Adjustments :					-					
Depreciation and amortisation expenses	262.06	243.63	210.21	113.19	103.80	52.97	-	116.74	267.28	305.02
Resurfacing expenses	184.54	76.99	-	1,306.58	-	193.41	-	66.17	349.85	107.82
Finance costs	1,980.28	1,458.06	1,337.26	0.00	1,127.90	1,813.71	-	1,029.00	1,820.34	1,796.93
Fair Value gain on mutual funds	(0.04)	(1.95)	(0.02)	(0.71)	-	(0.01)	-	1.28	(0.00)	0.00
(Gain) / loss on sale of Investment	(1.11)	(4.05)	(1.65)		(0.98)	(0.33)	-	(2.21)	(1.25)	(1.24)
Interest Income on										
- Bank deposits	(15.17)	(5.98)		(11.89)	-	(5.83)	-	(9.34)	(9.97)	(15.48)
- Others	(1.92)	(0.78)	-	(1.74)	(0.89)	(0.71)	-	(1.39)	-	(0.62)
Operating profit/(loss) before working capital changes	**739.44**	**1,551.73**	**1,261.04**	**590.28**	**824.67**	**1,157.04**	**(0.29)**	**656.40**	**1,051.21**	**1,355.47**
Movement in working capital:										
Decrease/(increase) in Trade receivables	-	-	-	67.12	-	-	-	(29.37)	-	10.95
Decrease/(increase) in others financial assets	(61.38)	(12.57)	(37.70)	(8.11)	0.90	(905.12)	-	9.16	(17.10)	30.06
Decrease/(increase) in other assets	(39.89)	(77.08)	322.90	(142.31)	(217.36)	(1.56)	(167.84)	7.55	(42.65)	22.77
Increase/(decrease) in trade payables	312.37	1,722.59	2,937.79	2,193.96	2,829.33	(74.13)	310.03	17.08	1,559.66	25.04
Increase/(decrease) in other financial liabilities	(1,041.20)	12.34	83.68	(575.79)	9.63	13.58	23.87	22.35	19.18	(301.93)
Increase/(decrease) in other liabilities	(1.20)	(10.43)	50.40	29.74	0.55	0.47	3.01	(4.61)	(22.56)	(11.52)
Increase/(decrease) in provisions	(0.37)	-	-	-	-	-	-	-	-	-
Cash generated from/(used in) operations	**(92.22)**	**3,186.58**	**4,618.10**	**2,154.88**	**3,447.73**	**190.29**	**168.78**	**678.55**	**2,547.74**	**1,130.83**
Direct taxes paid (net of refunds)	(6.11)	1.46	0.87	16.21	16.42	7.01	-	4.40	(6.11)	(2.06)
Net cash flows from/(used in) operating activities	**(98.32)**	**3,188.04**	**4,618.98**	**2,171.10**	**3,464.15**	**197.30**	**168.78**	**682.95**	**2,541.64**	**1,128.77**

Projectwise operating cashflow for the year ended March 31, 2021 :

	AETL	CGTL	IRBHM	IRBWC	KGTL	KTL	PDTPL	SYTL	UTL	YATL
Cash flow from operating activities										
Profit before tax	(914.58)	(417.51)	246.45	(952.77)	(294.46)	(1,501.14)	-	(698.38)	(750.20)	(1,043.71)
Adjustments :										
Depreciation and amortisation expenses	192.14	134.55	211.27	70.31	78.03	72.69	-	97.11	158.86	240.71
Resurfacing expenses	53.55	-	-	-	-	141.79	-	51.34	-	46.19
Finance costs	698.52	1,396.16	714.37	1,363.93	935.41	1,819.69	-	1,098.94	1,531.81	1,866.29
Fair Value gain on mutual funds	(0.01)	-	(0.10)	-	-	-	-	(1.32)	-	-
(Gain) / loss on sale of Investment	(0.44)	(0.76)	(1.03)	(0.79)	(0.66)	(0.47)	-	(3.13)	(2.35)	(3.01)
Interest Income on										
- Bank deposits	(11.32)	-	-	(8.31)	-	(10.95)	-	(10.19)	(8.21)	(25.48)
- Others	-	-	-	-	-	(0.44)	-	(5.64)	-	(1.51)
Operating profit/(loss) before working capital changes	**17.86**	**1,112.44**	**1,170.96**	**472.37**	**718.31**	**521.17**	**-**	**528.73**	**929.91**	**1,079.48**
Movement in working capital:										
Decrease/(increase) in Loans	(5.79)	-	(0.14)	(0.07)	-	0.14	-	0.21	-	-
Decrease/(increase) in Trade receivables	329.94	-	-	(67.12)	-	-	-	-	-	(10.95)
Decrease/(increase) in Inventories	-	-	-	-	-	-	-	-	-	0.50
Decrease/(increase) in others financial assets	61.67	(70.83)	(28.44)	(17.75)	(39.86)	0.39	-	(1.76)	(4.09)	(38.00)
Decrease/(increase) in other assets	40.36	(59.66)	1,050.04	189.05	104.34	3.34	-	48.25	(143.06)	-
Increase/(decrease) in other Bank balance	-	-	-	-	-	-	-	-	-	-
Increase/(decrease) in trade payables	215.41	355.36	70.47	228.49	508.33	69.71	-	(158.84)	1,123.17	(175.02)
Increase/(decrease) in other financial liabilities	(48.61)	70.00	53.38	59.66	10.62	1.81	-	377.15	19.90	(136.59)
Increase/(decrease) in other liabilities	(93.73)	4.94	(8.14)	(1.55)	36.89	(0.37)	-	(6.75)	22.35	(8.07)
Increase/(decrease) in provisions	(0.36)	-	-	-	-	-	-	-	-	-
Cash generated from/(used in) operations	**516.74**	**1,412.25**	**2,308.12**	**863.08**	**1,338.64**	**596.19**	**-**	**786.98**	**1,948.18**	**711.34**
Direct taxes paid (net of refunds)	10.42	(5.36)	(49.66)	(8.41)	(2.50)	5.02	-	42.63	(4.21)	26.79
Net cash flows from/(used in) operating activities	**527.16**	**1,406.88**	**2,258.46**	**854.67**	**1,336.15**	**601.21**	**-**	**829.62**	**1,943.96**	**738.14**

Projectwise operating cashflow for the year ended March 31, 2020 : (Amount in Millions.)

	AETL	CGTL	IRBHM	IRBWC	KGTL	KTL	PDTPL	SYTL	UTL	YATL
Cash flow from operating activities										
Profit before tax	(448.98)	78.18	616.08	(625.40)	115.86	(761.85)	-	(447.52)	(318.58)	(942.07)
Adjustments :	-				-					
Depreciation and amortisation expenses	225.94	247.28	214.60	73.09	167.78	210.64	-	109.37	234.97	313.34
Resurfacing expenses	-	-	-	-	-	72.10	-	6.83	-	-
Finance costs	10.39	1,185.45	189.82	964.75	776.61	1,330.00	-	933.35	1,365.27	1,634.92
Fair Value gain on mutual funds	-	-	-	-	-	0.01	-	-	-	-
(Gain) / loss on sale of Investment	(0.92)	(7.43)	(6.80)	(0.47)	(6.24)	(2.64)	-	(2.77)	(2.41)	(4.57)
Interest Income on										
- Bank deposits	(0.03)	-	-	(8.82)	(0.01)	(33.25)	-	(23.97)	(11.44)	(45.69)
- Others	-	(0.02)	(0.01)	(1.74)	(0.02)	(0.60)	-	(0.24)	-	(0.27)
Operating profit/(loss) before working capital changes	**(213.60)**	**1,503.47**	**1,013.68**	**401.41**	**1,053.98**	**814.41**	**-**	**575.06**	**1,267.80**	**955.66**
Movement in working capital:										
Decrease/(increase) in Loans	0.76	0.13	(0.25)	-	0.59	0.33	-	0.52	0.07	3.50
Decrease/(increase) in Trade receivables	(330.46)	-	-	67.12	-	-	-	-	14.02	(0.49)
Decrease/(increase) in Inventories	-	-	-	-	-	-	-	-	-	27.36
Decrease/(increase) in others financial assets	(67.38)	0.03	64.57	(10.45)	54.48	(3.03)	-	12.46	(21.85)	(23.20)
Decrease/(increase) in other assets	2,378.04	1,145.07	(1,893.94)	(80.31)	684.82	1.13	-	(1.18)	889.60	(40.15)
Increase/(decrease) in other Bank balance	-	-	-	-	-	-	-	-	-	-
Increase/(decrease) in trade payables	230.05	(442.02)	544.57	1,993.49	197.00	(737.83)	-	(125.16)	(773.04)	(4,452.78)
Increase/(decrease) in other financial liabilities	(1,631.92)	(7.83)	(64.22)	(401.74)	(530.50)	(0.34)	-	(2.04)	(8.11)	94.42
Increase/(decrease) in other liabilities	62.32	(3.80)	7.59	(3.35)	(8.62)	(1.64)	-	12.25	(14.16)	(9.03)
Increase/(decrease) in provisions	(2.21)	(2.58)	-	-	(0.85)	(1.70)	-	(1.30)	(1.16)	-
Cash generated from/(used in) operations	**425.61**	**2,192.47**	**(328.00)**	**1,966.17**	**1,450.90**	**71.33**	**-**	**470.59**	**1,353.16**	**(3,444.71)**
Direct taxes paid (net of refunds)	(19.48)	(25.17)	(118.20)	12.29	(47.60)	25.87	-	(0.92)	(4.64)	(20.14)
Net cash flows from/(used in) operating activities	**406.13**	**2,167.30**	**(446.20)**	**1,978.46**	**1,403.30**	**97.20**	**-**	**469.67**	**1,348.52**	**(3,464.85)**

Projectwise operating cashflow for the period ended December 31, 2021 : (Amount in Millions.)

	AETL	CGTL	IRBHM	IRBWC	KGTL	KTL	PDTPL	SYTL	UTL	YATL
Cash flow from operating activities										
Profit before tax	(1,230.61)	(4.58)	(150.15)	(625.40)	(309.50)	(686.43)	-	(451.05)	(891.47)	(709.39)
Adjustments :										
Depreciation and amortisation expenses	179.72	149.24	151.18	73.09	61.84	5.58	-	75.09	242.52	228.92
Resurfacing expenses	138.41	48.12	-	-	-	145.06	-	49.63	244.90	80.86
Finance costs	1,498.05	1,089.54	942.04	964.75	827.72	1,381.74	-	775.42	1,361.10	1,339.23
Fair Value gain on mutual funds	-	(0.83)	0.10	0.00	-	0.00	-	1.32	0.00	0.00
(Gain) / loss on sale of Investment	(0.85)	(1.44)	(1.41)	(0.47)	(0.71)	(0.13)	-	(2.03)	(0.91)	(0.90)
Interest Income on										
- Bank deposits	(11.45)	(2.38)	-	(8.82)	-	(4.69)	-	(5.64)	(6.28)	(11.43)
- Others	(1.92)	(0.78)	-	(1.74)	(0.89)	(0.63)	-	(1.39)	-	(0.62)
Operating profit/(loss) before working capital changes	**571.32**	**1,276.89**	**941.76**	**401.41**	**578.46**	**840.51**	**-**	**441.35**	**949.86**	**926.66**
Movement in working capital:										
Decrease/(increase) in Trade receivables				67.12			-			10.95
Decrease/(increase) in others financial assets	(60.66)	(6.90)	(32.99)	(10.45)	3.99	(903.06)	-	11.11	(6.95)	23.56
Decrease/(increase) in other assets	(40.69)	(144.31)	373.29	(80.31)	(118.49)	(1.59)	-	(2.06)	(90.30)	22.81
Increase/(decrease) in trade payables	294.46	1,606.19	2,512.67	1,993.49	2,739.72	64.06	-	(11.52)	1,721.00	(19.79)
Increase/(decrease) in other financial liabilities	(725.91)	22.82	81.40	(401.74)	(0.97)	(930.01)	-	(55.94)	(14.39)	(244.50)
Increase/(decrease) in other liabilities	(1.24)	6.53	18.12	(3.35)	(26.21)	2.41	-	(4.66)	(21.80)	(11.65)
Increase/(decrease) in provisions	(0.36)	-	-	-	-	-	-	-	-	-
Cash generated from/(used in) operations	**36.93**	**2,761.22**	**3,894.25**	**1,966.17**	**3,176.51**	**(927.69)**	**-**	**378.27**	**2,537.43**	**708.04**
Direct taxes paid (net of refunds)	(5.43)	9.44	1.13	12.29	14.41	5.85	-	3.49	(3.62)	(1.66)
Net cash flows from/(used in) operating activities	**31.49**	**2,770.66**	**3,895.39**	**1,978.46**	**3,190.92**	**(921.84)**	**-**	**381.76**	**2,533.81**	**706.38**

Note 36 : Liquidity Risk

Liquidity risk is the risk that the Group may not be able to meet its present and future cash and collateral obligations without incurring unacceptable losses. The Group's objective is to, at all times maintain optimum levels of liquidity to meet its cash and collateral requirements. The Group closely monitors its liquidity position and deploys a robust cash management system. It maintains adequate sources of financing including debt and overdraft from banks at an optimised cost.

The table below summarises the maturity profile of the Group's financial liabilities based on contractual undiscounted payments:

(Rs in millions)

As at December 31, 2022	Carrying amt	Total	On Demand	Less than 1 year	1 to 5 years	> 5 years
Borrowings (Gross of unamortised transaction cost)#	1,05,446.41	1,05,446.41	5,350.72	747.75	12,581.52	86,766.42
Other financial liabilities	37,917.48	37,917.48	-	2,432.23	35,485.25	-
Trade payables	18,455.71	18,455.71	-	17,147.36	1,308.35	-
Total	**1,61,819.60**	**1,61,819.60**	**5,350.72**	**20,327.34**	**49,375.12**	**86,766.42**

(Rs in millions)

As at March 31, 2022	Carrying amt	Total	On Demand	Less than 1 year	1 to 5 years	> 5 years
Borrowings (Gross of unamortised transaction cost)#	98,243.70	98,243.70	4,085.74	633.43	14,152.24	79,372.29
Other financial liabilities	38,191.92	38,191.92	-	3,023.13	35,168.79	-
Trade payables	17,217.18	17,217.18	-	11,218.34	5,998.85	-
Total	**1,53,652.80**	**1,53,652.80**	**4,085.74**	**14,874.90**	**55,319.88**	**79,372.29**

(Rs in millions)

As at March 31, 2021	Carrying amt	Total	On Demand	Less than 1 year	1 to 5 years	> 5 years
Borrowings	93,946.19	93,946.19	219.09	4,307.07	11,203.11	78,216.92
Other financial liabilities	44,919.67	44,919.67	-	20,198.87	24,720.80	-
Trade payables	5,023.65	5,023.65	-	2,560.23	2,463.41	-
Total	**1,43,889.52**	**1,43,889.52**	**219.09**	**27,066.17**	**38,387.32**	**78,216.92**

(Rs in millions)

As at March 31, 2020	Carrying amt	Total	On Demand	Less than 1 year	1 to 5 years	> 5 years
Borrowings	77,700.91	77,700.91	-	326.79	19,109.50	58,264.63
Other financial liabilities	62,736.85	62,736.85	-	27,666.05	34,950.62	120.16
Trade payables	2,746.10	2,746.10	-	2,746.10	-	-
Total	**1,43,183.86**	**1,43,183.86**	**-**	**30,738.95**	**54,060.12**	**58,384.79**

IRB Infrastructure Trust
Notes to Condensed Interim Special Purpose Consolidated / Combined Financial Statements

Note 37 : Related party disclosures

List of Related parties of the Fund

(i)	Parties to the InvIT	IRB Infrastructure Developers Limited (Sponsor and Project Manager)
		MMK Toll Road Private Limited (Investment Manager)
		IDBI Trusteeship Services Limited (Trustee of the IRB Infrastructure Trust)
(ii)	Associates, Promoters, Directors and Partners of the persons mentioned in clause (i) and (ii)	As per table below

List of associates, promoters, directors and partners of the persons mentioned in clause (i) and (ii)

Particulars	**IRB Infrastructure Developers Limited (Sponsor and Project Manager)**	**MMK Toll Road Private Limited (Investment Manager)**	**IDBI Trusteeship Services Limited (Trustee of IRB Infrastructure Trust)**
Promoters	Mr. Virendra D. Mhaiskar Mrs. Deepali V. Mhaiskar Mr. Virendra D. Mhaiskar (HUF)	IRB Infrastructure Developers Limited (IRBIDL)	IDBI Bank Limited LIC Corporation Limited General Insurace Corporation
Directors	Mr. Virendra D. Mhaiskar Mrs. Deepali V. Mhaiskar Mr. Mukeshlal Gupta Mr. Sudhir Rao Hoshing **Independent Directors** Mr. Chandrashekhar S. Kaptan Mr. Sunil H. Talati Mr. Sandeep J. Shah Mr. Sunil Tandon Mrs. Heena H. Raja	Mr. Naresh Taneja Mrs. Arati Taskar **Independent Directors** Mr. Darshan Sangurdekar Mr. Omprakash Singh	Mr. J. Samuel Joseph Mr. Ravishankar G. Shinde Ms. Madhuri J. Kulkarni Mr. Swapan Kumar Bagchi Ms. Sashikala Muralidharan (upto Jan 16, 2020)
Associates	**A) Holding Company of Sponsor / Project Manager** Mhaiskar Ventures Private Limited **B) Subsidiary Companies of Sponsor / Project Manager** **Project SPVs** 1. IRB Westcoast Tollway Limited (IRBWTL) 2. Solapur Yedeshi Tollway Limited (SYTL) 3. Yedeshi Aurangabad Tollway Limited (YATL) 4. Kaithal Tollway Limited (KTL) 5. AE Tollway Limited (AETL) 6. Udaipur Tollway Limited (UTL) 7. CG Tollway Limited (CGTL) 8. Kishangarh Gulabpura Tollway Limited (KGTL) 9. IRB Hapur Muradabad Tollway Limited (IRBHMTL) 10. Palsit Dankuni Tollway Private Limited (PDTPL) **Others** 1. Ideal Road Builders Private Limited (IRBPL) 2. Mhaiskar Infrastructure Private Limited (MIPL) 3. Modern Road Makers Private Limited (MRMPL) 4. Aryan Toll Road Private Limited (ATRPL) 5. ATR Infrastructure Private Limited (ATRFL) 6. IRB Infrastructure Private Limited (IRBFL) 7. Thane Ghodbunder Toll Road Private Limited (TGTRPL) 8. Aryan Infrastructure Investments Private Limited (AIIPL) 9. IRB MP Expressway Private Limited (formerly known as NKT Road and Toll Private Limited) 10. MMK Toll Road Private Limited (MMK) 11. IRB Kolhapur Integrated Road Development Company Private Limited (IRBK) 12. Aryan Hospitality Private Limited (AHPL) 13. IRB Sindhudurg Airport Private Limited (IRBSA) 14. IRB Goa Tollway Private Limited (IRB Goa) 15. IRB PS Highway Private Limited (formerly known as MRM Highways Private Limited) (IRBPS) 16. IRB Ahmedabad Vadodara Super Express Tollway Private Limited (IRBAV) 17. MRM Mining Private Limited (Formerly "J J Patel Infrastructural and Engineering Private Limited") (Subsidiary of MRMPL) 18. GE1 Expressway Private Limited (formerly known as IRB PP Project Private Limited) 19. VK1 Expressway Private Limited (VK1) 20. Modern Estate (Partnership Firm) 21. Pathankot Mandi Highway Private Limited 22. Chittoor Thachur Highway Private Limited 23. VM7 Expressway Private Limmited		

	C) Other Associate Companies of Sponsor / Project Manager 1. Virendra D. Mhaiskar (HUF) 2. VCR Toll Services Private Limited 3. VDM Ventures Private Limited 4. DEUX Farming Films Private Limited 5. IRB Charitable Foundation **Key Managerial personnel of Project SPV Group** (Only with whom Project SPV Group had transactions during the year/ there was balance outstanding at the year end) 1. Mr. Mukeshlal Gupta 2. Mr.Ajay P. Deshmukh 3. Mr.Rajpaul S. Sharma 4. Mr.Dhananjay K. Joshi 5. Mr.Anil D. Yadav 6. Mrs. Kshama Vengsarkar 7. Mr. Rajendra Kumar Agarwal (upto March 30, 2018) 8. Mrs. Arati Taskar 9. Mr. Sudhir Rao Hoshing 10. Mr. Naresh Taneja 11. Mr. Darshan Sangurdekar 12. Mr. Omprakash Singh 13. Mr. Jitendra Sharma (upto February 28, 2022) 14. Mrs. Heena Raja (upto October 01, 2021) 15. Ms. Shilpa Todankar 16. Mrs. Ranjana Paranjape (w.e.f October 06, 2021) 17. Mr.Abhay Phatak (w.e.f. March 09, 2022) 18. Mr.Amitabh Murarka

I. Related Party Transactions

(Rs. in millions)

Sr. No.	Particulars	Sponsor and Project Manager				Fellow Subsidiaries of Project SPV Group				Key Management Personnel of Project SPV Group			
		Dec 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020	Dec 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020	Dec 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
1	**Contract expenses**	-	**-**	**-**	**1,695.27**	**689.11**	**629.52**	**921.31**	**1,452.39**	**-**	**-**	**-**	**-**
	IRB Infrastructure Developers Limited	-	-	-	1,695.27	-	-	-	-	-	-	-	-
	Modern Road Makers Private Limited	-	-	-	-	689.11	629.52	921.31	1,452.39	-	-	-	-
2	**Operation & Main. Expenses**	**2,047.15**	**1,906.45**	**1,826.29**	**119.47**	-	-	-	-	-	-	-	-
	IRB Infrastructure Developers Limited	2,047.15	1,906.45	1,826.29	119.47	-	-	-	-	-	-	-	-
3	**Finance Cost -Interest unwinding on loan**	-	-	-	-	-	-	-	**44.70**	-	-	-	-
	Mhaiskar Infrastructure Private Limited	-	-	-	-	-	-	-	44.70	-	-	-	-
4	**Finance Cost -Interest unwinding on Trade payable**	-	-	-	-	**541.65**	**655.69**	-	-	-	-	-	-
	Modern Road Makers Private Limited	-	-	-	-	541.65	655.69	-	-	-	-	-	-
5	**Share application money received**	-	**-**	**2,603.81**	**1,182.32**	-	-	-	-	-	-	-	-
	IRB Infrastructure Developers Limited	-	-	2,603.81	1,182.32	-	-	-	-	-	-	-	-
	IRB Goa Tollway Private Limited	-	-	-	-	-	-	-	-	-	-	-	-
6	**Allotment of Equity Share**	-	**-**	**2,603.81**	**1,648.82**	-	-	-	-	-	-	-	-
	IRB Infrastructure Developers Limited	-	-	2,603.81	1,648.82	-	-	-	-	-	-	-	-
	IRB Goa Tollway Private Limited	-	-	-	-	-	-	-	-	-	-	-	-
7	**Sub-ordinate debts (Unsecured & interest free)**	-	-	-	**2,924.28**	-	-	-	-	-	-	-	-
	IRB Infrastructure Developers Limited	-	-	-	2,924.28	-	-	-	-	-	-	-	-
	IRB Goa Tollway Private Limited	-	-	-	-	-	-	-	-	-	-	-	-
8	**Short-term borrowings taken (unsecured)**	-	-	**477.81**	**13,418.70**	-	-	-	-	-	-	-	-
	IRB Infrastructure Developers Limited	-	-	477.81	13,418.70	-	-	-	-	-	-	-	-
9	**Short-term borrowings repayment**	-	-	-	**562.49**	-	-	-	-	-	-	-	-
	IRB Infrastructure Developers Limited	-	-	-	562.49	-	-	-	-	-	-	-	-
	Modern Road Makers Private Limited	-	-	-	-	-	-	-	-	-	-	-	-
10	**Expenses incurred on our behalf**	-	**1.77**	**5.71**	-	**-**	**-**	**6.05**	-	-	-	-	-
	IRB Infrastructure Developers Limited	-	1.77	5.71	-	-	-	-	-	-	-	-	-
	Modern Road Makers Private Limited	-	-	-	-	-	-	6.05	-	-	-	-	-

I. Related Party Transactions (Rs. in millions)

Sr. No.	Particulars	Sponsor and Project Manager				Fellow Subsidiaries of Project SPV Group				Key Management Personnel of Project SPV Group			
		Dec 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020	Dec 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020	Dec 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
11	**Mobilisation advances recovered**	**196.74**	**743.02**	**1,672.70**	**2,348.12**	-	-	-	-	-	-	-	-
	IRB Infrastructure Developers Limited	196.74	743.02	1,672.70	2,348.12	-	-	-	-	-	-	-	-
12	**Additional advances recovered**	-	-	-	**55.21**	-	-	-	-	-	-	-	-
	IRB Infrastructure Developers Limited	-	-	-	55.21	-	-	-	-	-	-	-	-
13	**Material Aggregate Purchase**	-	-	-	-	**588.05**	**1,555.19**	**2,062.51**	-	-	-	-	-
	Modern Road Makers Private Limited	-	-	-	-	588.05	1,555.19	2,062.51	-	-	-	-	-
14	**Advance received including BG margin payable**	-	-	-	**41.37**	-	-	**75.42**	-	-	-	-	-
	IRB Infrastructure Developers Limited	-	-	-	41.37	-	-	-	-	-	-	-	-
	Modern Road Makers Private Limited	-	-	-	-	-	-	75.42	-	-	-	-	-
15	**Advance given including BG margin given**	-	**451.03**	**208.50**	-	-	**62.57**	-	-	-	-	-	-
	IRB Infrastructure Developers Limited	-	451.03	208.50	-	-	-	-	-	-	-	-	-
	Modern Road Makers Private Limited	-	-	-	-	-	62.57	-	-	-	-	-	-
16	**General advance given - EPC**	-	-	**183.71**	-	-	**62.48**	**75.42**	-	-	-	-	-
	IRB Infrastructure Developers Limited	-	-	183.71	-	-	-	-	-	-	-	-	-
	Modern Road Makers Private Limited	-	-	-	-	-	62.48	75.42	-	-	-	-	-
17	**General advance recovered - EPC**	**205.38**	**394.25**	-	**900.56**	-	-	-	-	-	-	-	-
	IRB Infrastructure Developers Limited	205.38	394.25	-	900.56	-	-	-	-	-	-	-	-
18	**Construction cost**	**2.30**	**8,484.71**	**13,535.60**	**24,920.09**	-	-	**2,194.10**	**2,080.00**	-	-	-	-
	IRB Infrastructure Developers Limited	2.30	8,484.71	13,535.60	24,920.09	-	-	-	-	-	-	-	-
	Modern Road Makers Private Limited	-	-	-	-	-	-	2,194.10	2,080.00	-	-	-	-
19	**Construction cost- EPC- WIP**	**1,111.51**	-	-	-	-	-	-	-	-	-	-	-
	IRB Infrastructure Developers Limited	1,111.51	-	-	-	-	-	-	-	-	-	-	-
20	**Amount held up**	-	-	-	-	**33.24**	**2.76**	**7.51**	-	-	-	-	-
	Modern Road Makers Private Limited	-	-	-	-	33.24	2.76	7.51	-	-	-	-	-
21	**BG margin receivable**	-	-	-	**36.21**	-	-	-	-	-	-	-	-
	IRB Infrastructure Developers Limited	-	-	-	36.21	-	-	-	-	-	-	-	-
	Modern Road Makers Private Limited	-	-	-	-	-	-	-	-	-	-	-	-
22	**Other payable**	**356.63**	-	**2,448.02**	**32,037.96**	**36.70**	**48.71**	**5.85**	**3,535.73**	-	-	-	-
	IRB Infrastructure Developers Limited	356.63	-	2,448.02	32,037.96	-	-	-	-	-	-	-	-
	Modern Road Makers Private Limited	-	-	-	-	-	-	5.85	1,785.30	-	-	-	-
	IRB Goa Tollway Private Limited	-	-	-	-	-	-	-	1,544.86	-	-	-	-
	Mhaiskar Infrastrcture Private Limited	-	-	-	-	36.70	48.71	-	205.57	-	-	-	-
23	**Fair Value loss on measurement of Other payable**	-	**2,161.31**	-	-	-	-	-	-	-	-	-	-
	IRB Infrastructure Developers Limited	-	2,161.31	-	-	-	-	-	-	-	-	-	-
24	**Unsecured Loan payable**	1,264.98	**4,759.00**	**3,677.76**	-	-	-	**48.71**	-	-	-	-	-
	IRB Infrastructure Developers Limited	1,264.98	4,759.00	3,677.76	-	-	-	-	-	-	-	-	-
	Mhaiskar Infrastructure Private Limited	-	-	-	-	-	-	48.71	-	-	-	-	-

I. Related Party Transactions (Rs. in millions)

Sr. No.	Particulars	Sponsor and Project Manager				Fellow Subsidiaries of Project SPV Group				Key Management Personnel of Project SPV Group			
		Dec 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020	Dec 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020	Dec 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
25	**Unsecured Loan / other payable repaid**	**-**	**4,828.83**	**5,105.50**	-	-	**-**	**1.17**	-	-	-	-	-
	IRB Infrastructure Developers Limited	-	4,828.83	5,105.50	-	-	-	-	-	-	-	-	-
	Mhaiskar Infrastructure Private Limited	-	-	-	-	-	-	1.17	-	-	-	-	-
26	**Units Issued**	**1,236.75**	**1,946.33**	**-**	-	-	-	-	-	-	-	-	-
	IRB Infrastructure Developers Limited	1,236.75	1,946.33	-	-	-	-	-	-	-	-	-	-
27	**Trade payable**	**-**	-	-	-	**-**	**12.88**	-	-	-	-	-	-
	MMK Toll Road Private Limited	-	-	-	-	-	12.88	-	-	-	-	-	-
28	**Additional Intangible Asset**	-	-	-	-	**104.86**	**7,148.39**	-	-	-	-	-	-
	Modern Road Makers Private Limited	-	-	-	-	104.86	7148.39	-	-	-	-	-	-
29	**Director sitting fees paid**	-	-	-	-	-	-	-	-	**1.25**	**1.65**	**1.23**	**1.83**
	Mr. Mukeshlal Gupta	-	-	-	-	-	-	-	-	-	-	-	0.16
	Mr. Dhananjay K. Joshi	-	-	-	-	-	-	-	-	-	-	-	0.11
	Mr. Ajay P. Deshmukh	-	-	-	-	-	-	-	-	-	-	-	0.22
	Mr. Naresh Taneja	-	-	-	-	-	-	-	-	-	-	-	0.11
	Mr. Rajendra kumar Agarwal	-	-	-	-	-	-	-	-	-	-	-	-
	Mrs. Arati Taskar	-	-	-	-	-	-	-	-	0.05	-	-	0.16
	Mr. Darshan Sangurdekar	-	-	-	-	-	-	-	-	0.14	0.23	0.17	0.19
	Mr. Mr. Omprakash Singh	-	-	-	-	-	-	-	-	0.14	0.23	0.18	0.20
	Mr. Sudhir Hoshing	-	-	-	-	-	-	-	-	0.05	-	-	0.23
	Mr. Jitendra Sharma	-	-	-	-	-	-	-	-	-	0.41	0.37	0.05
	Mr. Anil Yadav	-	-	-	-	-	-	-	-	-	-	-	0.12
	Mrs. Heena Raja	-	-	-	-	-	-	-	-	-	0.06	0.08	-
	Mr. C S Kaptan	-	-	-	-	-	-	-	-	0.23	0.39	0.24	-
	Miss Shilpa Todankar	-	-	-	-	-	-	-	-	0.34	0.26	0.19	-
	Mrs. Kshama Vengsarkar	-	-	-	-	-	-	-	-	-	-	-	0.17
	Mr. Rajpaul S. Sharma	-	-	-	-	-	-	-	-	-	-	-	0.11
	Mrs. Ranjana Paranjape	-	-	-	-	-	-	-	-	0.09	0.05	-	-
	Mr. Abhay Pathak	-	-	-	-	-	-	-	-	0.16	0.02	-	-
	Mr. Amitabh Murarka	-	-	-	-	-	-	-	-	0.05	-	-	-

II. Related party balances

(Rs. in millions)

Sr. No.	Particulars	Sponsor and Project Manager				Fellow subsidaries of Project SPV Group				Key Management Personnel of Project SPV Group			
		Dec 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020	Dec 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020	Dec 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
1	**Short-term borrowings**	**477.81**	**477.81**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	IRB Infrastructure Developers Limited	477.81	477.81	-	-	-	-	-	-	-	-	-	-
2	**Trade payable**	**1,555.12**	**1,189.05**	**1,119.15**	**2,214.88**	**12,350.19**	**11,968.59**	**2,463.41**	**331.62**	**-**	**-**	**-**	**-**
	IRB Infrastructure Developers Limited	1,555.12	1,189.05	1,119.15	2,214.88	-	-	-	-	-	-	-	-
	Modern Road Makers Private Limited	-	-	-	-	12,277.09	11,888.28	2,463.41	331.62	-	-	-	-
	MMK Toll Road Private Limited	-	-	-	-	73.10	80.31	-	-	-	-	-	-
3	**Mobilisation advances**	**33.68**	**435.80**	**1,522.77**	**1,170.47**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	IRB Infrastructure Developers Limited	33.68	435.80	1,522.77	1170.47	-	-	-	-	-	-	-	-
4	**Advance given**	**451.18**	**502.86**	**102.14**	**2,025.00**	**0.03**	**0.03**	**1.17**	**1.39**	**-**	**-**	**-**	**-**
	IRB Infrastructure Developers Limited	451.18	502.86	102.14	2,025.00	-	-	-	-	-	-	-	-
	Modern Road Makers Private Limited	-	-	-	-	0.03	0.03	1.17	1.39	-	-	-	-
5	**Retention payable**	**-**	**-**	**-**	**-**	**265.53**	**256.49**	**190.35**	**182.85**	**-**	**-**	**-**	**-**
	Modern Road Makers Private Limited	-	-	-	-	265.53	256.49	190.35	182.85	-	-	-	-
6	**Other payable including BG margin payable**	**32,062.75**	**31,711.77**	**29,550.45**	**32,208.96**	**3,685.37**	**3,648.68**	**3,599.97**	**3,546.38**	**-**	**-**	**-**	**-**
	IRB Infrastructure Developers Limited	32,062.75	31,711.77	29,550.45	32,208.96	-	-	-	-	-	-	-	-
	Modern Road Makers Private Limited	-	-	-	-	1,800.83	1,800.83	1,800.83	1,795.95	-	-	-	-
	IRB Goa Tollway Private Limited	-	-	-	-	1,544.86	1,544.86	1,544.86	1,544.86	-	-	-	-
	Mhaiskar Infrastructure Private Limited	-	-	-	-	339.68	302.98	254.28	205.57	-	-	-	-
7	**Intangible asset under development**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1,795.95**	**-**	**-**	**-**	**-**
	Modern Road Makers Private Limited	-	-	-	-	-	-	-	1,795.95	-	-	-	-
8	**Unsecured Loan / other payable**	**4,872.91**	**3,607.93**	**4155.57**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	IRB Infrastructure Developers Limited	4,872.91	3,607.93	4155.57	-	-	-	-	-	-	-	-	-
9	**Trade Receivable**	**-**	**-**	**-**	**-**	**0.61**	**0.51**	**0.51**	**-**	**-**	**-**	**-**	**-**
	Modern Road Makers Private Limited	-	-	-	-	0.61	0.51	0.51	-	-	-	-	-
10	**BG margin money receivable**	**-**	**-**	**0.54**	**0.54**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	IRB Infrastructure Developers Limited	-	-	0.54	0.54	-	-	-	-	-	-	-	-
	Modern Road Makers Private Limited												

IRB Infrastructure Trust
Notes to Condensed Interim Special Purpose Consolidated / Combined Financial Statements

II. Related party balances

(Rs. in millions)

Sr. No.	Particulars	Sponsor and Project Manager				Fellow subsidaries of Project SPV Group				Key Management Personnel of Project SPV Group			
		Dec 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020	Dec 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020	Dec 31, 2022	March 31, 2022	March 31, 2021	March 31, 2020
11	**Expense payable**	**-**	**938.23**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	IRB Infrastructure Developers Limited	-	938.23	-	-	-	-	-	-	-	-	-	-
12	**Other payable (Exp incurred on our behalf)**	**1.77**	**1.77**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	IRB Infrastructure Developers Limited	1.77	1.77	-	-	-	-	-	-	-	-	-	-
13	**Director sitting fees Payable**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.47**	**0.43**	**0.28**	**0.65**
	Mr. Mukeshlal Gupta	-	-	-	-	-	-	-	-	-	-	-	0.06
	Mr. Dhananjay K. Joshi	-	-	-	-	-	-	-	-	-	-	-	0.04
	Mr. Ajay P. Deshmukh	-	-	-	-	-	-	-	-	-	-	-	0.08
	Mr. Rajendra kumar Agarwal	-	-	-	-	-	-	-	-	0.01	0.01	-	0.01
	Mrs. Aarti Taskar	-	-	-	-	-	-	-	-	0.02	-	-	0.06
	Mr. Darshan Sangurdekar	-	-	-	-	-	-	-	-	0.04	0.05	0.04	0.08
	Mr. Omprakash Singh	-	-	-	-	-	-	-	-	0.05	0.05	0.04	0.06
	Mr. Sudhir Hoshing	-	-	-	-	-	-	-	-	0.02	-	-	0.08
	Mr. Jitendra Sharma	-	-	-	-	-	-	-	-	-	0.09	0.09	0.02
	Mr. Rajpaul S. Sharma	-	-	-	-	-	-	-	-	-	-	-	0.04
	Mrs. Heena Raja	-	-	-	-	-	-	-	-	-	-	0.02	-
	Mr. C S Kaptan	-	-	-	-	-	-	-	-	0.10	0.11	0.08	-
	Mrs. Kshama Vengsarkar	-	-	-	-	-	-	-	-		-	-	0.06
	Miss Shilpa Todankar	-	-	-	-	-	-	-	-	0.13	0.09	0.01	-
	Mr. Naresh Taneja	-	-	-	-	-	-	-	-	-	-	-	0.02
	Mr. Anil D.Yadav	-	-	-	-	-	-	-	-	-	-	-	0.04
	Mrs. Ranjana Paranjape	-	-	-	-	-	-	-	-	0.03	0.03	-	-
	Mr. Abhay Phatak	-	-	-	-	-	-	-	-	0.06	-	-	-
	Mr. Amitabh Murarka	-	-	-	-	-	-	-	-	0.02	-	-	-

III Details in respect of related party transaction involving acquisition of InvIT assets are as under:

For the nine months period ended 31 December 2022:

Pursuant to the shareholders agreement dated April 07, 2022 , IRB Infrastructure Trust has acquired PDTPL from IRB Infrastructure Developers Limited

Summary of the valuation reports (issued by the independent valuer appointed under the InvIT Regulations) is as under:

Enterprise value of PDTPL as on December 31, 2021

Particulars	PDTPL
Enterprise value	439.56
Method of valuation	Discounted Cash Flow

(Rs in millions)

Note 38: Earnings Per Unit (EPU)

EPU amounts are calculated by dividing the profit for the period attributable to unit holders by the weighted average number of Units outstanding during the year/period.

The following reflects the income and share data used in the EPU computations:

	Dec 31, 2022	Dec 31, 2021	March 31, 2022	March 31, 2021	March 31, 2020
Profit attributable to unit holders for earnings	(1,435.72)	(3,251.20)	(4,435.98)	(3,252.48)	(312.75)
Weighted average number of Units for EPU	87,75,29,629	83,89,45,306	84,29,14,666	78,47,08,356	7,55,33,425
Face value per unit (in Rs)	100	100	100	100	100
Earning per unit (in Rs.)	(1.64)	(3.88)	(5.26)	(4.14)	(4.14)

Note : Earing per unit for March 31, 2020 has been calculated on consolidated profit for the month of March 20, as all the nine SPVs were transferred to Trust as on 28.02.2020

Note 39 : COVID-19

The outbreak of Coronavirus (COVID-19) pandemic globally and in India is causing significant disturbance and slowdown of economic activity. As per the directions of the Ministry of Road Transport & Highways (MoRTH)/ National Highway Authority of India (NHAI), in order to follow MHA guidelines about commercial and private establishment in the wake of COVID-19 epidemic in the country, operations at the toll plaza of the Group were closed down w.e.f. 26th March, 2020. The toll operations were resumed from 20th April, 2020 by ensuring compliance with preventive measures in terms of guidelines/ instructions issue by Govt. of India to contain spread of Covid -19. Due to this, traffic for the toll road has been impacted. Management believes this is temporary and expects traffic will be normalised looking at the recent toll collection. In accordance with the Concession Agreement and NHAI policy no. 8.3.33/2020 and 8.4.20/2020 dated 26th May, 2020, the Group is eligible for extension of concession period with NHAI towards loss of revenue due to COVID-19 pandemic and NHAI is also extending COVID-19 loan to the Concessionaire for shortfall in cashflow.

The management has assessed and determined that considering the nature of its operations and overall revenue model, COVID-19 does not have material impact on the Group's financial position as at March 31, 2022 and its financial performance for the year then ended.

Note 40 : Previous year comparatives

Consequent to the issuance of " Guidance Note on Division II – Ind AS Schedule III to the Companies Act, 2013" certain items of financial statements have been regouped/ reclassified.

As per our report of even date
For Gokhale & Sathe
Chartered Accountants
ICAI registration number: 103264W

For and on behalf of the Board of Directors of
MMK Toll Road Private Limited
(As Investment Manager to IRB Infrastructure Trust)
CIN : U45200MH2002PTC135512

SD/-
Kaustubh Deshpande
Partner
Membership No. 121011

SD/-
Virendra D. Mhaiskar
Chairman
DIN :00183554

SD/-
Dhananjay K. Joshi
Chief Executive officer

SD/-
Shilpa Todankar
Chief Financial Officer

SD/-
Kaustubh Shevade
Company Secretary

Place: Mumbai
Date: 22/03/2023

Place : Mumbai
Date: 22/03/2023

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MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Readers should read the following discussion and analysis of the Trust's financial condition and results of operations together with the sections "Summary Financial Information" and "Financial Statements" on pages 35 and 243, respectively. This discussion contains forward-looking statements and involves numerous risks and uncertainties, including, but not limited to, those described in the section "Risk Factors" on page 10. Actual results could differ materially from those contained in any forward-looking statements and for further details regarding forward-looking statements, refer to "Forward-Looking Statements" on page 8.

This Disclosure Document includes Special Purpose Consolidated / Combined Financial Information for the Trust and the Project SPVs as at and for the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years 2022, 2021 and 2020. The Project SPVs (except PDTPL) were transferred to the Trust on February 25, 2020 by the Sponsor pursuant to the Formation Transactions undertaken as part of the initial offer through private placement of Units. PDTPL was acquired by the Trust on April 2, 2022. The effective date for consolidation of the Project SPVs (except PDTPL) was March 1, 2020 and for PDTPL was April 2, 2022. Consolidated financial information has been included for the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years 2022 and 2021. The financial information for Financial Year 2020 includes consolidated financial information for the one-month period ended March 31, 2020 and combined financial information for the 11 month period from April 1, 2019 to February 29, 2020.

The following discussion includes a discussion and analysis of the financial condition and results of operations of the Trust and the Project SPVs (i) on a consolidated basis as at and for the nine-month periods ended December 31, 2022 and December 31, 2021; (ii) on a consolidated basis as at and for the Financial Years ended March 31, 2022 and March 31, 2021; and (iii) on a consolidated and combined basis as at and for the Financial Year ended March 31, 2020. Ind AS differs in certain material respects from Indian GAAP, IFRS and U.S. GAAP. Accordingly, the degree to which our financial statements will provide meaningful information to a prospective investor in countries other than India is entirely dependent on the reader's level of familiarity with Ind AS.

The Project SPVs' financial year ends on March 31 of each year. Accordingly, all references to a particular financial year are to the 12-month period ended March 31 of such year.

Overview

The Trust is a registered infrastructure investment trust under the InvIT Regulations. The Portfolio of the Trust comprises 10 toll-road assets in the states of West Bengal, Haryana, Uttar Pradesh, Rajasthan, Gujarat, Goa, Maharashtra and Karnataka in India. These toll roads are operated and maintained pursuant to concessions awarded by the NHAI.

The Trust has acquired the Portfolio comprised of the Project SPVs from the Sponsor and in the case of PDTPL, holds the Project SPV together with the Sponsor. Each of the Project SPVs is an eligible infrastructure project as defined under the InvIT Regulations. As of December 31, 2022, the Project SPVs owned the following toll road assets comprising 6,275 Lane Kilometers of highway:

- The Agra - Etawah NH-2 Project: A 124.52 km section of NH-2 between Agra and Etawah Bypass in Uttar Pradesh which is held by AETL;

- The Gulabpura - Chittorgarh NH-79 Project: A 124.87 km section of NH-79 between Gulabpura and Chittorgarh Bypass in Rajasthan which is held by CGTL;

- The Hapur - Moradabad NH-9 Project: A 99.867 km section of NH-9 between Hapur and Moradabad in Uttar Pradesh which is held by IRB HMTL;

- The Goa - Kundapur NH-17Project: A 187.28 km section of NH-17 between Goa/Karnataka border and Kundapur in Karnataka which is held by IRB WTL;

- The Kishangarh - Gulabpura NH-79/79A Project: A 90.00 km section of NH-79/79A between Kishangarh and Gulabpura in Rajasthan which is held by KGTL;

- The Kaithal - Rajasthan Border NH-152/65 Project: A 166.259 km section of NH-152/65 between Kaithal and Rajasthan Border in Haryana which is held by KTL;

- The Solapur - Yedeshi NH-211 Project: A 98.717 km section of NH-211 between Solapur and Yedeshi in Maharashtra which is held by SYTL;

- The Udaipur - Rajasthan Border NH-8 Project: A 113.80 km section of NH-8 between Udaipur and Rajasthan Border in Rajasthan and Gujarat which is held by UTL;

- The Yedeshi - Aurangabad NH-211 Project: A 189.09 km section of NH-211 between Yedeshi and Aurangabad in Maharashtra which is held by YATL; and

- The Palsit – Dankuni NH-19 Project: A 63.83 km section of NH-19 between Palsit and Dankuni in West Bengal which is held by PDTPL.

The map set out below depicts the location of the Portfolio:

The Sponsor of the Trust is IRB Infrastructure Developers Limited, one of the largest infrastructure development and construction companies in India in terms of net worth in the roads and highways sector according to the NHAI's annual prequalification for public private partnerships in national highway projects report for 2016. The Sponsor has been listed on the Stock Exchanges since 2008. As at December 31, 2022, the Sponsor had six road projects of which two were operational and four were under-construction or awaiting appointed date. The Sponsor also acts as the Project Manager. For further details, see "*The Sponsor and Project Manager*" on page 226.

The Investment Manager of the Trust is MMK Toll Road Private Limited. The Investment Manager has experience in operating a road project for a period of 13 years. 51% of the equity share capital in the Investment Manager is held by the Sponsor and 49% of the equity share capital of the Investment Manager is held by Croxley. For further details, see "*The Investment Manager*" and "*Corporate Governance*" on pages 229 and 111, respectively.

The Trustee of the Trust is IDBI Trusteeship Services Limited. The Trustee is registered with the SEBI as a debenture trustee under the Debenture Trustees Regulations. For further details, see "*The Trustee*" on page 235.

Update in relation to COVID-19

The outbreak and continuing spread of the COVID-19 pandemic globally and in India caused significant disturbance and slowdown of economic activity. Operations at all toll plazas of the Project SPVs had been closed down with effect from March 26, 2020 until midnight on April 19, 2020. This was done as per the directives issued by MoRTH / NHAI, in accordance with the MHA guidelines about commercial and private establishment in the wake of COVID-19 pandemic. The Project SPVs commenced collection of user fee at all toll plazas on National Highways with effect from April 20, 2020 as per the directives issued by NHAI and by ensuring compliance with preventive measures in terms of guidelines/ instructions issued by the Government of India to contain spread of COVID-19. Further, construction activities were also resumed gradually in the phased manner. For further details in relation to extension of concession period and payment of concession fee / premium, see the section "*Regulations and Policies*" on page 197.

There was a second wave of the pandemic in India April 2021 onwards. From the second fortnight of April 2021, various State Governments imposed restrictions on travel, which has led to a decline in our toll collections since such period. Please note that under the concession agreements, the Project SPVs are entitled to an extension of the concession period if actual average traffic falls below the target traffic set out in the agreements. For details, see "*Business – Details of the Project SPVs and the Portfolio*" and "*Summary of the Concession Agreements*" on pages 89 and 117, respectively.

The NHAI has offered an extension of concession period by three to six months to compensate for reduced revenue due to the COVID-19 lockdown. Certain Project SPVs have applied to the NHAI for appropriate relief (including extension of the concession period) and compensation as per the respective concession agreements for the time period during which the relevant projects have been impacted by COVID-19.

Also see "*Risk Factors – The outbreak and continuing spread of COVID-19 has had, and could further have, a material adverse effect on our business, financial condition and results of operations.*" on page 10.

Factors affecting Results of Operations

Our business and results of operations have been affected and will continue to be affected in future by a number of important factors, including:

The terms of the concession agreements and traffic volumes

BOT and DBFOT projects restrict the Project SPVs' operational and financial flexibility. Toll fees are typically pre-determined with the relevant government entity and cannot be modified to reflect prevailing circumstances, other than annual adjustments to account for inflation as specified in the concession agreements. Accordingly, a Project SPV's profitability is largely a function of how effectively it manages costs during the concession period. Significant costs during the concession period include construction costs and operating and maintenance expenses such as periodic maintenance, which is required to be performed as specified in the concession agreement. Periodic maintenance involves the repair of wear and tear of the roads and highways, including overlaying the surface of the roads and highways, if required. The Project Manager has agreed to provide the remaining portion of construction works for the Project SPVs and operations and maintenance works for all the Project SPVs for an initial period of 10 years on a fixed-fee basis.

The Project SPVs are substantially dependent on the accuracy of the traffic volume forecasts for their respective projects. Projects undertaken on a BOT or DBFOT basis involve concession agreements that are long-term in nature, usually between 15 to 30 years. The agreed consideration for each of the Project SPVs' projects project was based on forecasts of traffic volumes and expected revenues over the concession period. Any material shortfall between the actual traffic volume and the forecast traffic volume for a project could have a material adverse effect on their cash flows, results of operations and financial condition.

The Project SPVs' projects involve agreements that are long-term in nature. All long-term projects have inherent risks associated with them and involve variables that may not necessarily be within the Project SPVs' control. Accordingly, we may be exposed to a variety of construction, operation and maintenance and other risks, including unanticipated cost increases and overruns, inability to negotiate satisfactory arrangements with service providers and disagreements with service providers. In addition, the long-term nature of the Project SPVs' contracts may expose them to increased risk of unforeseen business and industry changes and developments which could have a material adverse effect on their business, financial condition and results of operations.

General economic and political conditions in India and the level of investment and activity in the infrastructure development sector

The Project SPVs derive their revenue from their toll-road operations. Demand for toll roads is primarily dependent on sustained economic development in the regions that they operate in and government policies relating to infrastructure development. It is also significantly dependent on budgetary allocations made by the Government of India and the State Governments for the roads and highways sector, as well as funding provided by international and multilateral development finance institutions for infrastructure projects. Investment by the private sector in infrastructure projects is dependent on the potential returns from such projects and is, therefore, linked to Government and State Government policies relating to private sector participation and sharing of risks and returns from such projects.

We believe that the Government's and State Governments' focus on, and sustained increases in budgetary allocation for, infrastructure, and the development of comprehensive infrastructure policies that encourage greater private sector participation and funding for infrastructure projects should further result in large infrastructure projects in India. We believe that we are likely to benefit from the Government and State Governments making infrastructure development a policy priority, which may lead to corresponding significant investment in the roads and highways sector. Since the Project SPVs focus on the roads and highways sector, macroeconomic factors in India relating to this sector will have a significant impact on their prospects and results of operations. As the roads and highways sector is driven by increases in agriculture and manufacturing, any slowdown or perceived slowdown in the Indian economy, or in specific sectors of the Indian economy, could materially and adversely impact the Project SPVs' business and financial performance.

Project SPVs may be unable to collect tolls due to political protests or other agitations relating to tolling. For instance, due to a protest against certain agricultural laws in India, tolling for the Kaithal – Rajasthan project operated by KTL was halted from December 5, 2020 and resumed on December 16, 2021. The Project SPV has informed NHAI of this event and expects to receive compensation under the *force majeure* clause of the relevant Concession Agreement, which provides for the receipt of 50% of the O&M and interest costs as reimbursement in cash and an extension in concession period to compensate for revenue loss during the toll suspension period.

See " *– Update in relation to COVID-19*" for details of the impact of COVID-19 on our business and results of operations.

Competition

The Trust and the Project SPVs operate in a competitive environment. The competition for toll road and other infrastructure projects varies depending on the size, nature and complexity of the project and on the geographical region in which the project is to be executed. Some of their competitors may have greater financial resources, economies of scale and operating efficiencies than the Trust or the Project SPVs do. There can be no assurance that they can effectively compete with their competitors in the future, and this failure to compete effectively may have a material adverse effect on the Trust's financial condition and results of operations.

Significant Accounting Policies

The preparation of financial statements in conformity with Ind AS, applicable accounting standards and the Companies Act requires our management to make judgments, estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent liabilities at the date of the financial statements and the results of operations during the reporting period end. By their nature, these judgments are subject to a degree of uncertainty. Although these estimates are based upon management's best knowledge of current events and actions, actual results could differ from these estimates.

While all aspects of the Project SPVs Consolidated / Combined Financial Information should be read and understood in assessing their current and expected financial condition and results, we believe that the following critical accounting policies warrant particular attention:

Intangible assets

As permitted under Ind AS, the group has elected to continue with the carrying value of its toll collection rights (which form part of its intangible assets), as recognised in the financial statements as at the date of transition to Ind AS and measured as per the previous GAAP.

Intangible assets acquired separately are measured on initial recognition at cost. Following initial recognition, intangible assets are carried at cost less any accumulated amortisation and accumulated impairment losses. Internally generated intangibles, excluding capitalised development costs, are not capitalised and the related expenditure is reflected in statement of profit or loss in the period in which the expenditure is incurred.

Toll Collection Rights

Toll collection rights including premium to NHAI are stated at cost, net of accumulated amortisation and impairment losses. Cost includes toll collection rights awarded by the grantor against construction service rendered by the Project SPV on a DBFOT basis - direct and indirect expenses on construction of roads, bridges, culverts, infrastructure and other assets at the toll plazas.

In case of four to six laning projects, where toll collections commence from the Appointed Date, the Project SPV is obligated to incur project cost over the construction period. Accordingly, liability towards entire amount payable towards project cost recognised and shown under 'Obligation for Construction' and the corresponding amount is shown as 'Toll Collection Rights' under the head Intangible Assets.

Toll collection rights are amortised over the period of the concession, using revenue based amortisation as per the exemption provided in Ind AS 101. Under this method, the carrying value of the rights is amortised in the proportion of actual toll revenue for the year to projected revenue for the balance toll period, to reflect the pattern in which the asset's economic benefits will be consumed. At each balance sheet date, the projected revenue for the balance toll period is reviewed by the management. If there is any change in the projected revenue from previous estimates, the amortisation of toll collection rights is changed prospectively to reflect any changes in the estimates.

Intangible assets are assessed for impairment whenever there is an indication that the intangible asset may be impaired.

Amortisation of toll equipments

Toll equipments are amortized on a straight line basis over the estimated useful economic life not exceeding seven years.

Provisions

Provisions are recognised when the group has a present obligation (legal or constructive) as a result of a past event, and it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation. When the Group expects some or all of a provision to be reimbursed, for example, under an insurance contract, the reimbursement is recognised as a separate asset, but only when the reimbursement is virtually certain. The expense relating to a provision is presented in the statement of profit and loss net of any reimbursement.

If the effect of the time value of money is material, provisions are discounted using a current pre-tax rate that reflects, when appropriate, the risks specific to the liability. When discounting is used, the increase in the provision due to the passage of time is recognised as a finance cost.

Principal components of Income and Expenses

Income

Our total income comprises (i) revenue from operations and (ii) other income.

Revenue from operations

Revenue from operations comprises (i) contract revenue (road construction); (ii) income arising out of toll collection (net); (iii) adjustments due to revenue share to NHAI on account of Fastag; and (iv) other operating revenue.

During the construction period of a project, the NHAI may ask the Project SPVs to carry out utility shifting work (which is incidental to the construction of the toll road and typically involves the shifting of utilities that are located at the construction site) or may award the Project SPVs additional scope of work, which is separately paid by the NHAI. Revenue from such utility shifting or change in scope contract, among others, also forms part of the Project SPVs' contract revenue. Note that contract revenue is typically incurred during the initial construction period of a project and is not recurring in nature.

The following table provides a breakdown of revenue from operations for the periods indicated:

Revenue from Operations	**Nine-month period ended December 31, 2022***		**Nine-month period ended December 31, 2021***		**Financial Year 2022***		**Financial Year 2021***		**Financial Year 2020****	
	Amount (in ₹ million)	***% of Total Revenue from Operations***	***Amount (in ₹ million)***	***% of Total Revenue from Operations***	***Amount (in ₹ million)***	***% of Total Revenue from Operations***	***Amount (in ₹ million)***	***% of Total Revenue from Operations***	***Amount (in ₹ million)***	***% of Total Revenue from Operations***
Contract revenue (road construction)	8,444.95	42.44	841.33	8.91	1,054.48	8.50	1,863.70	17.99	3,854.01	33.08
Income arising out of toll collection (net)	11,597.34	58.29	7,795.41	82.59	10,598.07	85.43	8,549.77	82.51	7,795.11	66.92
Revenue share to NHAI - FASTag	(145.85)	(0.73)	(162.82)	(1.72)	(212.87)	(1.72)	(51.97)	(0.50)	-	
Other operating revenue	0.23	0.00	965.16	10.22	965.16	7.78	-	-	-	-
Total	**19,896.67**	**100.00**	**9,439.09**	**100.00**	**12,404.84**	**100**	**10,361.51**	**100**	**11,649.12**	**100**

**On a consolidated basis*
***Please note that the financial information for the Financial Year 2020 has been prepared on a consolidated basis for the one-month period ended March 31, 2020 and on a combined basis for the 11-month period from April 1, 2019 to February 29, 2020 and is shown as a single period for purposes of presentation and convenience only.*

Other income

The key components of other income are interest income on bank deposits, dividend income on other investments, profit on sale of investments, fair value gain on mutual funds and other non-operating income.

The following table provides a breakdown of other income for the periods indicated:

Other income	**Nine-month period ended December 31, 2022***	**Nine-month period ended December 31, 2021***	**Financial Year 2022***	**Financial Year 2021***	**Financial Year 2020****
Interest income on					
- Bank deposits	104.16	50.69	73.64	74.46	114.37
- Others	6.37	7.97	8.05	7.59	1.27
Dividend income on:					
Profit on sale of investments	42.12	9.15	13.93	13.08	34.11

Fair value gain on mutual funds	7.32	(0.54)	0.78	1.43	(0.01)
Other non-operating income	1.35	3.44	3.73	13.28	30.81
Gain/(loss) on fair value measurement of other payable	-	-	-	2.86	-
Total	**161.32**	**70.72**	**100.13**	**112.71**	**180.55**

**On a consolidated basis*

****Please note that the financial information for the Financial Year 2020 has been prepared on a consolidated basis for the one-month period ended March 31, 2020 and on a combined basis for the 11-month period from April 1, 2019 to February 29, 2020 and is shown as a single period for purposes of presentation and convenience only.*

Expenses

Our expenses primarily consist of the following:

- cost of material consumed, which comprise material consumed to carry out utility shifting work;
- road work and site expenses, which comprise contract expenses in relation to utility shifting or change in scope contracts, site and other direct expenses, sub-contracting/security expenses and technical consultancy and supervision charges;
- employee benefits expenses, which comprise salaries, wages and bonus, contribution to provident and other funds, leave encashment, gratuity expenses and staff welfare expenses;
- depreciation and amortization expenses, which comprise depreciation on property, plant and equipment and amortization on intangible assets;
- finance costs, which primarily comprise interest expenses on loans availed from banks/financial institutions and other borrowing costs which include amortization of transaction costs;
- Investment Manager fees; and
- other expenses, which comprise various administration costs such as power and fuel costs, rent, rates and taxes, water charges, repairs and maintenance, travel and conveyance expenses, vehicle expenses, printing and stationery expenses, sitting fees for directors, legal and professional expenses, payments to the auditors, bank charges, insurance and other miscellaneous expenses.

Results of Operations

The financial information for the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years 2022 and 2021 has been prepared on a consolidated basis. Further, the financial information for the Financial Year 2020 has been prepared on a consolidated basis for the one-month period ended March 31, 2020 and on a combined basis for the 11-month period from April 1, 2019 to February 29, 2020 and is shown as a single period for purposes of presentation and convenience only. Combined financial information is prepared in accordance with the the Guidance Note on Combined and Carve Out Financial Statements issued by the Institute of Chartered Accountants of India ("**Guidance Note**") and in accordance with the Indian Accounting Standards as notified under Section 133 of the Companies Act, 2013, read together with Companies (Indian Accounting Standards) Rules, 2015, as amended ("**Ind AS**") and the InvIT Regulations. Consolidated financial information is prepared in accordance with Ind AS and the provisions of the InvIT Regulations.

Accordingly, our results of operations for the Financial Year 2021 are not comparable to our results of operations for the Financial Year 2020 and the results for such period have been discussed below separately.

Special Purpose Consolidated Financial Information

This section discusses our results of operations for the nine-month periods ended December 31, 2022 and December 31, 2021 and the Financial Years 2022 and 2021 on the basis of our Special Purpose Consolidated / Combined Financial Information.

The Project SPVs (other than PDTPL) were transferred to the Trust on February 25, 2020 by the Sponsor pursuant to the Formation Transactions undertaken as part of the initial offer through private placement of Units. The effective date for consolidation was March 1, 2020. Accordingly, our results of operations for the Financial Year 2021 are not comparable to our results of operations for the Financial Year 2020 and the results for such period have been discussed below separately. Additionally, the historical results presented below are not necessarily indicative of the results that may be expected for any future period. For additional information, see "*Financial Statements*" on page 243.

Nine-month period ended December 31, 2022 compared to nine-month period ended December 31, 2021

The table below sets forth certain data from the Special Purpose Consolidated / Combined Financial Information for nine-month periods ended December 31, 2022 and December 31, 2021.

Particulars	**Nine-month period ended December 31, 2022*** *Amount (in ₹ million)*	**Nine-month period ended December 31, 2021*** *Amount (in ₹ million)*
Income		
Revenue from operations	19,896.67	9,439.09
Other income	161.32	70.72
Total income	**20,057.99**	**9,509.81**
Expenses		
Road work and site expenses	11,302.66	3,035.23
Depreciation and amortization expenses	1,958.56	1,167.18
Finance costs	7,688.90	7,069.59
Investment Manager Fees	42.39	30.57
Other expenses	595.49	1,969.21
Total expenses	**21,588.00**	**13,271.78**
Profit before tax	**(1,530.02)**	**(3,761.97)**
Tax expenses		
Current tax	351.25	0.38
Deferred tax	(445.56)	(511.15)
Total tax expenses	**(94.30)**	**(510.77)**
Profit after tax	**(1,435.72)**	**(3,251.20)**
Other comprehensive income		
Item that will not be reclassified to profit or loss: (a) re-measurement (loss)/gain on defined benefit plans (net of taxes)	-	-
Other comprehensive (loss) for the period/year, net of tax	**-**	**-**
Total comprehensive income for the period/year	**(1,435.72)**	**(3,251.20)**

**On a consolidated basis*

Total income

The total income of the Project SPVs increased to ₹20,057.99 million in the nine-month period ended December 31, 2022 from ₹9,509.81 million in the nine-month period ended December 31, 2021. This increase in total income was primarily due to an increase in contract revenue from road construction and toll revenue.

Revenue from operations

The revenue from operations of the Project SPVs increased to ₹19,896.67 million in the nine-month period ended December 31, 2022 from ₹9,439.09 million in the nine-month period ended December 31, 2021, primarily due to increase in toll collection upon issuance of completion certificates for IRB HMTL and KGTL on July 1, 2022 and

July 20, 2022 respectively, which lead to hike in tariff for these projects. Further, PDTPL was added to the Trust's portfolio from April 2, 2022.

The contract revenue (road construction) increased to ₹8,444.95 million in the nine-month period ended December 31, 2022 from ₹841.33 million in the nine-month period ended December 31, 2021 due to commencement of construction activities by PDTPL . The income arising out of toll collection (net) increased to ₹11,451.48 million in the nine-month period ended December 31, 2022 from ₹7,632.60 million in the nine-month period ended December 31, 2021. Other operating revenue decreased to ₹0.23 million in the nine-month period ended December 31, 2022 from ₹965.16 million in the nine-month period ended December 31, 2021, primarily because claim amounts were received from the NHAI by KTL and AETL during the nine-month period ended December 31, 2021 as compensation for the inability to collect toll because of protests against the farm laws on such project highways and no such amounts were received during the nine-month period ended December 31, 2022. The revenue from operations of the Project SPVs were reduced on account of revenue sharing with the NHAI for FASTag by ₹145.85 million in the nine-month period ended December 31, 2022, compared to a reduction of ₹162.82 million in the nine-month period ended December 31, 2021.

Other income

The other income of the Project SPVs increased to ₹161.32 million in the nine-month period ended December 31, 2022 from ₹70.72 million in the nine-month period ended December 31, 2021. This decrease was primarily due to a decrease in the non-operating income.

Total expenses

The total expenses of the Project SPVs increased to ₹21,588.00 million in the nine-month period ended December 31, 2022 from ₹13,271.78 million in the nine-month period ended December 31, 2021. This increase was primarily due to an increase in road work and site expenses, depreciation and amortization expenses, finance costs and investment manager fees.

Road work and site expenses

Road work and site expenses increased to ₹11,302.66 million in the nine-month period ended December 31, 2022 from ₹3,035.23 million in the nine-month period ended December 31, 2021. This increase was primarily due to increase in contract expenses. Contract expenses increased to ₹8,188.85 million in the nine-month period ended December 31, 2022 from ₹832.19 million in the nine-month period ended December 31, 2021 due to commencement of construction activities in PDTPL. Operation and maintenance expenses increased to ₹3,069.20 million in the nine-month period ended December 31, 2022 from ₹2,157.60 million in the nine-month period ended December 31, 2021 due to resurfacing expenses upon receipt of completion certificates of IRB HMTL and KGTL, and maintenance related expenses in IRB WTL. Technical consultancy and supervision charges amounting to ₹44.26 million were paid during the nine-month period ended December 31, 2022 as against ₹45.10 million paid during the nine-month period ended December 31, 2022. The Project SPVs did not incur any site and other direct expenses during the nine-month periods ended December 31, 2022 and December 31, 2021. Sub-contracting/security expenses decreased to ₹0.35 million in the nine-month period ended December 31, 2022 from ₹0.36 million in the nine-month period ended December 31, 2021.

Depreciation and amortization expenses

Depreciation and amortization expenses increased to ₹1,958.56 million in the nine-month period ended December 31, 2022 from ₹1,167.18 million in the nine-month period ended December 31, 2021. Amortization expenses are directly proportionate to toll revenue. Increase in amortization expenses during the nine-month period ended December 31, 2022 was primarily attributable to increase in toll collection upon issuance of completion certificates for IRB HMTL and KGTL on July 1, 2022 and July 20, 2022 respectively, which lead to hike in tariff for these projects. Further, PDTPL was added to the Trust's portfolio from April 2, 2022.

Finance costs

Finance costs increased to ₹7,688.90 million in the nine-month period ended December 31, 2022 from ₹7,069.59 million in the nine-month period ended December 31, 2021. This increase was primarily due to loan disbursements from banks/financial institutions for projects under construction.

Investment Manager fees

Investment Manager fees stood at ₹42.39 million in the nine-month period ended December 31, 2022 as against ₹30.57 million during the nine - month period ended December 31, 2021.

Other expenses

Other expenses decreased to ₹595.49 million in the nine-month period ended December 31, 2022 from ₹1,969.21 million in the nine-month period ended December 31, 2021. Other expenses for the nine-month period ended December 31, 2021 mainly comprised fair valuation of claim receivable from the NHAI, on the basis of which liability towards 'Payable – IRB' is determined in the Trust's financial statements. During the nine-month period ended December 31, 2021, the Trust group had filed claims in relation to a project with the NHAI. On actualization of claims in fair valuation working, there was a fair value loss of ₹1,764.21 million. During the nine-month period ended December 31, 2022, the fair value loss stood at ₹356.63 million, leading to a decrease in other expenses.

Profit/(loss) before tax

As a result of the factors discussed above, the loss before tax decreased to ₹(1,530.02) million in the nine-month period ended December 31, 2022 from loss of ₹(3,761.97) million in the nine-month period ended December 31, 2021.

Tax expenses

The Trust Group recorded deferred tax of ₹(445.56) million in the nine-month period ended December 31, 2022 compared to ₹(511.15) million in the nine-month period ended December 31, 2021. Accordingly, the total tax expenses of the Trust Group decreased to ₹(94.30) million in the nine-month period ended December 31, 2022 from ₹(510.77) million in the nine-month period ended December 31, 2021.

Profit/(loss) after tax

The loss after tax of the Group decreased to ₹(1,435.72) million in the nine-month ended December 31, 2022 as compared to (loss) of ₹(3,251.20) million in the nine-month ended December 31, 2021. This increase was primarily due to an increase in the contract revenue (road construction) and income arising out of toll collection (net).

Total comprehensive income/(loss) for the period

The total comprehensive loss decreased to ₹(1,435.72) million in the nine-month period ended December 31, 2022 from ₹(3,251.20) million in the nine-month period ended December 31, 2021.

Financial Year 2022 compared to Financial Year 2021

The table below sets forth certain data from the Special Purpose Consolidated / Combined Financial Information for the Financial Years 2022 and 2021.

Particulars	Financial Year 2022* Amount (in ₹ million)	Financial Year 2021* Amount (in ₹ million)
Income		
Revenue from operations	12,404.84	10,361.51
Other income	100.13	112.71
Total income	**12,504.97**	**10,474.22**
Expenses		
Road work and site expenses	3,989.80	3,983.41
Depreciation and amortization expenses	1,674.90	1,255.69
Finance costs	9,538.70	8,228.17

Particulars	Financial Year 2022* Amount (in ₹ million)	Financial Year 2021* Amount (in ₹ million)
Investment Manager Fees	42.48	46.25
Other expenses	2,406.43	138.32
Total expenses	**17,652.31**	**13,651.84**
Profit/(loss) before tax	**(5,147.34)**	**(3,177.62)**
Tax expenses		
Current tax	8.87	46.20
Deferred tax	(720.23)	369.63
MAT Credit utilisation / (Entitlement)	-	(340.97)
Total tax expenses	**(711.36)**	**74.86**
Profit/(loss) after tax	**(4,435.98)**	**(3,252.48)**
Other comprehensive income		
Item that will not be reclassified to profit or loss: (a) re-measurement (loss)/gain on defined benefit plans (net of taxes)	-	-
Other comprehensive (loss) for the period/year, net of tax	**-**	**-**
Total comprehensive income for the period/year	**(4,435.98)**	**(3,252.48)**

**On a consolidated basis*

Total income

Our total income increased to ₹12,504.97 million in the Financial Year 2022 from ₹10,474.22 million in the Financial Year 2021. Our revenue from operations increased to ₹12,404.81 million in the Financial Year 2022 from ₹10,361.51 million in the Financial Year 2021. Contract revenue (road construction) decreased to ₹1,054.48 million in Financial Year 2022 from ₹1,863.70 million in the Financial Year 2021, primarily due to decrease in utility shifting works . Our income arising out of toll collection (net) increased to ₹10,385.20 million in the Financial Year 2022 from ₹8,497.81 million in Financial Year 2021, primarily due to increase in toll collection upon receipt of completion certificates for UTL and CGTL on May 31, 2021 and August 14, 2021, respectively, which lead to hike in tariff for these projects .

Expenses

Our total expenses increased to ₹17,652.31 million in Financial Year 2022 from ₹13,651.84 million in Financial Year 2021, primarily due to increase in depreciation and amortisation expenses, finance cost and other expenses.

Finance costs

Finance costs increased to ₹9,538.70 million in Financial Year 2022 from ₹8,228.17 million in Financial Year 2021 due to loans availed from banks and financial institutions for projects under construction.

Road work and site expenses

Road work and site expenses were ₹3,989.80 million in the Financial Year 2022, compared to ₹3,983.41 million in the Financial Year 2021.

Depreciation and amortization expenses

Depreciation and amortization expenses increased to ₹1,674.90 million in the Financial Year 2022 from ₹1,255.69 million in the Financial Year 2021, primarily due to increase in toll collection upon issuance of completion certificates for UTL and CGTL on May 31, 2021 and August 14, 2021, respectively, which lead to hike in tariff for these projects.

Investment manager fees

Investment Manager fees stood at ₹42.48 million in the Financial Year 2022 as against ₹46.25 million in the Financial Year 2021.

Other expenses

Other expenses increased to ₹2,406.43 million in the Financial Year 2022 from ₹138.32 million in the Financial Year 2021. The increase was on account of fair valuation of claim receivable from the NHAI, on the basis of which liability towards 'Payable – IRB' is determined in the Trust's financial statements. During the nine-month period ended December 31, 2021, the Trust group had filed claims in relation to a project with the NHAI. On actualization of claims in fair valuation working, there was a fair value loss ₹2,161.31 million.

Profit/(loss) before tax

As a result of the factors discussed above, the profit/(loss) before tax decreased to ₹(5,147.34) million in the Financial Year 2022 from ₹(3,177.62) million in the Financial Year 2021.

Tax expenses

The Trust Group recorded deferred tax of ₹(720.23) million in the Financial Year 2022 compared to deferred tax expenses of ₹369.63 million in the Financial Year 2021. Accordingly, the total tax expenses of the Trust Group decreased to ₹(711.36) million in the Financial Year 2022 compared to ₹74.86 million in the Financial Year 2021.

Profit/ (loss) after tax

The profit/(loss) after tax decreased to ₹(4,435.98) million in the Financial Year 2022 as compared to a loss of ₹(3,252.48) million in the Financial Year 2021. The decrease was primarily due to an increase in the finance costs, amortization expenses and other expenses, which includes loss on account of fair valuation of claim lodged with the NHAI.

Total comprehensive income/(loss) for the period

The total comprehensive income/(loss) decreased to ₹(4,435.98) million in the Financial Year 2022 from ₹(3,252.48) million in the Financial Year 2021.

Financial Year 2021 and Financial Year 2020

As discussed above, the financial information for, *inter-alia*, the Financial Years 2021 has been prepared on a consolidated basis. Further, the financial information for the Financial Year 2020 has been prepared on a consolidated basis for the one-month period ended March 31, 2020 and on a combined basis for the 11-month period from April 1, 2019 to February 29, 2020 and is shown as a single period for purposes of presentation and convenience only. Combined financial information is prepared in accordance with the Guidance Note on Combined and Carve Out Financial Statements issued by the Institute of Chartered Accountants of India (the Guidance Note) and in accordance with Ind AS and the InvIT Regulations. Consolidated financial information is prepared in accordance with Ind AS and the provisions of the InvIT Regulations.

Accordingly, our results of operations for the Financial Year 2021 are not comparable to our results of operations for the Financial Year 2020 and the results for such period have been discussed below separately.

However, please note the following:

- Contract revenue (road construction) decreased to ₹1,863.70 million in Financial Year 2021 (on a consolidated basis) from ₹3,854.01 million in the Financial Year 2020 (on a consolidated basis for the one-month period ended March 31, 2020 and on a combined basis for the 11-month period from April 1, 2019 to February 29, 2020), primarily due to decrease in utility shifting works.

- Our income arising out of toll collection (net) increased to ₹8,549.77 million in the Financial Year 2021 (on a consolidated basis) from ₹7,795.11 million in Financial Year 2020 on a consolidated basis for the one-month period ended March 31, 2020 and on a combined basis for the 11-month period from April 1, 2019 to

February 29, 2020) mainly on account of receipt of provisional completion certificate in IRB WTL in Jan 2020. Toll collection during the Financial Year 2021 was impacted because of COVID-19.

- Other income decreased to ₹112.71 million in the Financial Year 2021 (on a consolidated basis) from ₹180.55 million during the Financial Year 2020 (on a consolidated basis for the one-month period ended March 31, 2020 and on a combined basis for the 11-month period from April 1, 2019 to February 29, 2020), primarily due to a decrease in interest income on bank deposits. After the transfer of the Project SPVs (except PDTPL) to the Trust during the Financial Year 2020, senior debt aggregating to approximately ₹30,000.00 million was deleveraged in certain Project SPVs. This led to reduction in requirement of debt service reserve account requirements in the form of fixed deposits leading to lower interest income in Financial Year 2021.

Special Purpose Combined and Consolidated Financial Information

This section discusses the results of operations of the Project SPVs for Financial Year 2020 on the basis of the Special Purpose Combined / Consolidated Financial Statements.

The Project SPVs (other than PDTPL) were transferred to the Trust on February 25, 2020 by the Sponsor pursuant to the Formation Transactions undertaken as part of the initial offer through private placement of Units. The effective date for consolidation was March 1, 2020. Please note that the financial information for the Financial Year 2020 has been prepared on a consolidated basis for the one-month period ended March 31, 2020 and on a combined basis for the 11-month period from April 1, 2019 to February 29, 2020 and is shown as a single period for purposes of presentation and convenience only. Additionally, the financial results presented below are not necessarily indicative of the results that may be expected for any future period. For additional information, see "*Financial Statements*" on page 243.

Please note that each of the Project SPVs commenced tolling operations at different times during the last three Financial Years. Further, interest cost for projects for which construction has not been completed has been capitalized. Accordingly, our results of operations as extracted from the Special Purpose Combined Financial Information and set out below are not indicative of our future performance. Also see "*Risk Factors – We have a limited operating history and may not be able to operate our business successfully or generate sufficient cash flows to make or sustain distributions. The Special Purpose Consolidated / Combined Financial Information in this Disclosure Document has been prepared for purposes of the Listing and may not be indicative of the Trust's future financial condition and results of operations.*" on page 14.

The table below sets forth certain data from the Special Purpose Consolidated / Combined Financial Information for the periods indicated.

Particulars	**Financial Year 2020*** ***Amount (in ₹ million)***
Income	
Revenue from operations	11,649.12
Other income	180.55
Total income	**11,829.67**
Expenses	
Cost of material consumed	46.44
Road work and site expenses	4,211.94
Employee benefits expenses	236.12
Depreciation and amortization expenses	1,753.97
Finance costs	7,620.92
Investment Manager Fees	26.92
Other expenses	158.72
Total expenses	**14,055.03**
Profit before tax	**(2,225.36)**
Tax expenses	

Particulars	Financial Year 2020* Amount (in ₹ million)
Current tax	141.61
Deferred tax	99.75
Total tax expenses	**241.36**
Profit after tax	**(2,466.72)**
Other comprehensive income	
Item that will not be reclassified to profit or (a) re-measurement (loss)/gain on defined benefit plans (net of taxes)	1.07
Other comprehensive (loss) for the period/year, net of tax	**1.07**
Total comprehensive income for the period/year	**(2,465.65)**

**Please note that the financial information for the Financial Year 2020 has been prepared on a consolidated basis for the one-month period ended March 31, 2020 and on a combined basis for the 11-month period from April 1, 2019 to February 29, 2020 and is shown as a single period for purposes of presentation and convenience only.*

Total income

The total income of the Project SPVs was ₹11,829.67 million in the Financial Year 2020.

Revenue from operations

The revenue from operations of the Project SPVs was ₹11,649.12 million in the Financial Year 2020. This revenue was due to the commencement of toll collection operations by certain Project SPVs during the Financial Year 2020. YATL commenced tolling in March 2019. IRB HMTL commenced toll collection operations in the month of May 2019 and IWTL commenced toll collection operations in the month of February 2020.

The income arising out of toll collection (net) was ₹7,795.11 million in the Financial Year 2020. The contract revenue (road construction) was ₹3,854.01 million in the Financial Year 2020.

Other income

The other income of the Project SPVs stood at ₹180.55 million in the Financial Year 2020.

Total expenses

The total expenses of the Project SPVs was ₹14,055.03 million in the Financial Year 2020.

Road work and site expenses stood at ₹4,211.94 million in the Financial Year 2020. Contract expenses were ₹3,905.21 million in the Financial Year 2020. Site and other direct expenses were ₹0.50 million and sub-contracting/security expenses stood at ₹153.04 million in the Financial Year 2020. Technical consultancy and supervision charges amounting to ₹9.84 million were paid in in the Financial Year 2020. Employee benefits expenses were ₹236.12 million in the Financial Year 2020. Depreciation and amortization expenses increased to ₹1,753.97 million in the Financial Year 2020 from ₹1,099.83 million in the Financial Year 2019. Finance costs were ₹7,620.92 million in the Financial Year 2020. We incurred Investment Manager fees of ₹26.92 million in the Financial Year 2020 because of the establishment of the Trust during the Financial Year 2020. Other expenses were ₹158.72 million in the Financial Year 2020.

Profit before tax

The profit / (loss) before tax was ₹ (2,225.36) million in the Financial Year 2020.

Tax expenses

The Project SPVs recorded a current tax of ₹141.61 million in the Financial Year 2020. The Project SPVs also recorded deferred tax of ₹99.75 million in the Financial Year 2020. Accordingly, the total tax expenses of the Project SPVs stood at ₹241.36 million in the Financial Year 2020.

Profit/(loss) after tax

The (loss) after tax of the Project SPVs increased to ₹(2,466.72) million in the Financial Year 2020.

Total comprehensive income for the year

The total comprehensive income/(loss) stood at ₹(2,465.65) million in the Financial Year 2020.

Liquidity and Capital Resources

The Project SPVs operate in a capital-intensive industry and their principal liquidity requirements have been to finance their capital expenditures. To fund these costs, the Project SPVs have historically relied on equity contributions, short term and long-term borrowings and cash from operating activities.

The Project SPVs' funding and treasury activities are conducted consistent with corporate policies designed to enhance investment returns while maintaining appropriate liquidity for their requirements. Their short-term liquidity requirements relate to servicing debt and funding working capital requirements. Sources of short-term liquidity include cash balances and receipts from operations. Their long-term liquidity requirements include partial funding of investments in new projects, funding equity contributions in Project SPVs and repayment of long-term debt under credit facilities. Sources of funding for long-term liquidity requirements include loans, equity issuances or debt issues. The principal liquidity requirements have been, and are expected to continue to be, construction, development, implementation and maintenance costs of the BOT projects.

The Investment Manager believes that after taking into account the expected cash to be generated from our business and operations, we have sufficient funds for both our present and anticipated future requirements for working capital for 12 months following the date of Listing.

Cash Flows

The following table sets forth certain information relating to the Project SPVs cash flows for the periods indicated:

(₹ in million)

Particulars	Nine-month period ended December 31, 2022*	Nine-month period ended December 31, 2021*	Financial Year 2022*	Financial Year 2021*	Financial Year 2020**
Net cash flows generated from operating activities	9,985.90	17,111.79	20,578.00	7,489.54	40,093.88
Net cash flows (used in) investing activities	(10,035.50)	(17,146.83)	(18,311.44)	(19,598.04)	(48,086.99)
Net cash flows generated from financing activities	2,010.50	114.63	(2,392.82)	12,332.32	7,856.97
Net increase/ (decrease) in cash and cash equivalents	1,960.90	79.59	(126.26)	223.81	(136.13)

**On a consolidated basis*
***Please note that the financial information for the Financial Year 2020 has been prepared on a consolidated basis for the one-month period ended March 31, 2020 and on a combined basis for the 11-month period from April 1, 2019 to February 29, 2020 and is shown as a single period for purposes of presentation and convenience only.*

Cash flows from operating activities

Nine-month period ended December 31, 2022

In the nine-month period ended December 31, 2022, the Project SPVs' net cash flow from operating activities was ₹9,985.90 million and the loss before tax was ₹1,530.02 million, which was adjusted for non-cash and other items amounting to ₹11,007.88 million and change in working capital amounting to ₹687.53 million, primarily on account of increase in trade payable amounting to ₹484.04 millions, decrease in other financial assets amounting to ₹ 496.71 million and decrease in other assets amounting to ₹420.27 million. The cash generated from operations was ₹10,165.39 million and net taxes paid were ₹(179.49) million in the nine-month period ended December 31, 2022.

Nine-month period ended December 31, 2021

In the nine-month period ended December 31, 2021, the Project SPVs' net cash flow from operating activities was ₹17,111.79 million and the loss before tax was ₹3,761.97 million, which was adjusted for non-cash and other items in a net amount of ₹10,654.62 million and changes in working capital and other provisions amounting to ₹ 10,183.24 million, primarily on account of increase in trade payable of ₹10,908.12 million due to construction work execution, decrease in trade receivable of ₹ 78.07 million due to increase in utility shifting work and increase in other financial liabilities for ₹ 298.76 million. The cash generated from operations was ₹17,075.89 million and net taxes paid were ₹35.90 million in the nine-month period ended December 31, 2021.

Financial Year 2022

In the Financial Year 2022, the Project SPVs' net cash flow from operating activities was ₹20,578.00 million and the loss before tax was ₹5,147.34 million, which was adjusted for non-cash and other items amounting to ₹14,271.25 million and change in working capital amounting to ₹ 11,422.02 million, primarily on account of increase in trade payables amounting to ₹ 12,193.54 million and increase in other financial assets amounting to ₹ 989.59 million. The cash generated from operations was ₹20,545.91 million and net taxes paid were ₹32.09 million in the year ended March 31, 2022.

Financial Year 2021

In the Financial Year 2021, the Project SPVs' net cash flow from operating activities was ₹7,489.54 million and the loss before tax was ₹3,177.62 million, which was adjusted for non-cash and other items in a net amount of ₹9,677.32 million and changes in working capital and other provisions, such as increase in trade payables of ₹2277.55 million due to construction work execution, decrease in trade receivable of ₹251.88 million due to increase in utility shifting works and decrease in other liabilities of ₹52.75 million due to increase in advance from customer. The cash generated from operations was ₹7,474.83 million and net taxes paid were ₹14.70 million in the year ended March 31, 2021.

Financial Year 2020

In the Financial Year 2020, the Project SPVs' net cash flow from operating activities was ₹40,093.88 million and the loss before tax was ₹2,225.36 million, which was adjusted for non-cash and other items in a net amount of ₹9,290.12 million and changes in working capital and other provisions, such as decrease in trade payables of ₹5,783.13 million and decrease in other assets of ₹3,006.76 million due to recovery of mobilization advance given to the EPC contractor. The cash generated from operations was ₹40,316.21 million and net taxes paid were ₹(222.33) million in the Financial Year 2020.

Cash used in investing activities

Nine-month period ended December 31, 2022

The Project SPVs' net cash used in investing activities in the nine-month period ended December 31, 2022 was ₹(10,035.50) million, primarily attributable to addition towards construction for projects (classified as toll collection rights under intangible assets) amounting to ₹7,745.84 million and investment in bank deposits amounting to ₹1,987.42 million.

Nine-month period ended December 31, 2021

The Project SPVs' net cash used in investing activities in the nine-month period ended December 31, 2021 was ₹ (17,146.83) million, primarily attributable to addition towards construction for projects (classified as toll collection rights under intangible assets).

Financial Year 2022

The Project SPVs' net cash used in investing activities in the year ended March 31, 2022 was ₹(18,311.44) million, primarily attributable to addition towards construction for projects (classified as toll collection rights under intangible assets).

Financial Year 2021

The Project SPVs' net cash used in investing activities in the year ended March 31, 2021 was ₹(19,598.04) million, primarily attributable to addition towards construction for projects (classified as toll collection rights under intangible assets).

Financial Year 2020

The Project SPVs' net cash used in investing activities in the Financial Year 2020 was ₹(48,086.99) million, primarily attributable to addition towards construction for projects (classified as toll collection rights under intangible assets).

Cash flows generated from financing activities

Nine-month period ended December 31, 2022

Net cash generated from financing activities in the nine-month period ended December 31, 2022 was ₹2,010.50 million, primarily consisting of borrowings from banks/financial institutions and proceeds from issue of equity share capital.

Nine-month period ended December 31, 2021

Net cash generated from financing activities in the nine-month period ended December 31, 2021 was ₹114.63 million, primarily consisting of borrowings from banks/financial institutions and issue of equity share capital and subordinated debt.

Financial Year 2022

Net cash generated from financing activities in the Financial Year 2022 was ₹(2,392.82) million, primarily consisting of finance cost.

Financial Year 2021

Net cash generated from financing activities in the Financial Year 2021 was ₹12,332.32 million, primarily consisting of borrowings from banks/financial institutions and issue of equity share capital and subordinated debt.

Financial Year 2020

Net cash generated from financing activities in the Financial Year 2020 was ₹7,856.97 million, primarily consisting of borrowings from banks/financial institutions and issue of equity share capital and subordinated debt.

Indebtedness

The table below provides the types and amounts of our outstanding indebtedness as at December 31, 2022.

(₹ in million)

	As at December 31, 2022
Non-current Borrowings	
Term loans	

	As at December 31, 2022
Indian rupee loan from banks (secured)	
Project loans for SPVs	59,626.01
Less : current maturities expected to be settled within 12 month from balance sheet date	(519.53)
Total (a)	**59,106.49**
Indian rupee loan from financial institutions (secured)	
Project loans for SPVs	6,927.70
Less : current maturities expected to be settled within 12 month from balance sheet date	(15.02)
Total (b)	**6,912.68**
Non-convertible debentures (secured)	33,466.63
Less : current maturities expected to be settled within 12 month from balance sheet date	(137.86)
Total (c)	**33,328.77**
(Unsecured)	
Loan from related parties	-
Total (d)	-
Less: Unamortised transaction cost **(e)**	(1,647.71)
Total non current borrowings (f = a + b + c + d + e)	**97,700.23**
Current Borrowings	
Short-term borrowings (secured)	
Current maturity of long term loans	
Indian rupee loan from banks (secured)	519.53
Indian rupee loan from financial institutions (secured)	15.02
Non convertible debentures (secured)	137.86
Interest accrued but not due on borrowings	1.72
Other financial liabilities	73.62
(Unsecured, repayable on demand and interest free)	
Loan from related parties	5,350.72
Total current borrowings (g)	**6,098.47**
less: Amount clubbed under "other current financial liabilities"	-
Net current borrowings	**6,098.47**
Total borrowings (f+g)	**103,798.70**
Aggregate secured loans	98,372.64
Aggregate unsecured loans	5,350.72

As at December 31, 2022, the Project SPVs had total borrowings aggregating to ₹103,798.70 million (comprising secured loans) on a consolidated basis. The Project SPVs' secured financing arrangements are secured by their movable and immovable assets, including a charge on equipment as well as on their intangible assets relating to toll collection rights under the various projects. Also see "*Financial Indebtedness*" on page 307.

Contractual Obligations and Commitments

The following table sets forth certain information relating to future payments due under contractual commitments as of December 31, 2022, aggregated by type of contractual obligation:

(₹ in million)

Particulars	Total	On Demand	Less than 1 year	1 to 5 years	> 5 years
Borrowings (Gross of unamortised transaction cost)	105,446.41	5,350.72	747.75	12,581.52	86,766.42
Other financial liabilities	37,917.48	-	2,432.23	35,485.25	-
Trade payables	18,455.71	-	17,147.36	1,308.35	-
Total	**161,819.60**	**5,350.72**	**20,327.34**	**49,375.12**	**86,766.42**

Contingent Liabilities and other Off-Balance Sheet Arrangements

Contingent liabilities not provided for

As of December 31, 2022, there are no contingent liabilities which are not provided for in the Special Purpose Consolidated / Combined Financial Information for the Trust and the Project SPVs.

There are no off-balance sheet arrangements that have or are reasonably likely to have an adverse effect on our financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources that the Investment Manager believe are material to investors.

Transactions with Related Parties

The Project SPVs have in the course of their business entered into various transactions with related parties. These transactions include operation and maintenance charges paid for operation and maintenance activities sub-contracted, loans and advances, certain road work expenses for work road work contracted to various Sponsor entities in similar businesses. Further, the Trust has also provided Shareholder Loans to the Project SPVs. The acquisition of PDTPL was also a related party transaction.

For further information, see "*Related Party Transactions*" on page 210 and "*Financial Statements*" on page 243.

Material Developments since the date of the last balance sheet

The global spread of COVID-19 has created significant economic and political volatility and uncertainty and business disruption. The ultimate extent of COVID-19 on our business, financial condition and results of operations will depend on future developments, which are highly uncertain and cannot be predicted. For more information, see "*Risk Factors – The outbreak and continuing spread of COVID-19 has had, and could further have, a material adverse effect on our business, financial condition and results of operations.*" on page 10 and "*– Update in relation to COVID-19*" on page 289.

Further, IRB WTL has received a provisional completion certificate dated dated March 24, 2023 with respect to 170.98 km stretch of IRB WTL's Goa-Karnataka Border – Kundapur section of NH-17 (now NH-66).

Except as disclosed above and in this Disclosure Document, the Investment Manager is not aware of any circumstances that have arisen since December 31, 2022, that materially and adversely affect, or are likely to affect, the Trust's or the Project SPVs' operations or profitability, the value of the Trust's or the Project SPVs' respective assets, or the Trust's or the Project SPVs' ability to pay their respective material liabilities within the next 12 months.

Quantitative and Qualitative Disclosure about Market Risk

Interest rate risk

As the infrastructure development and construction business is capital intensive, the Project SPVs are exposed to interest rate risk. Interest rates for borrowings have been volatile in India in recent periods. The Project SPVs infrastructure development and construction projects were funded to a large extent by debt and increases in interest expense could have an adverse effect on their results of operations and financial condition. The Project SPVs current debt facilities carry interest at variable rates as well as fixed rates with the provision for periodic reset of interest rates. As of December 31, 2022, the majority of the Project SPVs total indebtedness was subject to variable rates. Although from time to time we may engage in interest rate hedging transactions or exercise any rights available to us under these financing arrangements to terminate the existing debt financing arrangement on the respective reset dates and enter into new financing arrangements, there can be no assurance that we will be able to do so on commercially reasonable terms, that our counterparties will perform their obligations, or that these agreements, if entered into, will protect us adequately against interest rate risks.

Inflation Risk

In recent years, India has experienced relatively high rates of inflation. While we believe inflation has not had any material impact on our business and results of our operations, inflation generally impacts the overall economy and business environment and could affect us.

Quality of income

The majority of our income on a consolidated basis is from the collection of toll. This is based on actual receipts by each of the Project SPVs. There are no management estimates or judgement involved in the recognition of our revenues. For further information see " – *Factors Affecting Results of Operations*", " – *Significant Accounting Policies*" and " – *Components of Income and Expenses*".

Unusual or Infrequent Events or Transactions

Except as described in this Disclosure Document, there have been no events or transactions to our knowledge which may be described as "unusual" or "infrequent".

Known Trends or Uncertainties

Except as described in "*Risk Factors*" on page 10 and elsewhere in this Disclosure Document, to our knowledge, there are no known trends or uncertainties that have had or are expected to have a material adverse impact on our revenues.

Future Relationships between Costs and Income

Except as discussed in "*Risk Factors*" and elsewhere in this Disclosure Document, there are no known factors that will have a material adverse impact on our operations or finances.

Competitive Conditions

Please see "*Risk Factors*" and "**-** *Factors affecting our results of Operations*" on pages 10 and 289, respectively.

Significant Economic Changes that Materially Affected or are Likely to Affect Income from Continuing Operations

Our business has been subject, and we expect it to continue to be subject, to significant economic changes that materially affect or are likely to affect our income from continuing operations identified above in "- *Factors Affecting our Results of Operations*" and the uncertainties described in "*Risk Factors*" on pages 289 and 10, respectively.

FINANCIAL INDEBTEDNESS

The following is a summary of the indebtedness of the Project SPVs, together with a brief description of certain material covenants of the relevant financing agreements. Readers should also refer to "Background and Structure of the Trust" and "Financial Statements" on pages 62 and 243, respectively.

The Project SPVs have primarily availed loans, for financing, in part, the project costs in relation to the construction and development of their respective underlying road infrastructure asset. Certain Project SPVs have availed further financing, as necessary, for refinancing existing loans or with respect to the repayment obligations under previously availed loans.

Set forth below is a brief summary of the aggregate borrowings of the Project SPVs as at December 31, 2022.

Category of Borrowing	Aggregate Amount (₹ in Millions)	Outstanding amount as at December 31, 2022 (₹ in Millions)
AETL		
Term Loans		
Secured	16,500.00	7,213.84
Unsecured	-	10,007.30
Total		**17,221.14**
CGTL		
Term Loans		
Secured	14,000.00	13,990.48
Unsecured	-	396.30
Total		**14,386.78**
IRB HMTL		
Term Loans		
Secured	15,410.00	14,331.51
Unsecured	-	-
Total		**14,331.51**
IRB WTL		
Term Loans		
Secured	14,060.00	10,238.85
Unsecured	-	6,205.58
Total		**16,444.43**
KGTL		
Term Loans		
Secured	10,200.00	10,073.78
Unsecured	-	-
Total		**10,073.78**
KTL		
Term Loans		
Secured	-	-
Unsecured	-	8,967.98
Debentures	5,500.00	5,407.41
Total		**14,375.39**
SYTL		
Term Loans		
Secured	-	-
Unsecured	-	4,114.82
Debentures	5,910.00	5,910.00
Total		**10,024.82**
UTL		
Term Loans		
Secured	7,609.00	8,308.07
Unsecured	-	1,320.00
Debentures	7,000.00	6,999.22
Total		**16,627.29**

Category of Borrowing	Aggregate Amount (₹ in Millions)	Outstanding amount as at December 31, 2022 (₹ in Millions)
YATL		
Term Loans		
Secured	-	-
Unsecured	-	4,687.70
Debentures	15,150.00	15,150.00
Total		**19,837.70**
PDTPL		
Term Loans		
Secured	16,500.00	2,397.18
Unsecured	-	-
Total		**2,397.18**

Principal Terms of the Borrowings availed by the Project SPVs

1. **Interest and commissions:** In terms of the loans availed by the Project SPVs, the interest rate is a base rate specified by the lender plus applicable spread, if any, per annum. The applicable spread varies among different loans. The rate of interest upon non-convertible debentures is at a fixed rate per annum for the next two to seven years.

2. **Maturity and Repayment:** The final maturity period of the loans availed by the Project SPVs ranges from August 2033 to March 2037. These loans are repayable in accordance with the repayment schedule specified in the relevant financing agreements, which typically prescribe monthly instalments for rupee loans (except for PDTPL, which prescribes quarterly instalments) and monthly instalments with respect to the non-convertible debentures.

3. **Security:** In terms of borrowings where security needs to be created, the Project SPVs are typically required to create:

   a. A first charge by way of hypothecation of all the Project SPV's movables, including moveable plant and machinery, machinery spares, tools and accessories, furniture, fixtures, vehicles and all other movable assets, present and future, excluding the project assets;

   b. A first ranking charge over all accounts of the Project SPV, including, *inter alia*, the escrow account, trust and retention account, DSR account and the sub-accounts that may be opened in accordance with the facility agreement/debenture trust deed and the supplementary escrow agreement, or any of the other project agreements and all funds from time to time deposited therein, the receivables and authorised investments or other securities for the purpose of being applied to the extent of the waterfall of priority specified in the concession agreement;

   c. A first charge on the Project SPV's intangibles, including but not limited to goodwill and uncalled capital, present and future, excluding the project assets;

   d. A first ranking *pari passu* charge over all of the Project SPV's immovable assets, both present and future, if any;

   e. A substitution agreement, as may be executed between the NHAI, the Project SPV and its respective lenders, whereby the NHAI may substitute the Project SPV by a selectee of its respective lenders, for the purpose of securing the payment of lender dues;

   f. A pledge of a certain specified percentage of the equity shares of the Project SPVs that are held by the Sponsor (directly or indirectly);

   g. An irrevocable and unconditional corporate guarantee from the Sponsor/Trust and/or certain other members of the Sponsor group to meet shortfall between outstanding amount of obligations and termination payments received from NHAI in case of termination of the concession agreements;

h. Assignment on *pari passu* basis by way of hypothecation of all toll receivables, cash flows and revenue and other project documents;

i. The right, title and interest of the Project SPV by way of first charge in, to and under all the applicable permits, insurance policies and uncalled capital of the Project SPV; and

j. The right, title and interest of the Project SPV by way of first charge in, to and under (a) the project documents/project agreements and (b) the guarantees, other performance warranties, indemnities and security that may be furnished in favor of the Project SPV by various contractors.

4. **Covenants:** Borrowing arrangements entered into by the Project SPVs contain certain restrictive conditions and covenants restricting certain corporate actions and the respective Project SPV is required to take the prior approval of the lender/trustee before carrying out such activities. Each of the Project SPVs are also required to adhere to certain financial covenants, which include but are not limited to, maintaining a prescribed debt to equity ratio during the currency of the loan and maintaining a minimum debt service coverage ratio during certain periods.

A Project SPV is required to intimate and/or obtain prior written permission of its lenders, *inter alia*, in the following instances:

a. Effecting any change in the nature or scope of the project or any change in the financing plan;

b. Effecting any change in capital structure (including shareholding pattern);

c. Raising any equity or preference share capital;

d. Making any capital expenditure other than permitted investments;

e. Making any dividend payments to the Trust or making any other restricted payments (including redemption of any shares of any class, prepayment in relation to any indebtedness, payment of interest on unsecured loans, investment in any entity) except as permitted under the financing agreements;

f. Creation of any security interest in any of the secured property;

g. Incurrence of any other indebtedness, including the issue of debentures other than permitted indebtedness;

h. Entering into any partnership, profit-sharing or royalty agreement;

i. Removal of any person exercising substantial powers of management over the affairs of the Project SPVs in case of an event of default;

j. Amending the constitutional documents of the Project SPVs;

k. Undertaking of any new project or making of any investment or taking any assets on lease;

l. Providing guarantees, indemnities or similar assurances in respect of indebtedness of any other person, (other than in the ordinary course of business);

m. Repay or prepay any subordinated loan or loans brought in as equity taken by the Project SPVs from the Sponsor;

n. Create any subsidiary or permit the Project SPV to become a subsidiary;

o. Undertake or permit any scheme of arrangement or compromise with its creditors or shareholders; and

p. Change in the composition of the board of directors of the Project SPV.

Certain lenders have the ability to opt for a put/call option after a minimum period of five years from the scheduled commercial operation date or a refinance option after a block of five years as per their internal guidelines.

Additionally, if a Project SPV receives funds in respect of the following then the monies received to be utilized to prepay the loans, upon request from the lenders, on a *pro rata* basis to all the lenders without any prepayment premium: (a) any liquidated damages/ penalties received; (b) any proceeds arising in connection with a breach of warranty or guarantee; (c) any insurance proceeds; (d) any proceeds arising in relation to the expropriation or other taking by any government entity of the project assets; (e) any proceeds arising from any termination payments/ buy-out payments received; and (f) any proceeds resulting from an arbitral or judicial award received. The lenders of certain Project SPVs have the right to accelerate the repayment of the unamortized portion of the loans at any time, in the event the cash flows of such Project SPV are adequate for such acceleration.

In relation to outstanding debentures, the relevant Project SPV is required to undertake mandatory redemption on a *pro-rata* basis to all the debenture holders from the proceeds of any amount received by and on behalf of the issuer from any such event if the event involves receipt of, *inter-alia*: (a) insurance proceeds; (b) proceeds from a breach of warranty or guarantee; (c) payments received on account of buy-out events; (d) liquidated damages or penalties paid under project agreement; or (e) proceeds from expropriation or takeover event.

5. **Events of Default:** Borrowing arrangements entered into by the Project SPVs contain standard events of default, including:

a. Non-payment of principal amount by the Project SPV;

b. Non-payment of interest, additional interest, liquidated damages, free or other amount by the Project SPV;

c. Default by the borrower in creation of security interest to the satisfaction of the lenders within the period stipulated;

d. Default or breach in the performance of any covenants and/or covenants under the agreement by the Project SPV;

e. Misrepresentation made by the Project SPV under the agreement or any financing document provided in connection with the loan;

f. Sale, disposal or creation of any charge or encumbrance on any of the land, building, structures or plant and machinery of the Project SPVs in breach of any of the provisions of the relevant project agreements, without prior written approval of the relevant lenders;

g. Undertaking any action for reorganization of the Project SPV without the approval of the relevant lenders;

h. Default in performance or observance of any covenant, condition, warranty or provision contained in any other financing agreement entered into by the Project SPV;

i. Failure on the part of the Project SPV to maintain adequate insurances in accordance with the terms of the transaction documents;

j. The Project SPV ceasing or threatening to cease to carry on its business or giving notice of its intention to do so;

k. The Project SPV abandoning its project;

l. Violation or breach of any environmental, health and safety standards requirement; and

m. The Project SPV ceasing or threatening to cease to carry on its business or giving notice of its intention to do so or it becoming unlawful for the borrower to carry on its business.

The descriptions above are indicative, and there may be additional terms and conditions with respect to security, financial or other covenants and events of default under the various borrowing arrangements entered into by the Project SPVs. The Project SPVs are required to ensure that the aforementioned events of default and other events of default, as specified under the various documents and agreements entered into by such Project SPV for the purpose of availing of loans, are not triggered.

SECTION VIII – LEGAL AND OTHER INFORMATION

MATERIAL LITIGATION AND REGULATORY ACTION

Except as stated below, there is no outstanding material litigation or regulatory action (i) involving the Project SPVs; (ii) against the Trust or its Associates; (iii) against the Investment Manager or its Associates; (iv) against the Sponsor/Project Manager or its Associates; and (v) against the Trustee.

*For purposes of this section, details of all regulatory actions and criminal matters that are currently outstanding involving the Project SPVs or against the Trust, the Investment Manager, the Sponsor/Project Manager and their respective Associates have been disclosed. Notices received by any of the above entities (collectively, the "**Relevant Parties**") from third parties (excluding notices from statutory, regulatory or tax authorities or notices threatening criminal action) shall not be evaluated for materiality until the Relevant Parties are impleaded as defendants in proceedings before any judicial forum.*

Outstanding litigation against any of the Project SPVs before any judicial forum involving a claim amount exceeding ₹62.52 million, being 0.5% of the income of the Project SPVs for the last completed Financial Year (i.e., the Financial Year 2022), in accordance with the Special Purpose Consolidated / Combined Financial Information shall be considered material. In relation to outstanding litigation where the monetary liability is not quantifiable, such litigation shall be considered material in the event that the outcome of such litigation would have a material adverse effect on the position of the Project SPVs.

Outstanding litigation against the Sponsor/Project Manager, the Investment Manager and their respective Associates (excluding the Project SPVs) before any judicial forum involving a claim amount exceeding ₹317.77 million, being 0.5% of the income of the Sponsor for the last completed Financial Year (i.e., the Financial Year 2022), in accordance with its audited consolidated financial statements for the Financial Year 2022 shall be considered material. In relation to outstanding litigation where the monetary liability is not quantifiable, such litigation shall be considered material in the event that the outcome of such litigation would have a material adverse effect on the position of the Sponsor or the Investment Manager, as applicable, or the Trust.

Further, due to the nature and extent of their operations, the Sponsor/Project Manager and the Project Entities (including the Project SPVs) are and may be routinely required to file complaints and/or register first information reports against various persons, on account of such persons, inter-alia, refusing to pay toll, causing injury to the employees or contract labour of such entities and damage to the properties of such entities, which have been not been disclosed. Additionally, there have been various criminal complaints, compensation claims and first information reports filed against the employees and contract labour of the Sponsor/Project Manager and the Project Entities (including the Project SPVs), in which such entities are not impleaded, which have not been disclosed.

With respect to the Trustee, details of all regulatory actions and criminal matters that are currently outstanding against the Trustee have been disclosed. Outstanding litigation against the Trustee that the Trustee has determined to be material has been disclosed.

Taxation proceedings against the Relevant Parties (and, in case of the Project SPVs, involving the Project SPVs) have been disclosed in a consolidated manner.

I. Material Litigation and Regulatory Action against the Trust and its Associates

Material Litigation and Regulatory Action against the Trust

As at the date of this Disclosure Document, there is no outstanding material litigation or regulatory action against the Trust. For details in relation to outstanding material litigation and regulatory action against the Associates of the Trust, please see below.

II. Material Litigation and Regulatory Action against the Sponsor/Project Manager and Associates of the Sponsor/Project Manager

Material Litigation and Regulatory Action against the Sponsor/Project Manager

As at the date of this Disclosure Document, there is no outstanding criminal litigation against the Sponsor/Project Manager. Other than as disclosed below, there is no outstanding material civil litigation, regulatory action or other material litigation against the Sponsor/Project Manager.

Outstanding Material Civil Litigation

1. Hakim Singh Yadav and others (the "**Petitioners**") have filed a writ petition before the High Court of Allahabad against the Sponsor and others (the "**Respondents**") in relation to the road asset operated by AETL, seeking to quash the contract order for the construction of the drainage system and directing the relevant authority concern to revaluate the technical measures adopted in drainage work. The Petitioners have alleged, *inter-alia*, that faulty construction and design of the drainage system have resulted in the flooding of a nearby area. The matter is currently pending.

2. Mr. Shaikh Rafiq and others have filed a writ petition against the Sponsor, Modern Road Makers Private Limited (an Associate of the Sponsor), YATL and others before the High Court of Bombay, Aurangabad (the "**BHC Aurangabad**") bench in relation to acquisition of land for the four laning of Yedshi – Aurangabad road that forms a part of the Solapur – Aurangabad highway, i.e., NH 211. For details, see " – *Material Litigation and Regulatory Action involving the Project SPVs – YATL*" on page 324.

3. Mr. Panditrao Digambarrao Shete Chausalkar and another have filed a writ petition against the Sponsor, YATL and others before the BHC Aurangabad in relation to acquisition of land for the four laning of Yedshi – Aurangabad road that forms a part of the Solapur – Aurangabad highway, i.e., NH 211. For details, see " – *Material Litigation and Regulatory Action involving the Project SPVs – YATL*" on page 324.

4. Mr. Pruthviraj Shahane (the "**Petitioner**") has filed a civil suit against the Sponsor, YATL and others before the Civil Judge (Senior Division), Beed. For details, see " – *Material Litigation and Regulatory Action involving the Project SPVs – YATL*" on page 324.

5. Kishore Mukherjee has filed a writ petition in the High Court of Calcutta against the Sponsor and others praying that the tender for the Palsit to Dankuni project should be halted, an environment impact assessment should be obtained and pending the disposal of the matter, the respondents (including the Sponsor) should be directed not to uproot any trees from Panagarh to Dankuni on NH 19. The matter is currently pending.

Outstanding Regulatory Action

NHAI issued a notice to the Sponsor asking to pay damages of ₹30,485 in relation to the toll plaza Krishnavaram. The Sponsor has replied in its letter. As on date, no legal proceedings have been initiated in relation to the aforesaid notice.

Other Material Litigation

1. The Sponsor had initiated arbitration proceedings against Hyderabad Growth Corridor Limited (the "**Respondent**") in connection with a road project in Hyderabad. The Sponsor has claimed an amount of ₹982.69 million for losses suffered by the Sponsor due to a failure by the respondent to provide a toll management system. The Respondent has denied the allegations of the Sponsor and stated that it was not required to provide a toll management system under the terms of the contract between the parties. The Sponsor has received an arbitral award in its favor, but as of the date of this Disclosure Document, the Respondent has not made the payments as directed in the award. Further, the Sponsor has filed an appeal before the XXIV Additional Chief Judge cum Commercial Court, City Civil Court, Hyderabad against the arbitral award stating the arbitral tribunal has without any reason and in complete disregard of settled principles of law, diallowed part of the compensation claimed by the Sponsor against the Respondent despite finding that the Respondent had failed to fulfil its contractual obligations resulting into drastic reduction in the toll revenue. Further, the Respondent had filed a petition before the Commercial Courts cum Hon'ble XIII District Judge, Ranga Reddy District ("**Court**"), praying to set aside the award for part of the claim under the arbitration award and award the cost of arbitration including the fees paid by the Respondent. The Sponsor had filed its reply in the matter. The Court disposed off the petition with leave to the petitioner to file the petition before the appropriate court. Hyderabad Growth Corridor Limited has filed such petition before the District Judge, Commercial Disputes, Hyderabad. The matter

is currently pending.

Material Litigation and Regulatory Action against the Associates of the Sponsor/Project Manager

For details in relation to outstanding material litigation and regulatory action against the Project SPVs, see " – *Litigation and Regulatory Action involving the Project SPVs*" on page 321. Details of outstanding material litigation and regulatory action against the other Associates of the Sponsor/Project Manager are set out below.

I. ***Aryan Hospitality Private Limited ("AHPL")***

As at the date of this Disclosure Document, there is no outstanding criminal litigation or regulatory action against AHPL. Other than as disclosed below, there is no outstanding material civil litigation against AHPL.

Jaykumar Govindrao Nikam and others (the "**Petitioners**") have filed a suit before the Civil Judge, Junior Division at Kolhapur alleging that AHPL has encroached the land owned by the Petitioners. The suit pertains to the plot leased for the IRDP Kolhapur project. The concession agreement in relation to the project was entered into between the Maharashtra State Road Development Corporation (the "**MSRDC**"), IRB Kolhapur Integrated Road Company Private Limited ("**IRB Kolhapur**"), and the Kolhapur Municipal Corporation (the "**KMC**"). Under the concession agreement, land owned by the KMC was leased to IRB Kolhapur for the project pursuant to a lease deed between KMC, MSRDC and IRB Kolhapur. The land was then sub-leased by IRB Kolhapur to AHPL. The IRDP Kolhapur project has been bought back by the government. AHPL has cancelled the sub-lease deed and the possession of the land as well as the structure thereon has been given back to IRB Kolhapur on an "*as is where is*" basis, free from encumbrances. AHPL no longer has any interest in the property. The matter is currently pending.

II. ***Aryan Toll Road Private Limited ("ATRPL")***

As at the date of this Disclosure Document, there is no outstanding civil or criminal litigation or regulatory action against ATRPL.

III. ***ATR Infrastructure Private Limited ("ATRIPL")***

As at the date of this Disclosure Document, there is no outstanding criminal litigation or regulatory action against ATRIPL. Other than as disclosed below, there is no outstanding material civil litigation against ATRIPL.

Outstanding Material Civil Litigation

Kishore Dyanoba Shevkari (the "**Petitioner**") has filed a writ petition before the High Court of Bombay against the State of Maharashtra and ATRIPL, among others. The petition relates to the choking of the Hume Pipe Culvert because of garbage dumping. The Petitioner has alleged that the choking of the Hume Pipe Culvert has resulted in waterlogging and that has affected his land. The matter is currently pending.

IV. ***IRB Ahmedabad Vadodara Super Express Tollway Private Limited ("IRB AVSETPL")***

As at the date of this Disclosure Document, there is no outstanding criminal litigation or regulatory action against IRB AVSETPL. Other than as disclosed below, there is no outstanding material civil litigation or other material litigation against IRB AVSETPL.

Outstanding Material Civil Litigation

1. Shabbirbhai Noormohmmadbhai, the owner of Pragati Hotel, Bareja, Ahmedabad (the "**Petitioner**") has filed a suit before the Additional Civil Court Judge, Ahmedabad against the Director, IRB, Jetalpur, Ahmedabad, the Deputy Engineer, R&B, Ahmedabad, the District Collector, Ahmedabad, and the State Public Works Department, Gandhinagar seeking a permanent stay order on closing his access to the main carriage way. The suit relates to compensation for land acquisition. The matter is currently pending.

2. Jitendra Chandulal Amin, the owner of Rishi Petrol Pump, Nadiad has filed a suit before the Additional Civil Court Judge, Nadiad agaisnt IRB AVSETPL and others seeking a permanent stay order on closing his access to the main carriage way. The suit relates to compensation for land acquisition. The matter is currently pending.

Other Material Litigation

IRB AVSETPL invoked arbitration in relation to a competing road. The NHAI suggested that the matter be brought before the Conciliation Committee of Industrial Experts (the "**CCIE**"). IRB AVSETPL filed a writ petition in the High Court of Bombay, which directed the parties to immediately refer the matter to arbitration. IRB AVSETPL was also granted a waiver with respect to the payment of premium for three months subject to the submission of an undertaking. The CCIE, pursuant to order dated May 29, 2019 concluded that the conciliation had failed. IRB AVSETPL then invoked arbitration and appointed an arbitrator. The NHAI did not appoint an arbitrator. IRB AVSETPL then filed a writ petition in the High Court of Delhi, pursuant to which the NHAI was directed to form a tribunal. The interim relief granted by the High Court of Bombay was also extended. The NHAI had challenged the order of the High Court of Bombay in a special leave petition before the Supreme Court of India, but the petition was dismissed.

Subsequently, the High Court of Delhi nominated a presiding arbitrator. However, the NHAI filed a special leave petition before the Supreme Court of India challenging such nomination. The Supreme Court of India passed an order appointing a different presiding arbitrator and the arbitral tribunal was constituted. IRB AVSETPL has filed an application for interim relief and a statement of claims on March 1, 2021 requesting the arbitral tribunal to, *inter-alia*, (a) declare that the NHAI is in breach of its obligations and representations under the concession agreement; (b) direct the NHAI to pay compensation of ₹12.64 billion for the period between December 4, 2015 until December 31, 2020 with an interest at 15% per annum until payment or realization from January 1, 2021 until the subsistence of the breach; and (c) pass an order of mandatory injunction directing the NHAI to cure the breach with respect to the competing road. The NHAI has responded to the application for interim relief filed by IRB AVSETPL. The respondent has filed a counter-claim for an amount of (i) ₹562.2 million (until June 30, 2021) towards premium deferment; (ii) ₹5,026.1 million (until May 2021) and unpaid premium during the pendency of the proceedings as well as future premium; and (iii) ₹312.1 million towards interest (as on June 30, 2021) as per the provisions of the supplementary agreement. The parties filed written submissions and the arbitral tribunal framed preliminary issues and conducted hearings. In this regard, the arbitral tribunal passed an interim award dated October 14, 2021 in favour of the claimant. The arbitral tribunal subsequently formulated further issues to be settled pursuant to hearings. The NHAI also filed an application seeking to implead the Government of Gujarat as a party in the proceedings. The NHAI challenged the interim award dated October 14, 2021 before the High Court of Delhi, which was dismissed pursuant to an order dated July 4, 2022. Thereafter, the NHAI filed an appeal against such dismissal. The arbitral tribunal also dismissed the NHAI's application to implead the Government of Gujarat, which was further challenged by NHAI. IRB AVSETPL has filed an affidavit of evidence before the arbitral tribunal and updated the previously claimed amount to ₹21,232.70 million, including interest until September 30, 2022 of ₹91.90 million on margin money and commission paid towards procurement of bank guarantees for ₹210.00 million. The matter is currently pending.

The NHAI has challenged the interim award dated October 14, 2021 under Section 34 before the Delhi High Court and the matter is currently pending.

V. *IRB Goa Tollway Private Limited ("IGTPL")*

As at the date of this Disclosure Document, there is no outstanding criminal litigation or regulatory action against IGTPL. Other than as disclosed below, there is no outstanding material litigation involving IGTPL.

IGTPL had initiated arbitration proceedings against the NHAI for wrongful termination of contract by the NHAI with respect to the Goa/Karnataka to Panaji-Goa section of NH-4A in the State of Goa. The arbitral tribunal had passed an award in favor of IGTPL which allowed the following claims: (i) approximately ₹1,963.80 million towards 50% of the adjusted equity of ₹1,309.20 million arising out of the termination of contract by the NHAI; (ii) an amount of ₹47.10 million for damages on account of a delay in the fulfilment of the conditions of the contract; and (iii) interest on the amounts mentioned above. The aggregate amount involved is ₹3,039.80 million. The NHAI had filed a petition before the High Court of Delhi ("**Court**") for setting aside the award passed by the arbitral tribunal and a stay on the operations of the award. The stay on the Award was not allowed by the Court. IGTPL availed 75% of the arbitral award amount from the NHAI against bank guarantees amounting to ₹2,279.80 million with the NHAI. Further, the Court also directed NHAI to deposit the balance amount with the Court, pending disposal of the case. Accordingly, NHAI has deposited an amount of ₹103.50 million with the Court. Pursuant to an order dated February 21, 2022, the Court upheld the arbitral award in relation to (i) above and corresponding interest, but set aside the claim in relation to (ii) above. Subsequently, both the parties appealed against the order of the Delhi High Court, which were both dismissed. IGTPL has filed an application for withdrawal as well as an application for execution of the arbitral award under Section 36 of the Arbitration and

Conciliation Act, 1996. The matter is currently pending.

VI. *IRB Infrastructure Private Limited ("IRBIPL")*

As at the date of this Disclosure Document, there is no outstanding civil or criminal litigation or regulatory action against IRBIPL.

VII. *Ideal Road Builders Private Limited ("Ideal Road Builders")*

As at the date of this Disclosure Document, there is no outstanding criminal litigation or regulatory action against Ideal Road Builders. Other than as disclosed below, there is no outstanding material civil litigation against Ideal Road Builders.

Outstanding Material Civil Litigation

1. Shamsuddin Miyalal Mushrif has filed a pulic interest litigation before the High Court of Bombay against the Union of India, Ideal Road Builders and others, to declare that the National Highways Act, 1956 and Rule 3 of National Highways (Collection of Fees by any Person for the Use of Section of National Highways/Permanent Bridge/Temporary/Bridge on National Highway) Rules, 1997 are contrary to and violate of the provisions of the Constitution of India, 1950. The petition also seeks the declaration of Section 7 of the National Highways Act, 1956 and Rules 7 and 11 of the National Highways (Fees for the use of National Highway Section and Permanent Bridge-Public Funded Projects) Rules, 1997 and the MoRTH Notifications dated March 4, 2005 and May 5, 2015 illegal, *ultra vires* and invalid, and to stop collection of toll. This is relation to the Ideal Road Builders Khambatki Ghat project. The project has been completed and handed back to the government. The matter is currently pending.

2. Nitin Sardesai and others have filed a public interest litigation before the High Court of Bombay against the State of Maharashtra, Ideal Road Builders and others, seeking the following: (i) to comply with the provisions of the manual of specifications; (ii) to take traffic census on NH 4 and expressway by electronic census system; (iii) to appoint independent agency to monitor traffic; (iv) to remove advertisements and hoardings; (v) to deposit the toll amount with government; and (vi) discount to local public. The matter relates to the Ideal Road Builders Mumbai-Pune project. The project has been completed and handed back to the government. The matter is currently pending.

3. Nitin Sardesai and others have filed a public interest litigation before the High Court of Bombay against the State of Maharashtra, Ideal Road Builders and others, seeking to quash and set aside a notification dated August 9, 2004 (no. PSP 2000/CR-106(1I) Road-8) and a notification dated September 5, 2006. The following prayers have also been made: (i) to comply with the manual of specifications; (ii) to take traffic census by electronic traffic census system; (iii) to deposit toll amount in separate account of government; (iv) to appoint an independent agency to monitor traffic; and (v) to install advance traffic mentoring system. The matter relates to the Ideal Road Builders Mumbai-Pune project. The project has been completed and handed back to the government. The matter is currently pending.

4. Shrinivas Anant Ghanekar (the "**Petitioner**") has filed a public interest litigation before the High Court of Bombay against the State of Maharashtra, Ideal Road Builders and others, seeking to quash the toll notification and declare the concession agreement illegal and *ultra vires*. The matter relates to the Ideal Road Builders Thane-Godbunder project. The suit has been filed based on erronous information provided to the Petitioner's Right to Information Application by the Maharashtra State Road Transport Corporation, as has been admitted in the reply to the petition. The matter is currently pending.

Other Material Litigation

Ideal Road Builders Private Limited and others (the "**Petitioners**") have filed a writ petition before the High Court of Bombay against the State of Maharshtra to set aside a notification issued by the Government of Maharashtra exempting LMVs and buses of the Maharashtra State Road Transport Corporation from payment of toll taxes at the Thane Godbunder project. Compensation is being paid by the Government of Maharashtra to the the entity which operates the Thane Godbunder project. The matter is currently pending.

VIII. *IRB Kolhapur Integrated Road Development Company Private Limited ("IRB Kolhapur")*

As at the date of this Disclosure Document, there is no outstanding criminal litigation or regulatory action against IRB Kolhapur. Other than as disclosed below, there is no outstanding material civil litigation against IRB Kolhapur.

Outstanding Material Civil Litigation

1. Jairaj Velyan (the "**Petitioner**") has filed a suit before the Civil Judge, Senior Division, Kolhapur, against the State of Maharashtra and others alleging that road construction has resulted in encroachment . The Petitioner has prayed that the encroachment should be removed and the road should be made available for use of the members of the society. IRB Kolhapur has constructed the project as per the concession agreement on land made available by the Kolhapur Municipal Corporation and the project has been bought back by the government. The matter is currently pending.

IX. *IRB MP Expressway Private Limited ("IRB MP") (earlier known as NKT Road and Toll Private Limited)*

Other than as disclosed below, there is no outstanding criminal litigation, material civil litigation or regulatory action against IRB MP.

Outstanding Material Civil Litigation

1. Pravin Wategaonkar and others (the "**Petitioners**") have filed a public interest litigation ("**PIL**") before the High Court of Bombay against Maharashtra State Road Development Corporation ("**MSRDC**"), Comptroller and Auditor General of India ("**CAG**"), Mumbai Pune Expressway Limited ("**MPEL**"), State of Maharashtra and IRB MP seeking an order from the High Court of Bombay, *inter-alia*, to (i) exempt the light motor vehicles from payment of toll on the Mumbai Pune Expressway ("**Expressway**"); (ii) stay the tender process which is underway for the toll collection rights for next ten (10) years on the Expressway; and (iii) declare the toll collection as illegal and restrain MPEL / MSRDC from collecting such toll on the Expressway. The Petitioners have filed civil application in the PIL and prayed that the Honorable High Court to examine the legality and validity of the documents of MSRDC, to register case against the officers of MSRDC involving in preparing the document and direct the toll contractor to deposit in the court entire toll revenue collected on Mumbai Pune Expressway. The matter is currently pending.

2. Milind Ashok Achyut and others have filed a public interest litigation before the High Court of Bombay against the Ministry of Road Transport amd Highways, IRB MP and others seeking an order from the High Court of Bombay, *inter-alia*, to (i) declare the establishment of the Somatane toll plaza (the "**Toll Plaza**") on NH-48 belonging to IRB MP as *ultra vires* the National Highways Fee (Determination of Rates and Collection) Rules, 2008 and arbitrary and illegal; (ii) restrain IRB MP from collecting toll on the Toll Plaza on NH-48 until applicable discounts are displayed and changes made in the FASTag mechanism; (iii) direct IRB MP to deposit the toll fees in an escrow account; and (iv) shift the Toll Plaza in the direction of Pune City. The matter is currently pending.

3. Anil Bhangare and others have filed a public interest litigation before the High Court of Bombay against IRB MP and others seeking an order from the High Court of Bombay to, *inter-alia*, (i) set up a special investigation team to conduct an enquiry into the circumstances under which the Somatane toll plaza (the "**Toll Plaza**") was set up; (ii) remove the Toll Plaza and relocate it; (iii) to make separate lanes for locals and exempt them from toll fees; and (iv) grant a temporary injunction restraining IRB MP from the recovery of toll fees at the Toll Plaza. The matter is currently pending.

Outstanding Criminal Litigation

Anil Bhangare and others (the "**Petitioners**") have filed an original petition against IRB MP and others before the Judicial Magistrate First Class, Vadgaon Maval ("**JMFC**"), stating that the toll receipts at the Somatane toll plaza specify the place of tolling as Dehu Road, which is located at a different location from the Somatane toll plaza. It has been submitted that the toll collected by IRB MP is illegal. The proceedings were stayed by the JMFC due to the pendency of a separate public interest litigation before the High Court of Bombay. The Petitioners have filed an appeal before the Sessions Court, Vadgaon Maval praying, *inter-alia*, that the order passed by the JMFC be set aside and to direct the JMFC to try the matter in accordance with the Code of Criminal Procedure, 1973. The matter is currently pending.

Outstanding Regulatory Action

The Collector of Stamps, Solapur has raised a demand for a deficit in stamp duty of ₹323,000 and a penalty, on the agreement dated November 28, 2001. In its letter dated July 3, 2015, IRB MP informed the Collector of Stamps that such stamp duty is not applicable to the agreement as the section referred to by the Collector of Stamps was not in existence at the time of execution of the agreement. There has been no further response from the Collector of Stamps.

X. *IRB Sindhudurg Airport Private Limited ("IRB Sindhudurg")*

As at the date of this Disclosure Document, there is no outstanding criminal litigation or regulatory action involving IRB Sindhudurg. Other than as disclosed below, there is no outstanding material civil litigation against IRB Sindhudurg.

Vijay Krishnaji Rane (the "**Petitioner**") has filed a suit before the Civil Court, Oras, Sindhudurg against IRB Sindhudurg and others (the "**Respondents**") praying for the following reliefs: (i) that the Respondents be prevented from creating obstacles on the suit property; and (ii) that the Respondents be prevented from cutting trees and fruits in the suit property. The Petitioner has also prayed that in the event that it is found that the Respondents are encroaching on the suit property, then the possession of the suit property should be given to him.

XI. *Mhaiskar Infrastructure Private Limited ("MIPL")*

As at the date of this Disclosure Document, there is no outstanding criminal litigation against MIPL. Other than as disclosed below, there is no outstanding material civil litigation or regulatory action against MIPL.

Outstanding Material Civil Litigation

1. Nitin Sardesai and others have filed a public interest litigation before the High Court of Bombay against the State of Maharashtra, MIPL, Ideal Road Builders, and others, seeking compliance with certain specifications. For details, see "*– Material Litigation and Regulatory Action against the Sponsor/Project Manager and Associates of the Sponsor/Project Manager – Material Litigation and Regulatory Action against the Associates of the Sponsor – Ideal Road Builders Private Limited*" on page 316.

2. Nitin Sardesai and others have filed a public interest litigation before the High Court of Bombay against the State of Maharashtra, MIPL, Ideal Road Builders Private Limited, and others seeking to quash certain notifications. For details, see "*– Material Litigation and Regulatory Action against the Sponsor/Project Manager and Associates of the Sponsor/Project Manager – Material Litigation and Regulatory Action against the Associates of the Sponsor/Project Manager – Ideal Road Builders Private Limited*" on page 316.

3. The Shree Ganesh Cooperative Housing Society, through Mr. Shrikrishna Parshuram Joshi and others (the "**Petitioner**") has filed a suit before the Court of the Civil Judge, Senior Division, Pune against MIPL and others challenging the encroachment removal notice issued by Maharashtra State Road Development Corporation on the basis of a survey conducted by MIPL. The 15 year concession period in relation to the project has been completed and the project has been handed back to the government. The matter is currently pending.

4. Pravin Wategaonkar and others have filed a public interest litigation before the High Court of Bombay against the Maharashtra State Road Development Corporation and others allegeing that MIPL is collecting excess toll on the Mumbai-Pune Expressway. The 15 year concession period in relation to the project has been completed and the project has been handed back to the government. The matter is currently pending.

5. The Depurty Inspector General of Registration and Deputy Controller of Stamps and Collector of Stamps, Mumbai Division, Mumbai ("**Authority**"), passed an order dated March 12, 2008 (the "**Order**") against MIPL demanding a payment of ₹275.40 million as deficit stamp duty and a penalty of ₹49.57 million in relation to an the agreement dated August 4, 2004 executed among MSRDC, Ideal Road Builders and MIPL for construction on the Mumbai-Pune Expressway. MIPL filed a writ petition before the High Court of Bombay challenging the Order. Pursuant to an order dated April 28, 2008, the High

Court of Bombay provided interim relief to MIPL and directed it to deposit 50% of the claimed amount. MIPL subsequently deposited ₹137.70 million with the Authority. The matter is currently pending.

Outstanding Regulatory Action

The Collector of Stamps, Andheri, Maharashtra sent a notice to MIPL demanding that stamp duty of ₹1,500,000 a penalty of ₹5,340,000 be paid on the agreement dated August 4, 2004 for the Mumbai Pune project. MIPL has replied to the notice, and has not received any response from the Collector of Stamps.

XII. *IRB Holding Private Limited ("IHPL")*

As at the date of this Disclosure Document, there is no outstanding civil or criminal litigation or regulatory action against IHPL.

XIII. *MRM Mining Private Limited ("MRMMPL")*

As at the date of this Disclosure Document, there is no outstanding civil or criminal litigation or regulatory action involving MRMMPL.

XIV. *Modern Road Makers Private Limited ("MRM")*

As at the date of this Disclosure Document, there is no outstanding criminal litigation or regulatory action against MRM. Other than as disclosed below, there is no outstanding material civil litigation against MRM.

1. Arjun Rama Ghatal has filed complaint before the office of the Tahasildar and the Executive Magistrate, Palghar against MRM and others regarding the payment of land cess and seeking compensation for possession of land and damage to crops caused by the installation of a tar plant machine. The matter is currently pending.

2. Mr. V Sachhidananda Shetty (the "**Petitioner**") filed a petition against the NHAI, MRM and others (the "**Respondents**") before the Civil Judge at Kundapura alleging that he was not given permission to cut teakwood trees by one of the Respondents. The Petitioner has stated that he entered into an agreement with the NHAI for taking away the salvage in the form of timber and fire wood of felled trees from k.m. 93.700 to k.m. 283.300 of NH 66. The Petitioner has also alleged that the Respondents have colluded with each other to cut and remove the teakwood trees in violation of the agreement. The Petitioner has requested the court to grant a permanent injunction restraining the Respondents from cutting and transporting the teakwood trees. The matter is currently pending.

XV. *Thane Godbunder Toll Road Private Limited ("TGRPL")*

As at the date of this Disclosure Document, there is no outstanding criminal litigation or regulatory action against TGRPL. Other than as disclosed below, there is no material civil litigation against or other material litigation involving TGRPL.

Outstanding Material Civil Litigation

Shrinivas Anant Ghanekar has filed a public interest litigation before the High Court of Bombay against the State of Maharashtra, Ideal Road Builders Private Limited, TGRPL, and others. For details, see " – *Material Litigation and Regulatory Action against the Sponsor/Project Manager and Associates of the Sponsor/Project Manager – Material Litigation and Regulatory Action against the Associates of the Sponsor/Project Manager – Ideal Road Builders*" on page 316.

Other Material Litigation

Ideal Road Builders Private Limited, TGRPL and others have filed a writ petition before the High Court of Bombay against the State of Maharashtra. For details, see " – *Material Litigation and Regulatory Action against the Sponsor/Project Manager and Associates of the Sponsor/Project Manager – Material Litigation and Regulatory Action against the Associates of the Sponsor/Project Manager – Ideal Road Builders – Other Material Litigation*" on page 316.

XVI. ***VCR Toll Services Private Limited ("VCR")***

As at the date of this Disclosure Document, there is no outstanding criminal litigation or regulatory action against VCR. As at the date of this Disclosure Document, there is no outstanding material civil litigation against VCR. Other than as disclosed below, there is no material litigation against VCR.

Other Material Litigation

VCR has filed a writ petition before the High Court of Bombay against the Executive Engineer, Public Works Department, and others, challenging an action of the Government which has prevented them from collecting the toll based on an allegation that they have not carried out repairs to the project road. The matter is currently pending.

XVII. ***Pathankot Mandi Highway Private Limited ("PMHPL")***

As at the date of this Disclosure Document, there is no outstanding civil or criminal litigation or regulatory action against PMHPL.

XVIII. ***Meerut Budaun Expressway Limited ("MBEL")***

As at the date of this Disclosure Document, there is no outstanding civil or criminal litigation or regulatory action against MBEL.

XIX. ***VM7 Expressway Limited ("VM7")***

As at the date of this Disclosure Document, there is no outstanding civil or criminal litigation or regulatory action against VM7.

XX. ***GE1 Expressway Private Limited ("GE1")***

As at the date of this Disclosure Document, there is no outstanding civil or criminal litigation or regulatory action against GE1.

XXI. ***Chittoor Thachur Highway Private Limited ("CTHPL")***

As at the date of this Disclosure Document, there is no outstanding civil or criminal litigation or regulatory action against CTHPL.

XXII. ***IRB PS Highway Private Limited ("IPHPL")***

As at the date of this Disclosure Document, there is no outstanding civil or criminal litigation or regulatory action against IPHPL.

XXIII. ***Samakhiyali Tollway Private Limited ("STPL")***

As at the date of this Disclosure Document, there is no outstanding civil or criminal litigation or regulatory action against STPL.

XXIV. ***VDM Ventures Private Limited ("VVPL")***

As at the date of this Disclosure Document, there is no outstanding civil or criminal litigation or regulatory action against VVPL.

XXV. ***Deux Farming Films Private Limited ("DFFPL")***

As at the date of this Disclosure Document, there is no outstanding civil or criminal litigation or regulatory action against DFFPL.

XXVI. ***IRB Charitable Foundation ("IRBCF")***

As at the date of this Disclosure Document, there is no outstanding civil or criminal litigation or regulatory action against IRBCF.

Material Litigation and Regulatory Action involving the Project SPVs

A. ***AETL***

As at the date of this Disclosure Document, there is no outstanding criminal litigation or regulatory litigation involving AETL. Other than as disclosed below, there is no outstanding material civil litigation involving AETL.

Outstanding Material Civil Litigation

1. Hakim Singh Yadav and others (the "**Petitioners**") have filed a writ petition before the High Court of Allahabad against the Sponsor and others (the "**Respondents**") in relation to the drainage system for the road asset operated by AETL. For details, see "*– Material Litigation and Regulatory Action against the Sponsor/Project Manager and Associates of the Sponsor/Project Manager - Material Litigation and Regulatory Action against the Sponsor/Project Manager - Outstanding Material Civil Litigation*" on page 313.

2. AETL has filed for settlement through conciliation with the NHAI in relation to a dispute with respect to the payment of premium with proportionate reduction of revenue losses on account of COVID-19 and delay in completion of construction. The amounts under dispute are excess payment of premium of ₹128.4 million and outstanding payment of premium including interest of ₹553.4 million as of June 7, 2021. AETL and the NHAI did not reach any settlement, and accordingly, AETL invoked arbitration proceedings against the NHAI under the terms of its concession agreement and submitted claims for amounts aggregating to ₹13,179.8 million and sought extension of the concession period by 351.41 days. The matter is currently pending.

B. ***CGTL***

As at the date of this Disclosure Document, there is no outstanding regulatory action involving CGTL. Other than as disclosed below, there is no outstanding material civil litigation or criminal litigation involving CGTL.

Outstanding Material Civil Litigation

CGTL, KGTL and UTL have filed a writ petition before the High Court of Rajasthan, Jaipur Bench against Union of India and NHAI challenging certain notifications and seeking interim relief from the High Court of Rajasthan, Jaipur Bench. For details, see " *– Material Litigation and Regulatory Action involving the Project SPVs – UTL – Outstanding Material Civil Litigation*" on page 323.

Outstanding Criminal Litigation

1. Mr. Waman Rathod, deputy general toll manager at a toll plaza located on the road asset operated by CGTL, has filed two first information reports at the Police Station, Gangrar, Chittorgarh, Rajasthan in relation to (i) the misbehaviour of certain individuals when asked to pay toll; and (ii) the theft of ₹0.62 million from the cash room at the toll plaza. The matters are currently pending.

2. Mr. Rohit Sharma, a supervisor at at a toll plaza located on the road asset operated by CGTL, has filed a first information report at the Raila Police Station, Bhilwara, Rajasthan against the driver of a truck-trailer in relation to a collision with the toll booth and injuries caused to the supervisor. The matter is currently pending.

C. ***IRB HMTL***

As at the date of this Disclosure Document, there is no outstanding material civil litigation, criminal litigation, regulatory action or other material litigation involving IRB HMTL.

D. ***IRB WTL***

As at the date of this Disclosure Document, there is no outstanding criminal litigation or regulatory action involving IRB WTL. Other than as disclosed below, there is no outstanding material civil litigation involving IRB WTL.

1. Mr. Laxman Neelakantha Desai (the "**Petitioner**") has filed a petition against IRB WTL (the "**Respondent**") before the court of Civil Judge Karwar alleging that the blasting of rocks done by the Respondent has caused damage to the property of the Petitioner. The Petitioner has requested a permanent injunction restraining the Respondent from undertaking such activity. The court had passed an order granting a temporary injunction against the Respondent. Subsequently, the parties entered into a mediation agreement, pursuant to which the court passed an order dated April 28, 2017, vacating the earlier injunction. The matter is currently pending.

2. Mr. V Sachhidananda Shetty (the "**Petitioner**") filed a petition against the NHAI, MRM and others (the "**Respondents**") before the Civil Judge at Kundapura alleging that he was not given permission to cut teakwood trees by one of the Respondents. For details, see " *– Material Litigation and Regulatory Action against the Sponsor/Project Manager and Associates of the Sponsor/Project Manager – Material Litigation and Regulatory Action against the Associates of the Sponsor/Project Manager – Modern Road Makers Private Limited*" on page 319.

3. Mr. Vithobha Ganesh Naik (the "**Petitioner**") has filed a suit against IRB WTL before the Principal Judge at Karwar, alleging that IRB WTL is encroaching upon the Petitioner's land to construct the highway. IRB WTL has received summons from the court. The matter is currently pending.

E. *KGTL*

As at the date of this Disclosure Document, there is no outstanding criminal litigation or regulatory action involving KGTL. Other than as disclosed below, there is no outstanding material civil litigation involving KGTL.

CGTL, KGTL and UTL have filed a writ petition before the High Court of Rajasthan, Jaipur Bench against Union of India and NHAI challenging certain notifications and seeking interim relief from the High Court of Rajasthan, Jaipur Bench. For details, see " *– Material Litigation and Regulatory Action involving the Project SPVs – UTL – Outstanding Material Civil Litigation*" on page 323.

F. *KTL*

As at the date of this Disclosure Document, there is no outstanding criminal litigation involving KTL. Other than as disclosed below, there is no outstanding material civil litigation or regulatory action involving KTL.

Outstanding Material Civil Litigation

1. KTL has invoked arbitration against the NHAI under the terms of its concession agreement in relation to a claim submitted by KTL for an aggregate amount of approximately INR 2,880.7 million and an extension of its concession period by 582.77 days in connection with the toll stoppage due to the farmer protests in 2020-2021 and other construction related claims. The matter is currently pending.

Outstanding Regulatory Action

The District Town Planner, Jind (exercising the power of Director, Town and Country Planning, Haryana) (the "**District Town Planner**") issued a notice under the Punjab Scheduled Roads and Controlled Area Restriction of Unregulated Development Act, 1963 ("**Punjab Act**") to the general manager of the toll plaza located at village Badowal, Tehsil Narwama, District Jind, stating that the construction of the toll plaza and other commercial and official building on NH-52 Narwana to Uklana was unauthorized since the construction was on land which has been notified as a controlled area under the Punjab Act. The notice also, *inter-alia*, directed the stoppage of any further construction on the land. KTL responded to the notice requesting the District Town Planner to withdraw the notice, stating that the collection of toll and the construction of the toll plaza were in accordance with the concession agreement, toll notifications and specifications approved by an independent engineer on land acquired by the NHAI. The matter is currently pending.

G. *SYTL*

As at the date of this Disclosure Document, there is no outstanding material civil litigation or criminal litigation involving SYTL. Other than as disclosed below, there is no outstanding regulatory action involving SYTL.

Outstanding Regulatory Action

SYTL approached the NHAI for amicable settlement of claims in relation to delays attributable to the NHAI during the construction of the project. The claims were for an amount of approximately ₹7,905.3 million and an extension of the concession period by 647.43 days. Since the parties were unable to reach a settlement, SYTL has invoked arbitration under its concession agreement. The matter is currently pending.

H. *UTL*

As at the date of this Disclosure Document, there is no regulatory action involving UTL. Other than as disclosed below, there is no outstanding material civil litigation and outstanding criminal litigation involving UTL.

Outstanding Material Civil Litigation

CGTL, KGTL and UTL (the "**Petitioners**") have filed a writ petition before the High Court of Rajasthan, Jaipur Bench against Union of India and NHAI (the "**Respondents**") stating that on account of COVID-19 and the subsequent national lockdown, the Petitioners submitted claim for reimbursement of losses and consequent extension of the concession period which shall be computed every month until the toll collection stabilizes to more than 90% of the average daily fee as defined under the concession agreements. Further, under the terms of the concession agreements, the Petitioners are obligated to start premium payment to the NHAI upon the third anniversary of appointed date whereas the schedule completion date was contracted as two and a half year after the appointed date. Hence, once the construction is completed in two and a half year, toll rates would have been revised and only after six months of such revision of toll rates would the Petitioners have to start the premium payment. The Petitioners have stated the scheduled completion date was revised by the NHAI, primarily due to reasons attributable to them and the revised date of completion was revised to November 30, 2020, January 31, 2021 and September 9, 2021 applicable to the Petitioners. However, NHAI addressed a letter to UTL instructing them to commence the premium payment as per the scheduled stipulated under the concession agreements.

Hence, the Petitioners have challenged, *inter-alia*, (i) sub-rule (9) of rule 4, *i.e.*, "Base rate of fee" of the National Highways Fee (Determination of Rates and Collection) Rules, 2008 as it limits the rate of fee applicable for a section of a four lane highway under upgradation to six laning during the construction period; and (ii) office memorandum dated May 18, 2020 issued by the Central Government and consequent policy guidelines / BOT (Toll) / 2020 dated May 26, 2020 issued by the NHAI and sought an interim relief to maintain the same time gap of six months between the date of revised completion date / toll tariff revision and date of commencement of payment of premium, under the respective concession agreements and issue an appropriate writ directing the NHAI (i) to not take coercive action against the Petitioners; (ii) to grant compensation to the Petitioners due to losses on account of COVID-19; and (iii) to grant an extension to the concession period. Pursuant to an interim order dated September 18, 2020, the High Court of Rajasthan, Jaipur bench, ordered a stay on the operation of Clause 26.2.1 of the model concession agreement.

The judgment along with the rectification order was pronounced by the High Court of Rajasthan on August 25, 2021 and August 26, 2021 respectively. As per direction of the said judgment, CGTL, KGTL and UTL filed undertakings on August 31, 2021. As interim relief, the High Court of Rajasthan gave interim protection to the Petitioners against payment of premium for a period of three months and directed the parties to go for arbitration. Subsequently, CGTL, KGTL and UTL filed petitions before the Delhi High Court praying for extension of relief granted by the High Court of Rajasthan. The order in relation to appointment of the arbitrator passed on November 28, 2021 by the Delhi High Court was challenged by CGTL, KGTL and UTL through a Special Leave Petition filed in the Supreme Court. The Supreme Court has appointed a presiding arbitrator pursuant to an order dated February 7, 2022.

The Delhi High Court passed an order dated November 9, 2021 in relation to interim relief and CGTL, KGTL and UTL filed an appeal against this order before the division bench of the Delhi High Court. The division bench disposed of the appeal in favour of CGTL, KGTL and UTL with the direction that the Delhi High Court holds the sole jurisdiction to hear the petition on interim relief and accordingly, hearings may be commenced before the Delhi High Court. The Delhi High Court has directed that the orders dated August 25, 2021 and August 26, 2021 passed by the Rajasthan High Court, will remain in operation. Pursuant to a judgement dated March 16, 2022, the Delhi High Court has held that the interim order will continue until an application under Section 17 of the Arbitration and Conciliation Act, 1996 is filed by the parties before the arbitral tribunal and taken up for hearing. The arbitral tribunal has been constituted. CGTL, KGTL and UTL filed claims for an amount of approximately

₹5,021.2 million, ₹8,689.6 million and ₹9,060.8 million, respectively and an extension of the concession period by 241.37 days, 387.18 days and 214.99 days, respectively. The matter is currently pending.

Outstanding Criminal Action

Hiteshkumar Ramanlal Gandhi, a shift in-charge working at the Kherwara-Khandi Obri toll plaza, filed a first information report at the Kherwara police station, Udaipur against Bhairulal Salvi, a bus driver who refused the pay toll at the toll plaza. When the people working at the toll plaza tried to stop him, the bus driver along with others misbehaved with the workers and destroyed equipment at the toll plaza resulting in the loss of about ₹0.80 million to ₹1.00 million. The matter is currently pending.

I. ***YATL***

As at the date of this Disclosure Document, there is no outstanding criminal litigation involving YATL. Other than as disclosed below, there is no outstanding material civil litigation or regulatory action involving YATL.

Outstanding Material Civil Litigation

1. Mr. Shaikh Rafiq and others (the "**Petitioners**") filed a writ petition against the Sponsor, Modern Road Makers Private Limited and others (the "**Respondents**") before the BHC Aurangaba**d** in relation to acquisition of land for the four laning of Yedshi – Aurangabad road that forms a part of the Solapur – Aurangabad highway, *i.e.*, NH 211. The Petitioners alleged that certain of the Respondents tried to change the alignment of the land already acquired for the project to include additional land in order to protect interest of one of the Respondent which is illegal. The Sponsor filed its response to the petition filed by the Petitioners and *inter-alia* stated that (i) the correct party to be impleaded in the petition is YATL and not itself as YATL is responsible for the operations under the concession agreement and therefore the petition should be dismissed on account of misjoinder and non joinder of necessary parties; and (ii) acquisition of land is the responsibility of the NHAI and hence, no cause of action lies against itself. The matter is currently pending.

2. Mr. Panditrao Digambarrao Shete Chausalkar and another (the "**Petitioners**") filed a writ petition against the Sponsor and others (the "**Respondents**") before the BHC Aurangabad in relation to acquisition of land for the four laning of Yedshi – Aurangabad road that forms a part of the Solapur – Aurangabad highway, i.e., NH 211. The Petitioners have alleged that an award was passed acquiring land of the Petitioners without following the due procedure of law and the acquisition of the land of the Petitioners is illegal. The Petitioners requested the BHC Aurangabad to set aside the award for acquisition of the lands of the Petitioner and that the Respondents should be restrained from acquiring such land. The matter is currently pending.

3. Mr. Pruthviraj Shahane (the "**Petitioner**") filed a civil suit against the Sponsor and others (the "**Respondents**") before the Civil Judge (Senior Division), Beed, alleging that the Respondents encroached upon its land by erecting electric polls over them instead of erecting them over land which has been acquired for the project. The Petitioner has, *inter-alia*, requested the court to grant a decree of perpetual and mandatory injunction against the Respondents. The matter is currently pending.

Outstanding Regulatory Action

1. YATL approached the NHAI for amicable settlement of claims in relation to delays attributable to the NHAI during the construction of the project. The claims were for an amount of approximately ₹17,508.0 million and an extension of the concession period by 869.41 days. Since the parties were unable to reach a settlement, YATL has invoked arbitration under its concession agreement. The matter is currently pending.

J. ***PDTPL***

As at the date of this Disclosure Document, there is no outstanding criminal litigation or regulatory action involving PDTPL. Other than as disclosed in " – *Material Litigation and Regulatory Action against the Sponsor/Project Manager – Outstanding Material Civil Litigation*" on page 313, in relation to the petition filed by Mr. Kishore Mukherjee in the Calcutta High Court, there is no outstanding material civil litigation involving PDTPL.

III. Material Litigation and Regulatory Action against the Investment Manager and Associates of the Investment Manager

Material Litigation and Regulatory Action against the Investment Manager

As at the date of this Disclosure Document, there is no outstanding material civil litigation or criminal litigation against the Investment Manager. Other than as disclosed below, there is no outstanding regulatory action against or other material litigation involving the Investment Manager.

Outstanding Regulatory Action

The Collector of Stamps, Solapur sent a demand notice dated April 24, 2015 to the Investment Manager demanding a sum of ₹152,000 as deficit stamp duty and a penalty of ₹3,040 on the agreement dated May 29, 2002 executed between the Maharashtra State Road Development Corporation, Ideal Road Builders and the Investment Manager. The Investment Manager filed a reply denying the payment of deficit stamp duty on the grounds that (a) the demand of deficit amount of stamp duty was made payable by citing the provisions included in Section 63 of the Bombay Stamp Act, 1958 inserted vide amendment 12 of 2006 (effective from May 1, 2006) whereas the agreement was already executed prior to the amendment; and (b) Section 63 of the Bombay Stamp Act, 1958 does not have a retrospective effect. In its letter dated July 7, 2015, the Collector of Stamps issued a direction that the Investment Manager and Ideal Road Builders must pay the deficit stamp duty and the penalty within seven days, failing which recovery action for the said amount would be initiated as per the Maharashtra Land Revenue Code, 1966 and the toll would be sealed. No further communication has been received from the Collector of Stamps Solapur in this regard.

Material Litigation and Regulatory Action against the Associates of the Investment Manager

For details of material litigation and regulatory action against the associates of the Investment Manager, see " – *Material Litigation and Regulatory Action against the Sponsor/Project Manager and Associates of the Sponsor/Project Manager*" on page 312.

IV. Material Litigation and Regulatory Action against the Trustee

As at the date of this Disclosure Document, there is no outstanding criminal litigation or regulatory action against the Trustee.

Outstanding Material Civil Litigation

1. Hubtown Limited (the **"Plaintiff")** had filed a case before the High Court of Bombay against the Trustee and its directors (the **"Defendants")** for having informed the bankers of the Plaintiff regarding the defaults committed by the Plaintiff. The Trustee has stated that the Plaintiff is a guarantor for the debt for which the Trustee is acting as a debenture trustee and in case of defaults, the relevant documents authorize the Trustee to share information about such default to CIBJL/RBI and other creditors. The aggregate amount claimed Is 3,000 million. The matter is currently pending in the Court for settlement. The matter is also before the Mediator under Arbitration & Conciliation Act, 1996. The present matter was only a small part of a larger complex dispute that is being sought to be resolved between multiple parties, of which only two parties are before the Mediator (ITSL and Vince) and that once a decree is passed by the Bombay High Court in terms of the consent terms, parties will withdraw all other proceedings filed against each other, including the present Suit. The Consent Terms filed before Bombay High Court on 3rd March, 2023. At the request of the Plaintiff that the disputes in the present matter has been settled out of Court and seeks leave to withdraw the suit, BHC vide its Order dated the 20th March, 2023 dismissed the suit as withdrawn.

2. SBI Cap Trustee (the **"Plaintiff")** had filed a suit before the City Civil Court, Bangalore against the Trustee and others (the **"Defendants")** requiring sale of pledged shares for a particular price by SREI Fund/Investors, for whom the Trustee was acting as the share pledge trustee. India Competitive Global Fund (ICGC) acting through the SREI Investment Manager had a First & Exclusive Charge over the Pledged shares. At the instructions of the ICGC & SRO Investment Manager had transferred the Pledged shares to

their demat account as they has First & Exclusive right over the shares, We as Share Pledge Trustee has acted on the instructions of the Lenders/Investors. ICGC/SREI sold the shares and appropriated the amounts towards their dues and transferred the surplus amount to the Plaintiff. The Plaintiff is acting for a consortium of lenders and has residual interest. The Plaintiff's case is that the ICGC/SREI has appropriated more amount than their dues. The aggregate claim amount is Rs. 1,550.3 million. The Branch Manager of SBI along with their counsel submitted to the Court that they are willing to explore settlement. The Court referred the matter for pre-conciliation efforts. In the afternoon session, our Advocate appeared before the Conciliator, Advocate briefly explained the dispute to the Conciliator. The Plaintiff informed the Conciliator that if Trinity provides the details of the loan transaction and a statement of accounts in relation to the same, this information would help them resolve the dispute quickly, The case was listed on 30.09.2021 for further conciliation. As no representative was present on behalf of the Company, the Court has recorded that there is no settlement between the parties. The case was adjourned to October 27, 2021 for the parties to proceed with the litigation. The case is now revolving around the proving of the dues by ICGC/SREI and appropriation of amounts. We as ITSL had no role in sale of shares, maintenance of books of accounts and appropriation of amounts and transfer of surplus amount. The matter was adjourned to 16.11.2021 for framing of Issues, 23.11.2021 for filing of list of witnesses ICGC ,SREI & ITSL, for filing of affidavit of evidence by SBI, 07.12.2021 for cross examination of witnesses of SBI, 14.12.2021 for filing of affidavit of evidence by ICGC/SREI /Trinity/ITSL and 21.12.2021 for cross examination of witnesses of Trinity and ITSL and 07.01.2022 for further orders.

We as ITSL has filed an application under Order 1 Rule 10(2) read with Section 151 of the Code of Civil Procedure, 1908 for unsuiting ITSL from the suit and for deleting the name of ITSL from the array of the parties. The matter is now listed on 30.06.2022 for arguments on the application of ITSL for deleting the name of ITSL from the array of the parties. ITSL has no role in sale of shares & appropriation of sale proceeds. The Plaintiff appeared and filed the amended plaint and copies of the documents in two volumes (volume I consisting of 410 pages and volume H consisting of 598 pages). The Learned Judge upon examining the volumes observed that the Plaintiff had not filed the statement of truth. Therefore, the Learned Judge adjourned the matter for filing the statement of truth and additional written statement, if any. ITSL has filed it's additional Written Statement on 12th August, 2022, The matter adjourned to 25th January, 2023 for the reply arguments by the Defendants 2 & 3, The main contention taken by the Plaintiff Advocate while arguing on IA is that they are entitled for complete residual dues which Defendant No 2 & 3 have received while selling the pledged shares. Now the matter is posted on 23rd March, 2023 for hearing on IA by Defendant No 2 and 3.

3. Balmer Lawrie and Company Limited and another (the "**Plaintiffs**") had filed a petition before the Calcutta High Court against the Trustee and certain others (the "Defendants") challenging the validity of the sale transaction of 1,48,20,000 shares in Transafe Services Limited by the Defendant to the Plaintiff. The Plaintiffs have inter alia sought (a) the recovery of consideration received by the Defendants for the allegedly void contract being t 237.12 million and (b) interest at the rate of 18% per annum on the decretal amount. The success of the Petitioner against the Trustee in the instant petition being agitated is remote. The matter is currently pending.

4. Future Corporate Resources Limited (FCRL) In the matter of FCRL ESOP Trust, SEBI Adjudicating Officer has passed an order dated the February 3, 2021, on the ground of insider trading against eight persons including FCRL Employees Trust of which ITSL is a trustee. FCRL along with FCRL Employee Welfare Trust has been jointly and severally directed to disgorge an amount of t 2, 75, 68,650/-. ITSL has submitted that ITSL as a trustee has acted on the instructions of the committee and not liable for insider trading and has not gained or received any amount. ITSL and FCRL Employee Welfare Trust are separate. All the said persons have filed an appeal before SAT against the said SEBI Order dated the February 3, 2021. SAT has given the next date of hearing on 18.04.2023. The order is against FCRL Employees Trust and not against ITSL. The matter is sub-judice.

5. Muthoot Finance Ltd.Vs. Trustees Association of India(TAI), ITSL, Axis Trustee & SBICAP Trustee) — (Case No.29 of 2021) before Competition Commission of India(CCI): On 10.09.2021, the Competition Commission of India(CCI) received an information from Muthoot Finance Limited (Informant) against Trustees Association of India (TAI) and three of its members, i.e., IDBI Trusteeship Services Limited, Axis Trustee Services Limited, and SBI CAP Trustee Company Limited (collectively referred to as `OPs') for alleged contravention of Sections 3(3) and 4 of the Competition Act, 2002 (Competition Act) (hereinafter referred to as the 'Information'). I ,e. for entering into anti-competitive agreement and formation of Cartel. CCI.

The CCI has passed an order dated 23.12.2021 under Section 26(1) of the Competition Act, 2002 (Competition Act) directing the Director General to investigate the conduct of Trustees' Association of India's (TAI), IDBI Trusteeship Services Limited (IDBI), Axis Trustee Services Limited and SBICAP Trustee Company (together referred to as the `OPs') and its office bearers for prima facie violating Section 3(1) read with Section 3(3) of the Competition Act (Prima Facie Order) dealing with anti-competitive horizontal agreement (including cartel).

TAI, ITSL, Axis Trustee & SBICAP Trustee filed Civil Writ Petition Nos. 3781 of 2022, 3791 of 2022, 3842 of 2022 and 3847 of 2022 respectively before Bombay High Court challenging the jurisdiction of CCI as the SEBI as Sectoral Regulator has jurisdiction to decide the matter. The matter has been adjourned to 15th February, 2023 for hearing on Application by CCI for vacation of Stay. At the hearing held on 21' February,2023, the Bombay High Court directed CCI to first decide the jurisdictional issue, leaving all other contentions open. Matter to go before CCI.

We have flied detailed application on 215t March, 2023 before CCI to decide upon jurisdiction and as opined by SEBI test laid down in the case of Bharti Airtel is not satisfied, therefore, recall the Prima Fade Order and forthwith close the proceedings against TAI (including Respondent DTs).

6. R.K. Mohata Family Trust Vs, ITSL & Ors.: One Mr .R.K.Mohata Family Trust has filed Commercial Suit (lodging) No. 27568 of 2021 before Bombay High Court against ITSL & RHFL praying for holding of meeting of debenture holders of RHFL as also damages of Rs.1,05,50,902 against ITSL towards his investment. Hon'ble Bombay High Court vide their orders dated the 31.03.2022 read with the Order dated the 06.04.2022 and the order dated the 10.05.2022 directed ITSL to hold the meeting of debenture holders, ITSL convened a meeting of the debenture holders on 13.05.2022 and as directed by Hon'ble Bombay High Court and the Results of the voting of meeting have been placed before the Hon'ble Bombay High Court in sealed cover. The matter is sub-I/Lidice before the Hon'ble Bombay High Court. Authum (AIIL) filed an appeal before the Hon'ble Supreme Court against the order of BHC. The matter was listed for hearing on 31St January,2023. The matter was part heard and thereafter adjourned.

   Arising out of SLPC) No. 411 of 2023 filed by Authum Investments & Infrastructure Ltd. (AIIL) Vs. R.K.Mohtta Family Trust & Ors, Supreme Court vide their Order dated the 3rd March,2023 allowed the Resolution Plan filed by AIIL and directed AIIL to make the payments prior to 31St March, 2023.

7. SCR 109885 — 1/394/14 - J Patel & 68 Others (All investors of Dynamic India Fund III) Vs. Dynamic India Fund III, International Financial Services, ICICI Venture Funds Management Company Limited, ICICI Bank and ITSL , before Supreme Court of Mauritius.

   Suit is filed by investors seeking compensation and damages of Rs. USD 103, 699, 976 for the loss of their investments in Dynamic India Fund III from Dynamic India Fund III, International Financial Services, ICICI Venture Funds Management Company Limited, ICICI Bank and ITSL.

   All the Defendants including ICICI Venture have raised preliminary objections to the Suit.

   OIF III has raised five preliminary objections to the Suit viz. (i) Plaintiffs have been wrongly styled; (ii) Suit is a disguised derivative action and the appropriate court to hear it is the Commercial Court and not the Civil Court; (iii) there is a connected Stay Application filed before the Commercial Court by DIF III that the Suit has to be stayed as the Suit is a Class Action suit and hence the Commercial Court and not the Civil Court has the jurisdiction to hear the Suit; (iv) the Plaintiffs should have put the other shareholders of DIF III into cause; and (v) the Plaintiffs have to provide Security for costs to all the Defendants.

   The other Defendants have raised preliminary objections with respect to privity of contract and jurisdiction of Mauritius Courts.

   Nearly 6 years after the Suit was filed in 2014 in Mauritius, on January 28, 2020, the court heard arguments on only two of the preliminary objections raised by ICICI Bank and ICICI Venture viz. (a) Mauritius court lacks jurisdiction to hear disputes between non-Mauritians (both the Plaintiffs and the Defendants No. 3 and 4 i.e. ICICI Bank and ICICI Venture are not Mauritius residents); and (b) Mauritius court is not the convenient forum to hear the disputes raised.

The arguments relied, amongst others, related to the facts that (a) alleged conduct of ICICI Bank and ICICI Venture did not admittedly happen in Mauritius and offences, if any, happened in India; (b) investments were in real estate projects in India; (c) investments were in a real estate fund in India; and (d) Indian law governs the contractual relationship between the parties.

By an order dated June 9, 2020 the Supreme Court of Mauritius stayed the proceedings as against ICICI Bank and ICICI Venture on the grounds that none of the allegations made against ICICI Bank and ICICI Venture occurred in Mauritius and hence the courts in Mauritius lack jurisdiction to adjudicate such allegations. In the subsequent hearing on July 1, 2020, the Plaintiffs informed the Court of their decision not to appeal against the order staying the proceedings as against ICICI Venture and ICICI Bank. The proceedings would continue against the other Defendants viz. DIP III, IFS and the Trustee.

The Supreme Court of Mauritius vide its order dated the 3rd June, 2022 have deleted ICICI Bank and ICICI Venture Fund Management Company Ltd. from the array of the parties allowed to continue the case against Dynamic India Fund III, SANE Mauritius and the WITECO now ITSL.

The Plaintiffs have filed an appeal against the said Judgement dated the 3rd June,2022 passed by The Supreme Court of Mauritius.

ICICI Venture Fund Management Company Ltd. is taking care of the matter on behalf of ITSL as a Trustee and also appointed Counsels to defend ITSL. We have taken up the matter with the ICICI Venture stating that WITECO now ITSL is also not a Mauritius resident and Mauritius court is not the convenient forum to hear the disputes raised and hence lacks the jurisdiction. Further, ITSL is acting only as a trustee and there cannot be any claim against ITSL at ail as ICICI Venture Fund Management Company Ltd, was Investment Manager of the Fund who has managed all affairs of the Fund.

This matter has been put sine die i.e. adjourned with no appointed date for resumption, pending the outcome of the appeal filed by plaintiffs.

8. Pawan Kapoor & Anr. vs. SEBI & Ors.(Karvy Data Management Services Ltd): In the case of Karvy Data Management Services Ltd ; one Pawan Kapoor & Amri Resorts Pvt. Ltd. the Debenture Holders have flied Writ Petition before Delhi High Court, inter alia against ITSL alleging various non compliances by ITSL and for not Initiating action against Karvy Data Management Services Ltd. for defaults in payment of interest & Principal. The matter was listed before Hon'ble Delhi High Court on 19.12.2022. The Hon'ble Delhi High Court has directed Ministry of Corporate affairs to investigate in the complaint and provide report. The matter has been listed on 19/05/2023.

9. Varsha Vikram Modi Vs. ITSL, RHFL & SEBI. (Writ Petition No.348 of 2023) before Bombay High Court: One Ms. Varsha Modi, Debenture Holder of RHFL has filed captioned Writ Petition against ITSL impleading RHFL & SEBI praying for the following reliefs:-
   I. Issuance of Writ of Certiorari or any other writ under Article 226 of the Constitution of India to quash or cancel the Registration Certificate of ITSL the Respondent No.1, issued by SEBI the Respondent No.3.
   II. Issuance of Writ of Certiorari or any other writ under Article 226 of the Constitution of India to direct the SEBI the Respondent No.3 to take action & conduct enquiry on the basis of complaint dated the 28th May,2022 lodged by the Petitioner with SEBI
   III. Issuance of Writ of Certiorari or any other writ under Article 226 of the Constitution of India to direct RHFL to pay the amount of Rs.4.5 crore to the petitioner with respect to the NCDs issued by RHFL
   IV. Issuance of Writ of Certiorari or any other writ under Article 226 of the Constitution of India to direct ITSL to deposit a sum of Rs.4.5 crores with Prothonotary and Senior Master of the Court.
   V. Payment of costs & any other relief as may be deemed fit & proper.

V. Taxation Proceedings

Details of all outstanding direct tax and indirect tax proceedings (i) against the Trust, the Sponsor/Project Manager, the Investment Manager, their respective Associates and the Trustee and (ii) involving the Project SPVs, as at the date of this Disclosure Document are disclosed below:

Nature of Proceedings	Number of Proceedings	Amount involved (in ₹ million)
Direct Tax*		
Trust	Nil	Nil
Sponsor/Project Manager	Nil	Nil
Associates of the Sponsor/Project Manager	7	55.91
Project SPVs	4	84.79
Investment Manager	Nil	Nil
*Associates of the Investment Manager***	Nil	Nil
Trustee	Nil	Nil
Indirect Tax*		
Trust	Nil	Nil
Sponsor/Project Manager	Nil	Nil
Associates of the Sponsor/Project Manager	12	3,185.38
Project SPVs	Nil	Nil
Investment Manager	Nil	Nil
*Associates of the Investment Manager***	Nil	Nil
Trustee	Nil	Nil

**Such amount excludes any interest or penalty in relation to such direct and indirect tax proceedings.*
*** Excludes Associates of the Sponsor/Project Manager.*

GOVERNMENT AND OTHER APPROVALS

On the basis of the list of material approvals, consents, licenses and permissions provided below, the Trust and the Project SPVs can undertake each of their respective current business activities and other than as stated below, no further material approval, consent, license or permission from any regulatory authority is required to continue such business activities. Unless otherwise stated, these approvals are valid as of the date of this Disclosure Document. For details in connection with the regulatory and legal framework within which we operate, see "Regulations and Policies" on page 197.

Certain licenses and/or approvals may expire/elapse periodically, in the ordinary course of business, and applications to the appropriate authorities for the renewal of such licenses and/or approvals are/will be submitted in accordance with applicable requirements and procedures.

A. Approvals in Relation to the Listing

1. Resolutions dated March 22, 2023 of the board of directors of the Investment Manager in relation to the Listing and other related matters.

2. Letters dated March 24, 2023 and February 28, 2023 issued by the SEBI in connection with the Listing, advising the Investment Manager to list the Units on or prior to March 31, 2023, granting certain exemptions and providing certain clarifications under the InvIT Regulations to the Trust, read with the letters dated October 4, 2022 and January 18, 2023 submitted by the Sponsor and the Investment Manager, respectively, and the letter dated March 16, 2023 submitted by the Investment Manager, to the SEBI. We have complied with the conditions in such letters to the extent applicable, and undertake to comply with applicable requirements post Listing.

B. Registration of the Trust

1. The SEBI has issued a certificate dated November 25, 2019 for registration of the Trust as an infrastructure investment trust (registration number IN/InvIT/19-20/0012).

The registration certificate has been granted subject to the following conditions, *inter-alia*, as specified in Regulation 7 of the InvIT Regulations:

(i) the Trust shall abide by the provisions of the SEBI Act and the InvIT Regulations;
(ii) the Trust shall forthwith inform the SEBI in writing, if any information or particulars previously submitted to the SEBI are found to be false or misleading in any material particular or if there is any material change in the information already submitted;
(iii) the Trust and the parties to the Trust shall satisfy with the conditions specified in Regulation 4 of the InvIT Regulations at all times;
(iv) the Trust and the parties to the Trust shall comply, at all times, with the code of conduct as specified in Schedule VI of the InvIT Regulations, wherever applicable.

The certificate also states:

(i) that the investment conditions and other restrictions will apply to all investments, distributions etc. made;
(ii) that for issuance and listing of Units issued in terms of Chapter VIA of the InvIT Regulations, the Trust shall fulfill the conditions as may be prescribed by the SEBI from time to time;
(iii) that the transaction for transfer of the underlying assets/shares or interest in SPVs to the Trust and the corresponding issue of the Trust's Units to the transferor entity shall happen only after the closure of the initial offer;
(iv) the minimum investment and lot size for an InvIT for a public issue or a private placement;
(v) that the Trust shall keep and maintain the books of accounts, records and such other documents as may be required by the SEBI under the InvIT Regulations from time to time;
(vi) that the Trust shall ensure compliance with the guidelines/directives/instructions/circulars etc. as may be issued from time to time by the SEBI or the Government of India relating to the activities carried on by the Trust;
(vii) that the Trust shall not make use of its status as a SEBI registered InvIT in furtherance of unrelated activities or any other purpose which is not permitted under the InvIT Regulations;

(viii) that the Trust's actions shall be governed by the SEBI Act and the InvIT Regulations in respect of activities carried on as an InvIT;
(ix) that any material change in the information on the basis of which registration is granted must be communicated to SEBI immediately; and
(x) that the registration has been granted on the basis of information available with the SEBI at the relevant point of time and does not preclude the SEBI from cancelling the registration later if anything adverse is found against the Trust or in case of a conviction.

Pursuant to a letter dated January 30, 2020, the SEBI has, *inter-alia*, taken on record the rights and provided to the investors in the Trust.

2. Approval dated January 3, 2020 issued by the NHAI for establishing the Trust and the transfer of the Project SPVs subject to, *inter-alia*, the following conditions:

(i) submission of no-objection certificates from the lenders of all the Project SPVs;
(ii) the concessionaire/developer is required to comply with all the provisions of the concession agreements including 51% holding in the Trust until two years after completion / provisional COD of the projects;
(iii) the incoming investor will comply to all relevant contractual obligations of the concession agreements;
(iv) the proposal submitted pursuant to the letter dated September 16, 2019 for establishing the Trust, transfer of the Project SPVs to the Trust and the transfer of 49% in the Trust shall not have the effect of jeopardizing the interests of the NHAI in any manner; and
(v) an undertaking that all statutory compliances as required by the SEBI guidelines shall be adhered to.

C. Approvals in Relation to the Project SPVs

Completion Certificates

1. Completion certificate dated March 29, 2019, with respect to 167.04 km stretch of KTL's Kaithal-Rajasthan border section of NH 152/65 project.

2. Completion certificate dated November 25, 2019, effective from October 15, 2019, with respect to the four-laning of the Solapur to Yedeshi section km. 0.000 to km. 100.000 (design length 98.717 km) of NH 211 project.

3. Provisional completion certificate dated January 31, 2020 with respect to 141.00 km stretch of IRB WTL's Goa-Karnataka Border – Kundapur section of NH-17 (now NH-66). The aforesaid provisional completion certificate was issued along with a punch list containing certain items to be completed within 90 days from the date of issuance thereof, including, *inter alia*, (a) laying of earthwork, GSB, WMM, DBM, SDBC, RCC drain, and footpath in the service road; (b) laying of earthwork, GSB, DLC, PQC, toll plaza tunnel on RHS and kerb in the toll plaza on RHS at km 182+850; (c) slope dressing; (d) chute drain stetches; (e) slope protection which includes pithcing on structures and slope protection on high embankment slope; (f) avenue plantation; (g) structural numbering and construction of appron; (h) static weigh bridge construction; (i) construction of truck bay, bus shelter, and boundary stones; (j) cleaaning of waterway of structure and providing cut drain as per standards; and (k) surveying with network survey vehicle from Ch 93.70 to Ch 280.94.

4. Provisional completion certificate dated March 24, 2023 with respect to 170.98 km stretch of IRB WTL's Goa-Karnataka Border – Kundapur section of NH-17 (now NH-66).

5. Completion certificate dated September 24, 2020 with respect to 189.02 km stretch of YATL's Yedeshi-Aurangabad section of NH 211 project.

6. Completion certificate dated November 24, 2020 with respect to the six-laning of AETL's Agra-Etawah bypass section of NH-2 (km 199.660 to km 232.525).

7. Completion certificate dated May 31, 2021 with respect to the six-laning of UTL's section of NH-8 (now NH-48), effective from June 1, 2021.

8. Completion certificate dated August 14, 2021 with respect to the six-laning of CGTL effective from August 14, 2021.

9. Completion certificate dated July 1, 2022 with respect to the six-laning of IRB HMTL effective from July 1, 2022.

10. Completion certificate dated July 20, 2022 with respect to the six-laning of KGTL effective from July 20, 2022.

Approvals for Continuing Commercial Operations

The Project SPVs are required to obtain and maintain certain permits, registrations, approvals and licenses during the commercial operations phase of their respective projects, as disclosed below:

1. Certificate of registration of establishment under the Maharashtra Shops and Establishment (Regulation of Employment and Condition of Service) Act, 2017.

2. Registrations under various tax laws, including but not limited to, permanent account number, professional tax and goods and services tax.

3. Registration under the Legal Metrology Act, 2009 and respective state government rules for weigh-in-motion and road weigh bridge.

4. Registrations under applicable labour laws including, but not limited to, registrations under the Employees' Provident Funds and Miscellaneous Act, 1952, the Employees' State Insurance Act, 1948 and the Contract Labour (Regulation and Abolition) Act, 1970.

5. No-objection certificates and authorization from the relevant state pollution control board for consent to operate under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981 and Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008.

The Project SPVs have obtained the necessary permits, registrations, approvals and licenses from the appropriate regulatory and governing authorities that are required to operate their respective businesses. Certain approvals may have lapsed in their normal course and the respective Project SPVs have either made applications to the appropriate authorities for renewal of such licenses and/or approvals or are in the process of making such applications.

D. Approvals applied for, but not yet received

As at the date of this Disclosure Document, there are no approvals required to be obtained by the Trust or the Project SPVs, for which applications have been made, but approvals have not been received.

E. Approvals for which applications are yet to be made

As at the date of this Disclosure Document, there are no material approvals required to be obtained by the Trust or the Project SPVs.

F. Intellectual Property

The Project SPVs, the Investment Manager and the Trustee have entered into a name licensing agreement with the Sponsor. For details, see "*Related Party Transactions*" on page 210.

OTHER REGULATORY DISCLOSURES

Eligibility for the Listing

A resolution dated March 22, 2023 has been passed by the Board of the Investment Manager authorizing the Listing.

The Trust holds not less than 80% of its assets in eligible infrastructure projects.

Prohibition by SEBI or RBI

None of the Trust, the Sponsor, the Investment Manager, the Project Manager and the Trustee, or the promoter(s) or director(s) of any of the Sponsor, the Investment Manager, the Project Manager (i) is debarred from accessing the securities market by SEBI; or (ii) is a promoter, director or person in control of any other company or a sponsor, investment manager or trustee of any other infrastructure investment trust which is debarred from accessing the capital market under any order or direction made by SEBI.

None of the promoters or directors of the Trustee (i) is debarred from accessing the securities market by SEBI; (ii) is a promoter, director or person in control of any other company or a sponsor, investment manager or trustee of any other infrastructure investment trust or an infrastructure investment trust which is debarred from accessing the capital market under any order or direction made by SEBI; or (iii) is in the list of wilful defaulters published by the RBI.

None of the respective promoters or directors of the Sponsor or Investment Manager or the Trustee has been declared a fugitive economic offender under Section 12 of the Fugitive Economic Offenders Act, 2018.

Undertakings by the Investment Manager

The Investment Manager (on behalf of the Trust) undertakes the following:

- at any given time, there shall be only one denomination for the Units; and

- it shall comply with such disclosure and accounting norms specified by SEBI from time to time.

The statements contained in this Disclosure Document relating to the Trust and the Units are material, true and correct. The opinions and intentions expressed in this Disclosure Document with regard to the Trust and the Units are honestly held, have been reached after considering all relevant circumstances and are based on reasonable assumptions and information presently available with the Investment Manager or the Sponsor/Project Manager. There are no other facts in relation to the Trust or the Units, the omission of which would, in the context of the Listing, make any statement in this Disclosure Document misleading in any material respect. Further, each of the Investment Manager and the Sponsor/Project Manager has made all reasonable enquiries to ascertain such facts and to verify the accuracy of all such information and statements.

This Disclosure Document is solely for purposes of providing information in connection with the Listing and must not be relied on for making any investment decision. This Disclosure Document is not to be reproduced or distributed to any other person. The delivery of this Disclosure Document, at any time, does not imply that the information contained in it is correct as of any time subsequent to its date.

The distribution of this Disclosure Document in certain jurisdictions may be restricted by law. As such, this Disclosure Document does not constitute, and may not be used for, or in connection with, an offer or solicitation by anyone in any jurisdiction. In particular, no action has been taken by the Investment Manager which would permit an issue of the Units in any jurisdiction. Accordingly, the Units may not be offered or sold, directly or indirectly, pursuant to this Disclosure Document, and neither this Disclosure Document nor any materials in connection with the Units be distributed or published in or from any country or jurisdiction.

The Units have not been and will not be registered, listed or otherwise qualified in any other jurisdiction outside India and may not be offered or sold in any jurisdiction pursuant to this Disclosure Document.

SECTION IX – OTHER INFORMATION

MATERIAL CONTRACTS AND MATERIAL DOCUMENTS

The following contracts, which are or may be deemed material have been entered into among the relevant parties.

A. Material Contracts

1. The Framework Agreement, among the Sponsor, the Investment Manager, Bricklayers Investment Pte. Ltd, Chiswick Investments Pte. Ltd, Dangenham Investment Pte. Ltd, Anahera Investment Pte. Ltd and Stretford End Investment Pte. Ltd., dated August 6, 2019, as amended;

2. The Indenture of Trust, between the Sponsor and the Trustee, dated August 27, 2019;

3. The Investment Management Agreement, among the Trustee and the Investment Manager, dated August 27, 2019, as amended;

4. The name licensing agreement among the Sponsor, the Trustee (on behalf of the Trust), the Investment Manager and each of the Project SPVs dated February 13, 2020, as amended.

5. Shareholders' agreement dated August 6, 2019, as amended, among the Sponsor, Croxley and the Investment Manager, as amended;

6. The concession agreement between AETL and NHAI dated September 1, 2015, together with any amendments or supplements thereto;

7. The concession agreement between CGTL and NHAI dated December 9, 2016, together with any amendments or supplements thereto;

8. The concession agreement between IRB HMTL and NHAI dated May 29, 2018, together with any amendments or supplements thereto;

9. The concession agreement between IRB WTL and NHAI dated March 25, 2013, together with any amendments or supplements thereto;

10. The concession agreement between KGTL and NHAI dated February 22, 2018, together with any amendments or supplements thereto;

11. The concession agreement between KTL and NHAI dated June 23, 2014, together with any amendements or supplements thereto;

12. The concession agreement between SYTL and NHAI dated March 3, 2014, together with any amendements or supplements thereto;

13. The concession agreement between UTL and NHAI dated December 9, 2016, together with any amendements or supplements thereto;

14. The concession agreement between YATL and NHAI dated May 30, 2014, together with any amendements or supplements thereto;

15. The concession agreement between PDTPL and NHAI dated June 14, 2021, together with any amendements or supplements thereto;

16. The Project Implementation Agreements, each dated February 3, 2020, among the Trustee (on behalf of the Trust), the Investment Manager, the Project Manager and each of the Project SPVs (except PDTPL), as amended, and the project implementation agreement dated May 19, 2022 among the Trustee (on behalf of the Trust), the Investment Manager, the Project Manager and PDTPL;

17. The Debt Novation Agreements dated February 19, 2020, as amended; and

18. The Project SPV Shareholder Loan Agreements dated February 19, 2020 (for all Project SPVs except PDTPL) and April 7, 2022 (for PDTPL).

B. Material Documents

1. Certificate of registration of the Trust as an infrastructure investment trust dated November 25, 2019 issued by the SEBI and letter dated January 30, 2020 issued by the SEBI;

2. The resolution of the board of directors of the Investment Manager dated March 22, 2023 authorizing the Listing;

3. Consent of the Auditor in relation to the statement of tax benefits dated March 23, 2023, the report on the Special Purpose Consolidated / Combined Financial Information dated March 22, 2023 included in this Disclosure Document;

4. Consent of the Traffic Consultant, Legal Counsel and the Compliance Officer;

5. Consent of the Valuer in relation to the Portfolio Valuation Report included in this Disclosure Document;

6. The letter from the NHAI dated January 3, 2020 in connection with the transfer of the Project SPVs to the Trust and other matters;

7. Letters dated March 24, 2023 and February 28, 2023 issued by the SEBI in connection with the Listing, advising the Investment Manager to list the Units on or prior to March 31, 2023, granting certain exemptions and providing certain clarifications under the InvIT Regulations to the Trust, read with the letters dated October 4, 2022 and January 18, 2023 submitted by the Sponsor and the Investment Manager, respectively, and the letter dated March 16, 2023 submitted by the Investment Manager, to the SEBI;

8. Tripartite Agreement dated January 14, 2020, among the Investment Manager (on behalf of the Trust), NSDL and the Registrar and Unit Transfer Agent; and

9. Tripartite Agreement dated January 16, 2020, among the Investment Manager (on behalf of the Trust), CDSL and the Registrar and the Unit Transfer Agent.

Any of the contracts or documents mentioned in this Disclosure Document may be amended or modified at any time if so required in the interest of the Trust or if required by the other parties, without reference to the Unitholders, subject to compliance with applicable law.

DECLARATION

The Investment Manager hereby declares and certifies that all applicable provisions of the InvIT Regulations have been complied with and no statement made in this Disclosure Document is contrary to the provisions of the InvIT Regulations, the SCRA, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Investment Manager further certifies that all the statements and disclosures in this Disclosure Document are material, true, correct and not misleading.

For **MMK Toll Road Private Limited**

Mr. Virendra D. Mhaiskar
Non-executive Director
Date: March 24, 2023
Place: Mumbai

DECLARATION

The Investment Manager hereby declares and certifies that all applicable provisions of the InvIT Regulations have been complied with and no statement made in this Disclosure Document is contrary to the provisions of the InvIT Regulations, the SCRA, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Investment Manager further certifies that all the statements and disclosures in this Disclosure Document are material, true, correct and not misleading.

For **MMK Toll Road Private Limited**

Mr. Kunnasagaran Chinniah
Non-executive Director
Date: March 24, 2023
Place: Singapore

DECLARATION

The Investment Manager hereby declares and certifies that all applicable provisions of the InvIT Regulations have been complied with and no statement made in this Disclosure Document is contrary to the provisions of the InvIT Regulations, the SCRA, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Investment Manager further certifies that all the statements and disclosures in this Disclosure Document are material, true, correct and not misleading.

For **MMK Toll Road Private Limited**

Mr. K G Krishnamurthy
Independent Director
Date: March 24, 2023
Place: Mumbai

DECLARATION

The Investment Manager hereby declares and certifies that all applicable provisions of the InvIT Regulations have been complied with and no statement made in this Disclosure Document is contrary to the provisions of the InvIT Regulations, the SCRA, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Investment Manager further certifies that all the statements and disclosures in this Disclosure Document are material, true, correct and not misleading.

For **MMK Toll Road Private Limited**

Mrs. Ranjana Paranjpe
Independent Director
Date: March 24, 2023
Place: Mumbai

DECLARATION

The Trustee (on behalf of the Trust) hereby declares and certifies that all applicable provisions of the InvIT Regulations have been complied with and no statement made in this Disclosure Document is contrary to the provisions of the InvIT Regulations, the SCRA, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Trustee (on behalf of the Trust) further certifies that all the statements and disclosures in this Disclosure Document are material, true, correct and not misleading.

SIGNED BY THE TRUSTEE (ON BEHALF OF THE TRUST)

For **IDBI Trusteeship Services Limited**

Date: March 24, 2023
Place: Mumbai

DECLARATION

The Sponsor hereby declares and certifies that that all applicable provisions of the InvIT Regulations have been complied with and no statement made in this Disclosure Document is contrary to the provisions of the InvIT Regulations, the SCRA, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Sponsor further certifies that all the statements and disclosures in this Disclosure Document are material, true, correct and not misleading.

For **IRB Infrastructure Developers Limited**

Mr. Virendra D. Mhaiskar
Chairman and Managing Director
Date: March 24, 2023
Place: Mumbai

DECLARATION

The Sponsor hereby declares and certifies that that all applicable provisions of the InvIT Regulations have been complied with and no statement made in this Disclosure Document is contrary to the provisions of the InvIT Regulations, the SCRA, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Sponsor further certifies that all the statements and disclosures in this Disclosure Document are material, true, correct and not misleading.

For **IRB Infrastructure Developers Limited**

Mrs. Deepali V. Mhaiskar
Whole-time Director
Date: March 24, 2023
Place: Mumbai

DECLARATION

The Sponsor hereby declares and certifies that that all applicable provisions of the InvIT Regulations have been complied with and no statement made in this Disclosure Document is contrary to the provisions of the InvIT Regulations, the SCRA, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Sponsor further certifies that all the statements and disclosures in this Disclosure Document are material, true, correct and not misleading.

For **IRB Infrastructure Developers Limited**

Mr. Jose Tamariz Martel Goncer
Non-Executive Director
Date: March 24, 2023
Place: Amsterdam, The Netherlands

DECLARATION

The Sponsor hereby declares and certifies that that all applicable provisions of the InvIT Regulations have been complied with and no statement made in this Disclosure Document is contrary to the provisions of the InvIT Regulations, the SCRA, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Sponsor further certifies that all the statements and disclosures in this Disclosure Document are material, true, correct and not misleading.

For **IRB Infrastructure Developers Limited**

Mr. Ravindra Dhariwal
Non-Executive Director
Date: March 24, 2023
Place: New Delhi

DECLARATION

The Sponsor hereby declares and certifies that that all applicable provisions of the InvIT Regulations have been complied with and no statement made in this Disclosure Document is contrary to the provisions of the InvIT Regulations, the SCRA, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Sponsor further certifies that all the statements and disclosures in this Disclosure Document are material, true, correct and not misleading.

For **IRB Infrastructure Developers Limited**

Mr. Sunil Talati
Independent Director
Date: March 24, 2023
Place: Ahmedabad

DECLARATION

The Sponsor hereby declares and certifies that that all applicable provisions of the InvIT Regulations have been complied with and no statement made in this Disclosure Document is contrary to the provisions of the InvIT Regulations, the SCRA, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Sponsor further certifies that all the statements and disclosures in this Disclosure Document are material, true, correct and not misleading.

For **IRB Infrastructure Developers Limited**

Mr. Chandrashekhar S. Kaptan
Independent Director
Date: March 24, 2023
Place: Nagpur

DECLARATION

The Sponsor hereby declares and certifies that that all applicable provisions of the InvIT Regulations have been complied with and no statement made in this Disclosure Document is contrary to the provisions of the InvIT Regulations, the SCRA, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Sponsor further certifies that all the statements and disclosures in this Disclosure Document are material, true, correct and not misleading.

For **IRB Infrastructure Developers Limited**

Mr. Sandeep J. Shah
Independent Director
Date: March 24, 2023
Place: Mumbai

DECLARATION

The Sponsor hereby declares and certifies that that all applicable provisions of the InvIT Regulations have been complied with and no statement made in this Disclosure Document is contrary to the provisions of the InvIT Regulations, the SCRA, the SEBI Act, or rules, regulations, and guidelines issued thereunder (as the case may be). The Sponsor further certifies that all the statements and disclosures in this Disclosure Document are material, true, correct and not misleading.

For **IRB Infrastructure Developers Limited**

Ms. Priti Savla
Independent Director
Date: March 24, 2023
Place: Mumbai

ANNEXURE A

PORTFOLIO VALUATION REPORT

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SUNIT KHANDELWAL
Registered Valuer under Companies (Registered Valuers and Valuation) Rules, 2017
IBBI Registration No. IBBI/RV/05/2018/10426
Asset class: Securities or Financial Assets

Valuation report

Valuation date: 31 December 2022
Report date: 23 March 2023

Communication address:
1006 A&B, 10th floor,
Welldone TechPark, Sohna Rd.,
Sector-48, Gurgaon – 122018
Haryana, India

Registered office:
F 1502, GPL Eden Heights,
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Gurgaon 122101
Haryana, India

Telephone: +91 124-4696689
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Mobile: +91 9560680444
Email: sunitkhandelwal@gmail.com

Contents

1. Definitions, abbreviations & glossary of terms

Abbreviations	Definitions/Meaning
AETL	AE Tollway Limited
BOT	Build, Operate and Transfer
BV	Break Up Value
CA	Concession Agreement
CAGR	Compounded Annual Growth Rate
CCM	Comparable Companies Multiple
COD	Commercial Operation Date
D/E Ratio	Debt-Equity ratio
DBFOT	Design, Build, Finance, Operate, Transfer
DCF	Discounted Cash Flow
EBIT	Earnings Before Interest and Taxes
EBITDA	Earnings Before Interest, Taxes and Depreciation and Amortization
EPC	Engineering, Procurement and Construction
ETC	Electronic Toll Collection
EV	Enterprise value
FCFF	Free Cash Flows to Firm
FY	Financial Year ending 31st March
GDP	Gross Domestic Product
GVA	Gross Value Added
HAM	Hybrid-Annuity Model
HUDCO	Housing and Urban Development Corporation
IBEF	India Brand Equity Foundation
IHMTL	IRB Hapur Moradabad Tollway Limited
INR	Indian Rupees
Investor Manager or IM	MMK Toll Road Pvt Ltd
InvIT	Infrastructure Investment Trust
IRBIDL	IRB Infrastructure Developers Limited
IRR	Internal rate of return
IWTL	IRB Westcoast Tollway Limited
KGTL	Kishangarh Gulabpura Tollway Limited
Kms	Kilometres
KTL	Kaithal Tollway Limited
Management	Management and representatives of the Sponsor
MAT	Minimum Alternative Tax
MDR	Major District Roads
MoRTH	Ministry of Road Transport & Highways
NAV	Net Asset Value
NH	National Highway
NHAI	National Highways Authority of India
NHDP	National Highways Development Project
ODR	Other District Roads
OMT	Operate-Maintain-Transfer
PAT	Profit After Tax
PBT	Profit before Tax
PCU	Passenger Car Equivalent
PDTPL	Palsit Dhankuni Tollway Private Limited
PMGSY	Pradhan Mantri Gram Sadak Yojana
PPP	Public Private Partnership
SEBI InvIT Regulations	Securities Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014
SH	State Highway
SPV	Special Purpose Vehicle
SYTL	Solapur Yedeshi Tollway Limited
The Trust	IRB Infrastructure Trust
TOT	Toll Operate and Transfer
Trustee	IDBI Trusteeship Services Limited
UTL	Udaipur Tollway Limited
Valuer or I or me or or my or We	Sunit Khandelwal
WACC	Weighted Average Cost of Capital
WPI	Wholesale Price Index
YATL	Yedeshi Aurangabad Tollway Limited
You or Client or Company	IRB Infrastructure Trust (acting through the Investment Manager)

2. Background

2.1 Brief Background and Purpose

1. IRB Infrastructure Developers Limited (referred to as "IRBIDL" or "Sponsor") is one of the largest infrastructure development and construction companies in India in the roads and highways sector. It was incorporated on 27 July 1998 and is based in Mumbai, India.
2. IRBIDL's Build Operate and Transfer ("BOT") infrastructure development business involves the construction, development, operation, and maintenance of road projects.
3. IRB Group's portfolio (including Private and Public InvIT) comprises 23 projects in all, including 23 highway projects that further include 18 BOT projects, 1 TOT project and 4 HAM projects and 1 Airport project in Sindhudurg District of Maharashtra. IRBIDL is referred as "the Sponsor".
4. The management of the Sponsor ("the Management") has informed that it has a registered Indian Infrastructure Investment Trust ("InvIT") under the Securities Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014 ("SEBI InvIT Regulations") named as IRB Infrastructure Trust ("the Trust"). The Trust had undertaken a private placement of units (the "Offering").
5. The Management further informed that the below Special Purpose Vehicles (hereinafter together referred to as "InvIT Assets", "10 SPVS" or "the SPVs") were acquired by the Trust and the Trust holds 100 per cent equity interest:
   I. IRB Westcoast Tollway Limited ("IWTL" or "Goa Kundapur")
   II. Solapur Yedeshi Tollway Limited ("SYTL" or "Solapur Yedeshi")
   III. Yedeshi Aurangabad Tollway Limited ("YATL" or "Yedeshi Aurangabad")
   IV. Kaithal Tollway Limited ("KTL" or "Kaithal Rajasthan")
   V. AE Tollway Limited ("AETL" or "Agra Etawah")
   VI. Udaipur Tollway Limited ("UTL" or "Udaipur Rajasthan/ Gujarat border")
   VII. CG Tollway Limited ("CGTL" or "Gulabpura Chittorgarh")
   VIII. KG Tollway Limited ("KGTL" or "Kishangarh Gulabpura")
   IX. IRB Hapur Moradabad Tollway Limited ("IHMTL" or "Hapur Moradabad")
   X. Palsit Dankuni Tollway Private Limited ("PDTPL" or "Dankuni Palsit")
6. We have been given to understand that the Trust is evaluating the valuation of the Trust in accordance with Regulation 21 of the Securities Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014 ("Proposed Transaction") where it is required to be conducted by a Registered Valuer (as defined under section 247 of the Companies Act, 2013) and such valuation report is required to be in compliance with the SEBI InvIT Regulations ("Purpose").
7. In this regard, the Valuer has been appointed to determine the Enterprise Value ("EV") of the 10 SPVs on a standalone basis under the SEBI InvIT Regulations along with equity valuation of the Trust as on 31 December 2022 ("Valuation Date").

3. Sources of Information

We have relied on the following sources of information:

- As provided by the Management:
  - Information on business and profile of the SPVs as provided by the Management.
  - Concession Agreement of each SPV between NHAI and individual SPV.
  - Condensed Interim Special Purpose Financial Statements on a standalone basis from the date of operation of individual SPV till 31 December 2022.
  - Condensed Interim Special Purpose Consolidated financial statements of the Trust on a consolidated basis as on 31 December 2022.
  - Financial projections of the SPVs from the quarter 4 of FY 2023 till the end of the concession period of the respective SPV as provided by the Management.
  - Income tax returns for AY 2022-23 for 10 SPVs
  - Traffic consultant reports prepared by consultants as noted in the table below for each SPV as provided by the Management. Management has represented that the traffic studies shared are the most recent studies available. Management has further represented that technical due diligence for the SPVs has not been conducted as operations and maintenance (O&M) would be done by IRBIDL (Sponsor and Project Manager) based on a fixed price contract. O&M payments are fixed for 10 years – after that the terms can be renegotiated upon renewal of the project implementation agreements.

Traffic consultants for the various SPVs

Sl. No	Name of SPV	Short name of SPV	Name of traffic consultant
1	Goa Kundapur	IWTL	GMD Consultants
2	Solapur Yedeshi	SYTL	GMD Consultants
3	Yedeshi Aurangabad	YATL	GMD Consultants
4	Kaithal - Rajasthan	KTL	GMD Consultants
5	Agra Etawah	AETL	GMD Consultants
6	Udaipur Rajasthan Gujarat	UTL	GMD Consultants
7	Gulabpura Chittorgarh	CGTL	GMD Consultants
8	Kishangarh Gulabpura	KGTL	GMD Consultants
9	Hapur Moradabad	IHMTL	GMD Consultants
10	Dankuni - Palsit	PDTPL	GMD Consultants

  - Completion certificates or provisional completion certificates as applicable for the various SPVs
  - Management has represented that out of 10 SPVs that are managed under the Trust, 9 SPVs are fully operational & 1 SPV is under construction. Management has assumed an extension in the end date of the concession period with respect to all SPVs to compensate for the loss of revenue due to lockdown situation, based on the formula as per the provisions of CA ("Concession Agreement") via Policy No. 8.3.33/2020 dated 26 May 2020, as well as on account of Target Traffic – Article 29 of CA. The same has not been approved by NHAI.

Concession period assumed by Management(not yet approved by NHAI)

Sl. No	Name of Project	Short name of SPV	Construction Phase	Lane Kms	Scheduled Concession period ends	Management expected concession period ends - 31 December 2022
1	Goa Kundapur	IWTL	Fully operational	758	Mar-42	Feb-48
2	Solapur Yedeshi	SYTL	Fully operational	395	Jan-44	Apr-44
3	Yedeshi Aurangabad	YATL	Fully operational	756	Jun-41	Dec-45
4	Kaithal - Rajasthan	KTL	Fully operational	665	Jul-42	Feb-49
5	Agra Etawah	AETL	Fully operational	747	Jul-40	Oct-45
6	Udaipur Rajasthan Gujarat	UTL	Fully operational	683	Sep-38	Dec-42
7	Gulabpura Chittorgarh	CGTL	Fully operational	749	Nov-37	Feb-42
8	Kishangarh Gulabpura	KGTL	Fully operational	540	Feb-38	Jun-42
9	Hapur Moradabad	IHMTL	Fully operational	599	May-41	Jan-46
10	Palsit-Dankuni	DP	Tolling & Under Construction	383	Jan-39	Jul-36

- NHAI in its circular dated 26th May 2020 has decided to provide assistance in the form of a COVID-19 Loan. IRBIDL has applied for COVID-19 Loan for all 10 SPVs and is awaiting NHAI approval for the same. In any case, the SPVs have already availed the moratorium on interest (Funded Interest Term Loan FITL) and principal on loan from respective lenders, thus the COVID-19 Loan would only replace the FITL as and when received from NHAI. Accordingly, any procedural delay at NHAI for giving the COVID-19 loan approval is not expected to have any adverse impact on the liquidity position of the Sponsor based on the understanding of the Trust and the Sponsor.
- Toll rate notification/validation letters for the SPVs
- The list of all the permits and licenses of the individual SPVs as provided by the Management.

➢ The estimates and timing of the proposed major repairs to be carried out by the SPVs as provided by the Management.

➢ Management has represented that money payable to related parties (INR 3,575 crores) forming part of non-current liabilities (INR 3,548.3 crores) and current liabilities (INR 26.7 crores) on the Trust's combined balance sheet as of Valuation Date and shall be settled against amount receivable from NHAI against the claim.

➢ Management has represented that other operating income mentioned in the consolidated management business plan is operating in nature and is on DSRA created for each SPV.

➢ Proprietary databases

➢ Site Visits and Physical inspection for all the SPVs

➢ Other industry-related information from various publicly available sources

➢ Other discussions with the Management

➢ In addition to the above, we have also obtained such other information and explanations which were considered relevant for the purpose of our analysis. While we have relied on the information, we have not independently verified or audited this information

Please note that with respect to the audited, provisional and projected financial statements, rounding-off of amounts in the underlying financial information could result in immaterial arithmetic differences

3.1 Details of Site Visit

The site visit of the 10 SPVs was conducted during the fortnight ending 03 March 2023. Please refer to respective sections of each SPV in the later part of this report for the site photographs of the relevant SPV.

Exclusions and Limitations

3.2 Context and Purpose

The Management has appointed the Valuer to determine the Enterprise Value of the 10 SPVs pursuant to the SEBI InvIT Regulations and also compute the equity value of the Trust which owns these specified 10 SPVs.

This valuation analysis exercise and valuation report are solely for the Purpose mentioned herein in the Report.

3.3 Restricted Audience

This report and the information contained herein are absolutely confidential and are intended for use only in connection with the Purpose set out in the report.

It should not be copied, disclosed, circulated, quoted or referred to, either in whole or in part, in correspondence or in discussion with any other person except to whom it is issued without the written consent of the Valuer. It can however be relied upon and disclosed in connection with any statutory and regulatory filing in connection with the SEBI InvIT Regulations. This report and summary of valuation included herein can be reproduced and included in the statutory filings and may be made available for inspection in the manner specified therein. In the event, that the Client or its management extend the use of the report beyond the Purpose mentioned earlier in the report, with or without the consent of the Valuer, the Valuer will not accept any responsibility to any other party to whom this report may be shown or who may acquire a copy of the report.

It is clarified that this report is not a fairness opinion under any of the stock exchange/listing regulations. In case of any third-party has access to this report, please note that this report is not a substitute for the third party's own due diligence/appraisal / enquiries / independent advice that the third party should undertake for its purpose.

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3.4 Limitation Clause

The report is subject to the limitations detailed hereinafter. This Report is to be read in totality, and not in parts, in conjunction with the relevant documents referred to therein.

The scope of the assignment did not include performing audit tests for the purpose of expressing an opinion on the fairness or accuracy of any financial or analytical information that was used during the course of the work. Further, conducting a financial or technical feasibility study was also not covered. During the course of this work, the Valuer has relied upon assumptions and projections related to the Trust and the SPVs made by the management of the Sponsor. These assumptions require exercise of judgment and are subject to uncertainties. Also, the Valuer has relied on the traffic study reports.

Further, this valuation Report is based on the extant regulatory environment and the financial, economic, monetary and business/market conditions, and the information made available to the Valuer or used by the Valuer up to the date hereof, which are dynamic in nature and may change in future, thereby impacting the valuation of the SPVs. Subsequent developments in the aforementioned conditions may affect this Report and the assumptions made in preparing this report and the Valuer shall not be obliged to update, review or reaffirm this report if the information provided to the Valuer changes. The information presented in this valuation Report does not reflect the outcome of any due diligence procedures, which may change the information contained herein and, therefore, the valuation Report materially.

Valuation is not a precise science and the conclusions arrived at in many cases will of necessity be subjective and dependent on the exercise of individual judgment. There is therefore no indisputable single value. While the Valuer has provided an assessment of the value based on an analysis of information available and within the scope of engagement, others may place a different value on the businesses.

Valuation is based on estimates of future financial performance or opinions, which represent reasonable expectations at a particular point in time, but such information, estimates or opinions are not offered as a prediction or as assurances that a particular level of income or profit will be achieved, a particular event will occur or that a particular price will be offered or accepted. Actual results achieved during the period covered by the prospective financial analysis will vary from these estimates and the variations may be material.

The realization of these projections is dependent on the continuing validity of the assumptions on which they are based. Since the projections relate to the future, actual results are likely to be different from the projected results in case of events and circumstances not occurring as projected and the differences may be material. The Valuer's work did not constitute a validation of the financial projections of the Trust and the SPVs under consideration and accordingly, the Valuer does not express any opinion on the same. The Valuer has not commented on the appropriateness of or independently verified the assumptions or Information provided to us for arriving at the financial projections. Further, while the Valuer has discussed the assumptions and projections with the management of the Sponsor, the Valuer's reliance on them for the purpose of valuation should not be construed as an assurance about the accuracy of the assumptions or the achievability of the financial projections.

This Report is based on information received from sources mentioned herein and discussions with the management of the Sponsor. This information has not been independently verified by the Valuer. The Valuer has assumed that the Sponsor has furnished all information, that it is aware of concerning the financial statements and respective liabilities, which may have an impact on my report.

The Valuer has not done any independent technical valuation or appraisal or due diligence of the assets or liabilities of the Trust or a SPV or any of other entity mentioned in this Report and has considered them at the value as disclosed by the Trust in their regulatory filings or in submissions, oral or written, made to me. Nothing has come to the Valuer's knowledge to indicate that the material provided to the Valuer was misstated or incorrect or would not afford reasonable grounds upon which to base my Report.

The Valuer has not made any independent verification with respect to the Sponsor's claim to title of assets or property for the purpose of this valuation. With respect to the claim to the title of assets or property, the Valuer has solely relied on representations, whether verbal or otherwise, made by the Management to us for the purpose of this Report.

For the present valuation analysis exercise, the Valuer has also relied upon information available in the public domain; however, the accuracy and timeliness of the same has not been independently verified. Further, the Valuer has not verified the publicly available information cited in this Report.

In the particular circumstances of this case, the Valuer shall be liable only to the Sponsor, the Trust and the Investment Manager. The Valuer shall have no liability (in contract or under statute or otherwise) to any other party for any economic loss or damage arising out of or in connection with this engagement, however, the loss or damage is caused other than in cases of fraud, gross negligence or wilful misconduct, or on account of any natural calamities, shall be limited to the amount of fees actually received by the Valuer as laid out in the engagement letter, for such valuation work.

Whilst all reasonable care has been taken to ensure that facts stated in the Report are accurate and opinions given are fair and reasonable, neither the Valuer nor any of the Valuer's team members shall in any way be responsible for the management content, third party content or other any content sourced from publicly available information, stated herein. Accordingly, the Valuer makes no representation or warranty, express or implied, in respect of the completeness, authenticity or accuracy of such content. The Valuer expressly disclaims any and all liabilities, which may arise based upon such content used in this Report.

This Report does not look into the business / commercial reasons behind the transaction nor the likely benefits arising out of the same. Similarly, it does not address the relative merits of investing in InvIT as compared with any other alternative business transaction, or other alternatives, or whether or not such alternatives, or whether or not such alternatives could be achieved or are available. The assessment of commercial and investment merits of the Trust are sole responsibility of the investors of the Trust and the Valuer does not express opinion on the suitability or otherwise of entering into any financial or other transactions with the Investment Manager, the Trust or the Sponsor.

The Valuer is not an advisor with respect to legal tax and regulatory matters for the transaction. No investigation of the SPVs' claims to title or assets has been made for the purpose of this Report and the SPVs' claim to such right has been assumed to be valid. No consideration has been given to liens or encumbrances against the assets beyond the loans disclosed in the accounts. Therefore, no responsibility is assumed for matters of a legal nature.

Except to the extent required under the SEBI InvIT Regulations and other applicable laws, the Valuer is not responsible for matters of legal nature including issues of legal title and compliance with local laws in respect of the SPVs and also no consideration has been given to litigation and other contingent liabilities that are not recorded in the financials of the SPVs.

The valuation analysis in this Report should not be construed as investment advice; specifically, and the Valuer does not express any opinion on the suitability or otherwise of entering into any financial or other transactions with the Investment Manager, the Trust or any of the SPVs.

The estimate of value contained herein are not intended to represent value of the SPVs at any time other than the dates specifically mentioned for each valuation result, as per the agreed scope of engagement and as required under the SEBI InvIT Regulations.

The Valuer's work in preparing the report was undertaken, and the report has been produced in accordance with the terms of engagement between the Valuer and the Client. Provision of valuation opinions and consideration of the issues described herein are areas of our regular practice. The services do not represent accounting, assurance, diligence services, or consulting/ tax-related services.

This Valuation Report, its contents, and results herein are specific to (i) the purpose of valuation agreed as per the terms of our engagement along with subsequent discussions with the management; (ii) the date of this Valuation Report, and (iii) are based on the data detailed in the section – Sources of information. An analysis of this nature is necessarily based on the prevailing stock market, financial, economic, and other conditions in general and industry trends in particular, and the information made available to us as of the Valuation Date. Events occurring after the Valuation Date may affect this Valuation Report and the assumptions used in preparing it, and we do not assume any obligation to update, revise or reaffirm this Valuation Report

The outbreak of the COVID-19 pandemic has created significant uncertainty in valuation and accordingly, the Valuer has recommended a degree of caution to the values arrived under current circumstances, as the same may change rapidly depending on the changing market scenario. Due to the outbreak of the COVID-19 pandemic, the valuation exercise undertaken by the Valuer is based on significant assumptions within the valuation approach and methodology, which are based on factors whose outcomes are uncertain and hence, result in lower certainty of the value determined in the Valuation Report, than would otherwise be in this case

Management has represented that the business activities of the Company have been carried out in the normal and ordinary course and that no material adverse change has occurred in operations between the Valuation Date and the date of issue of the Valuation Report

The Valuer is not responsible for updating this Valuation Report because of events or transactions occurring subsequent to the date of issue of this Report

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4. Overview of the 10 SPVs

4.1 IRB Westcoast Tollway Limited ("IWTL" or "Goa Kundapur")

IRB Westcoast Tollway Limited ("**IWTL**") was awarded a grant of INR 536.22 crores from the NHAI during the construction period. For this project, IWTL was engaged to expand the existing two-lane road to a four-lane road in the Goa/ Karnataka Border to Kundapur Section of NH17 (from 93.70 Km to 283.30 Km) in Karnataka under National Highway Development Program Phase IV on a Design-Build-Finance-Operate-Transfer basis. A concession agreement dated March 25, 2013 was entered into between the NHAI and IWTL. The project received a provisional completion certificate and commenced tolling in February 2020.

Concession Period: The concession period for this project is 28 years commencing from March 3, 2014. As per the concession agreement, IWTL is entitled to collect fees from project highway users, subject to the National Highways fee rules. The toll rates are revised annually on April 1st subject to and in accordance with such fee rules.

Operation and Maintenance: IWTL is required to carry out the operation and maintenance of this project, and if required, modify, repair or otherwise make improvements to the project highway in accordance with the concession agreement.

The key details of IRB Westcoast Tollway Limited are as follows:

Particulars	Details
Project name	Goa/Karnataka Border to Kundapur
Name of Concessionaire	IRB Westcoast Tollway Limited
State	Karnataka
NH/ SH	NH 17
PPP mode	Design, Build, Finance, Operate and Transfer ("DBFOT")
Execution of CA	March 25, 2013
Appointed date	March 3, 2014
Scheduled Concession End Date	March 2, 2042
Original Concession period	28 Years
Expected Concession End Date due to actual (estimated) traffic being lower than Target Traffic and covid 19 lockdown as per CA	February 6, 2048
Tollable Length (Kms)	189.6
Toll Plaza	3

The shareholding pattern of IRB Westcoast Tollway Limited as on 31 December 2022 is as follows:

Name of shareholder	No. of Shares held	Stake%
IRB Infrastructure Trust	17,41,94,297	100
Nominee of IRB Infrastructure Trust	6	Less than 0.01
Total	**17,41,94,303**	**100**

For the list of approvals and disclosure on litigation please refer relevant annexure related to the above SPV which have been spread between annexure I to X.

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4.2 Solapur Yedeshi Tollway Limited ("SYTL" or "Solapur Yedeshi")

Solapur Yedeshi Tollway Limited ("**SYTL**") was awarded a grant of INR 189 crores from the NHAI during the construction period. For this project, SYTL was engaged to expand the existing two-lane road to a four-lane road in the Solapur to Yedeshi Section of NH-211 from 0.00 Km to 100.00 Km (design length of 98.717 Km) in the State of Maharashtra under National Highway Development Program Phase IV on a Design-Build-Finance-Operate-Transfer basis. A concession agreement dated March 3, 2014 was entered into between the NHAI and SYTL. The project received a final completion certificate in October 2019.

Concession Period: The concession period for this project is 29 years commencing from January 21, 2015. As per the concession agreement, SYTL is entitled to collect fees from project highway users, subject to the National Highways fee rules. The toll rates are revised annually on April 1st subject to and in accordance with such fee rules.

Operation and Maintenance: SYTL is required to carry out the operation and maintenance of this project, and if required, modify, repair or otherwise make improvements to the project highway in accordance with the concession agreement.

The key details of Solapur Yedeshi Tollway Limited are as follows:

Particulars	Details
Project name	Solapur Yedeshi
Name of Concessionaire	Solapur Yedeshi Tollway Limited
State	Maharashtra
NH/ SH	NH 211
PPP mode	Design, Build, Finance, Operate and Transfer ("DBFOT")
Execution of CA	March 3, 2014
Appointed date	January 21, 2015
Provisional Completion certificate date	March 5, 2018
Scheduled Concession End Date	January 20, 2044
Original Concession period	29 Years
Expected Concession End Date due to covid 19 lockdown as per CA	April 20, 2044
Tollable Length (Kms)	98.7
Toll Plaza	2

The shareholding pattern of Solapur Yedeshi Tollway Limited as on 31 December 2022 is as follows:

Name of shareholder	No. of Shares held	Stake%
IRB Infrastructure Trust	9,82,49,994	100
Nominee of IRB Infrastructure Trust	6	Less than 0.01
Total	**9,82,50,000**	**100**

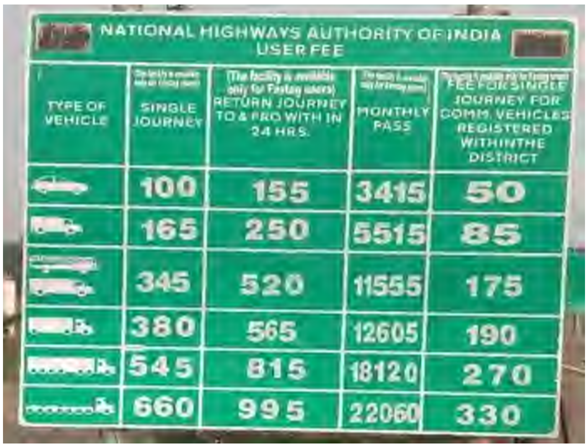
For the list of approvals and disclosure on litigation please refer relevant annexure related to the above SPV which have been spread between annexure I to X.

4.3 Yedeshi Aurangabad Tollway Limited ("YATL" or "Yedeshi Aurangabad")

Yedeshi Aurangabad Tollway Limited ("**YATL**") was awarded a grant of INR 558 crores from NHAI during the construction period. For this project, YATL was engaged to expand the existing two-lane road to a four-lane road in the Yedeshi to Aurangabad Section of NH-211 from 100.00 Km to 290.20 Km (design length of 189.09 Km) in the State of Maharashtra under National Highway Development Program Phase IV on a Design-Build-Finance-Operate-Transfer basis. A concession agreement dated May 30, 2014 was entered into between the NHAI and YATL. The project received a final completion certificate in September 2020.

Concession Period: The concession period for this project is 26 years commencing from July 1, 2015. As per the concession agreement, YATL is entitled to collect fees from project highway users, subject to the National Highways fee rules. The toll rates are revised annually on April 1st subject to and in accordance with such fee rules.

Operation and Maintenance: YATL is required to carry out the operation and maintenance of this project, and if required, modify, repair or otherwise make improvements to the project highway in accordance with the concession agreement.



The key details of Yedeshi Aurangabad Tollway Limited are as follows:

Particulars	Details
Project name	Yedeshi Aurangabad
Name of Concessionaire	Yedeshi Aurangabad Tollway Limited
State	Maharashtra
NH/ SH	NH 211
PPP mode	Design, Build, Finance, Operate and Transfer (“DBFOT”)
Execution of CA	May 30, 2014
Appointed date	July 1, 2015
Provisional Completion certificate date	March 17, 2018
Scheduled Concession End Date	June 30, 2041
Original Concession period	26 Years
Expected Concession End Date due to covid 19 lockdown as per CA	December 6, 2045
Tollable Length (Kms)	189.1
Toll Plaza	3

The shareholding pattern of Yedeshi Aurangabad Tollway Limited as on 31 December 2022 is as follows:

Name of shareholder	No. of Shares held	Stake%
IRB Infrastructure Trust	21,57,56,995	100
Nominee of IRB Infrastructure Trust	6	Less than 0.01
Total	**21,57,57,001**	**100**

For the list of approvals and disclosure on litigation please refer relevant annexure related to the above SPV which have been spread between annexure I to X.

4.4 Kaithal Tollway Limited (“KTL” or “Kaithal Rajasthan”)

Kaithal Tollway Limited (“**KTL**”), was awarded a grant of INR 234 crores from NHAI during the construction period. For this project, KTL was engaged to expand the existing two-lane road to a four-lane road in the Kaithal to Rajasthan Border Section of NH-152/65 from 33.25 Km (design -0.500 Km) to 241.58 Km (design 165.759 Km i.e. total design length of 166.259 Km) in the State of Haryana under National Highway Development Program Phase IV on a Design-Build-Finance-Operate-Transfer basis. A concession agreement dated June 23, 2014 was entered into between the NHAI and KTL. The project received provisional completion certificates in September 2017 and July 2018 and commenced tolling in September 2017. The project received a final completion certificate in March 2019.

Concession Period: The concession period for this project is 27 years commencing from July 15, 2015. As per the concession agreement, KTL is entitled to collect fees from project highway users, subject to the National Highways fee rules. The toll rates are revised annually on 01 April subject to and in accordance with such fee rules.

Operation and Maintenance: KTL carries out the operation and maintenance of this project, and if required, modify, repair or otherwise make improvements to the project highway in accordance with the concession agreement.

The key details of Kaithal Tollway Limited are as follows:

Particulars	Details
Project name	Kaithal - Rajasthan Border
Name of concessionaire	Kaithal Tollway Limited
State	Haryana
NH	NH- 152/65
PPP mode	Design, Build, Finance, Operate and Transfer ("DBFOT")
Execution of concession agreement date	June 23, 2014
Appointed date	July 15, 2015
Provisional Completion certificate date – I	September 6, 2017
Provisional Completion certificate date – II	July 9, 2018
Completion certificate date	March 29, 2019
Scheduled concession end date	July 14, 2042
Original concession period (yrs)	27 years
Expected Concession End Date due to covid 19 lockdown as per CA	February 6, 2049
Tollable length (Kms)	166.3
Toll plaza (No.)	3

The shareholding pattern of Kaithal Tollway Limited as on 31 December 2022 is as follows:

Name of shareholder	No. of Shares held	Stake%
IRB Infrastructure Trust	32,79,99,994	100
Nominee of IRB Infrastructure Trust	6	Less than 0.01
Total	**32,80,00,000**	**100**

For the list of approvals and disclosure on litigation please refer relevant annexure related to the above SPV which have been spread between annexure I to X.

4.5 AE Tollway Limited ("AETL" or "Agra Etawah")

AE Tollway Limited ("**AETL**") was awarded on the basis of a premium of INR 81 crores payable to the NHAI in the first year of concession period increased annually at by an additional 5 per cent as compared to the immediately preceding year. For this project, AETL was engaged to expand the Agra to Etawah Bypass Section of NH-2 from 199.660 Km to 323.525 Km (design length of 124.52 Km) in the State of Uttar Pradesh from four to six lanes under National Highway Development Program Phase V on a design-build-finance-operate-transfer basis. A concession agreement dated September 1, 2015 was entered into between the NHAI and AETL. Being a four to six laning project, tolling commenced in August 2016. The project received a final completion certificate in October 2020.

Concession Period: The concession period for this project is 24 years commencing from August 1, 2016. As per the concession agreement, AETL is entitled to collect fees from project highway users, subject to the National Highways fee rules. The toll rates are revised annually on April 1st subject to and in accordance with such fee rules.

Operation and Maintenance: During the concession period, AETL is required to operate and maintain the facilities relating to this project, and if required, modify, repair or otherwise make improvements to the project highway in accordance with the concession agreement.

The key details of AE Tollway Limited are as follows:

Particulars	Details
Project name	Agra - Ethawah
Name of concessionaire	AE Tollway Limited
State	Uttar Pradesh
NH	NH-2
PPP mode	Build, Operate and Transfer ("BOT")
Execution of concession agreement date	September 1, 2015
Appointed date	August 1, 2016
Provisional Completion certificate date	August 1, 2016
Scheduled concession end date	July 31, 2040
Original concession period (yrs)	24 years
Expected Concession End Date due to covid 19 lockdown as per CA	October 19, 2045
Tollable length (Kms)	124.52
Toll plaza (No.)	2

The shareholding pattern of AE Tollway Limited as on 31 December 2022 is as follows:

Name of shareholder	No. of Shares held	Stake%
IRB Infrastructure Trust	43,64,99,994	100
Nominee of IRB Infrastructure Trust	6	Less than 0.01
Total	**43,65,00,000**	**100**

For the list of approvals and disclosure on litigation please refer relevant annexure related to the above SPV which have been spread between annexure I to X.

4.6 Udaipur Tollway Limited ("UTL" or "Udaipur Rajasthan/ Gujarat border")

Udaipur Tollway Limited ("**UTL**") was awarded on the basis of a premium of INR 163.80 crores payable to the NHAI immediately after the third anniversary year of COD and for each subsequent year till the 9th anniversary of COD, the premium shall increase by an additional 3 per cent as compared to the previous year. From the 9th anniversary of COD until the end of the concession period the premium shall increase by an additional 8 per cent each year as compared to the previous year. For this project, UTL was engaged to expand the Udaipur Bypass (287.40 Km) to the Rajasthan/Gujarat Border (401.20 Km) section of NH-8 in the states of Rajasthan & Gujarat (20ertili. length 113.80 Km) from four to six lanes under National Highway Development Program Phase V on a design-build-finance-operate-transfer basis. A concession agreement dated 09 December 2016 was entered into between the NHAI and UTL. Being a four to six laning project, tolling commenced in September 2017.

Concession Period: The concession period for this project is 21 years from September 3, 2017. As per the concession agreement, UTL is entitled to collect fees from project highway users, subject to the National Highways fee rules. The toll rates are revised annually on 01 April subject to and in accordance with such fee rules. Being a four to six laning project, tolling commenced from the appointed date i.e. 03 September 2017.

Operation and Maintenance: During the concession period, UTL is required to operate and maintain the facilities relating to this project, and if required, modify, repair or otherwise make improvements to the project highway in accordance with the concession agreement.

The key details of Udaipur Tollway Limited are as follows:

Particulars	Details
Project name	Udaipur Gujarat Border
Name of concessionaire	Udaipur Tollway Limited
State	Rajasthan/ Gujarat
NH	NH-8
PPP mode	Design, Build, Finance, Operate and Transfer ("DBFOT")
Execution of concession agreement date	December 9, 2016
Appointed date	September 3, 2017
Provisional Completion certificate date	September 3, 2017
Scheduled concession end date	September 2, 2038
Original concession period (yrs)	21 years
Expected Concession End Date due to covid 19 lockdown as per CA	December 11, 2042
Tollable length (Kms)	113.8
Toll plaza (No.)	1

The shareholding pattern of Udaipur Tollway Limited as on 31 December 2022 is as follows:

Name of shareholder	No. of Shares held	Stake%
IRB Infrastructure Trust	11,67,99,994	100
Nominee of IRB Infrastructure Trust	6	Less than 0.01
Total	**11,68,00,000**	**100**

For the list of approvals and disclosure on litigation please refer relevant annexure related to the above SPV which have been spread between annexure I to X.

4.7 CG Tollway Limited ("CGTL" or "Gulabpura Chittorgarh")

CG Tollway Limited ("**CGTL**") was awarded on the basis of a premium of INR 228.60 crores payable to the NHAI immediately after the third anniversary year of COD and for each subsequent year till the 9th anniversary of COD the premium shall increase by an additional 3 per cent as compared to the previous year. From the 9th anniversary of COD until the end of the concession period the premium shall increase by an additional 8 per cent each year as compared to the previous year. For this project, CGTL was engaged to expand the Gulabpura (90.00 Km) to the end of Chittorgarh Bypass (214.87 Km) Section of NH-79 in the state of Rajasthan from four to six lanes under National Highway Development Program Phase V on a design-build-finance-operate-transfer basis. A concession agreement dated 09 December 2016 was entered into between the NHAI and CGTL. Being a four to six laning project, tolling commenced in November 2017.

Concession Period: The concession period for this project is 20 years commencing from 04 November 2017. As per the concession agreement, CGTL is entitled to collect fees from project highway users, subject to the National Highways fee Rules. The toll rates are revised annually on 01 April subject to and in accordance with such fee rules.

Operation and Maintenance: During the concession period, CGTL is required to operate and maintain the facilities relating to this project, and if required, modify, repair or otherwise make improvements to the project highway in accordance with the concession agreement.

The key details of CG Tollway Limited are as follows:

Particulars	Details
Project name	Gulabpura Chittorgarh
Name of concessionaire	CG Tollway Limited
State	Rajasthan
NH	NH-79
PPP mode	Build, Operate and Transfer ("BOT")
Execution of concession agreement date	December 9, 2016
Appointed date	November 4, 2017
Provisional Completion certificate date	November 4, 2017
Scheduled concession end date	November 3, 2037
Original concession period (yrs)	20 years
Expected Concession End Date due to covid 19 lockdown as per CA	February 3, 2042
Tollable length (Kms)	124.87
Toll plaza (No.)	2

The shareholding pattern of CG Tollway Limited as on 31 December 2022 is as follows:

Name of shareholder	No. of Shares held	Stake%
IRB Infrastructure Trust	20,34,99,994	100
Nominee of IRB Infrastructure Trust	6	Less than 0.01
Total	**20,35,00,000**	**100**

For the list of approvals and disclosure on litigation please refer relevant annexure related to the above SPV which have been spread between annexure I to X.

4.8 Kishangarh Gulabpura Tollway Limited ("KGTL" or "Kishangarh Gulabpura")

Kishangarh Gulabpura Tollway Limited ("**KGTL**") was awarded on the basis of a premium of INR 186.30 crores payable to the NHAI immediately after the third anniversary year of COD and for each subsequent year till the 9th anniversary of COD the premium shall increase by an additional 3 per cent as compared to the previous year. From the 9th anniversary of COD until the end of the concession period the premium shall increase by an additional 8 per cent each year as compared to the previous year. For this project, KGTL was engaged to expand the Kishangarh (0.83 Km to 36.10 Km of NH 79A and 15.00 KM to 69.73 Km of NH-79) to Gulabpura section of NH 79A and NH 79 in the state of Rajasthan (length 90.00 Km) from four to six lanes under National Highway Development Program Phase V on a design-build-finance-operate-transfer basis. A concession agreement dated 22 February 2017 was entered into between the NHAI and KGTL. Being a four to six laning project, tolling commenced in February 2018.

Concession Period: The concession period for this project is 20 years commencing from 21 February 2018. As per the concession agreement, KGTL is entitled to collect fees from project highway users, subject to the National Highways fee rules. The toll rates are revised annually on 01 April subject to and in accordance with such fee rules.

Operation and Maintenance: During the concession period, KGTL is required to operate and maintain the facilities relating to this project, and if required, modify, repair or otherwise make improvements to the project highway in accordance with the concession agreement

The key details of Kishangarh Gulabpura Tollway Limited are as follows:

Particulars	Details
Project name	Kishangarh Gulabpura
Name of concessionaire	Krishangarh Gulabpura Tollway Limited
State	Rajasthan
NH	NH-79A & NH-79
PPP mode	Design, Build, Finance, Operate and Transfer ("DBFOT")
Execution of concession agreement date	February 22, 2017
Appointed date	February 21, 2018
Provisional Completion certificate date	February 21, 2018
Scheduled concession end date	February 20, 2038
Original concession period (yrs)	20 years
Expected Concession End Date due to covid 19 lockdown as per CA	June 20, 2042
Tollable length (Kms)	90
Toll plaza (No.)	1

The shareholding pattern of Kishangarh Gulabpura Tollway Limited as on 31 December 2022 is as follows:

Name of shareholder	No. of Shares held	Stake%
IRB Infrastructure Trust	15,54,99,994	99.99
Nominee of IRB Infrastructure Trust	6	Less than 0.01
Total	**15,55,00,000**	**100**

For the list of approvals and disclosure on litigation please refer relevant annexure related to the above SPV which have been spread between annexure I to X.

4.9 IRB Hapur Moradabad Tollway Limited ("IHMTL" or "Hapur Moradabad")

IRB Hapur Moradabad Tollway Limited ("**IHMTL**") was awarded on the basis of a premium of INR 31.5 crores payable to the NHAI immediately after the third anniversary year of COD and for each subsequent year until the ninth anniversary of COD the premium will increase by an additional 3 per cent as compared to the previous year. From the ninth anniversary of COD until the end of the concession period the premium will increase by an additional 8 per cent each year as compared to the previous year. For this project, IHMTL was engaged to expand the Hapur Bypass (50.000 Km) to Moradabad (149.867 Km) Section of NH-24 (design length of 99.867 Km) in the state of Uttar Pradesh from four to six lanes under National Highway Development Program Phase V on a design-build-finance-operate-transfer basis. A concession agreement dated May 29, 2018 was entered into between the NHAI and IHMTL. Being a four to six laning project, tolling commenced in May 2019.

Concession Period: The concession period for this project is 22 years commencing from 28 May 2019. As per the concession agreement, IHMTL is entitled to collect fees from project highway users, subject to the National Highways fee rules. The toll rates are revised annually on 01 April subject to and in accordance with such fee rules.

Operation and Maintenance: During the concession period, IHMTL is required to operate and maintain the facilities relating to this project, and if required, modify, repair or otherwise make improvements to the project highway in accordance with the concession agreement.

The key details of IRB Hapur Moradabad Tollway Limited are as follows:

Particulars	Details
Project name	Hapur Moradabad
Name of concessionaire	IRB Hapur Moradabad Tollway Limited
State	Uttar Pradesh
NH	NH-24
PPP mode	Design, Build, Finance, Operate and Transfer ("DBFOT")
Execution of concession agreement date	May 29, 2018
Appointed date	May 28, 2019
Provisional Completion certificate date	May 28, 2019
Scheduled concession end date	May 31, 2041
Original concession period (yrs)	22 years
Expected Concession End Date due to covid 19 lockdown as per CA	January 24, 2046
Tollable length (Kms)	99.87
Toll plaza (No.)	2

The shareholding pattern of IRB Hapur Moradabad Tollway Limited as on 31 September 2022 is as follows:

Name of shareholder	No. of Shares held	Stake%
IRB Infrastructure Trust	37,14,99,994	100
Nominee of IRB Infrastructure Trust	6	Less than 0.01
Total	**37,15,00,000**	**100**

For the list of approvals and disclosure on litigation please refer relevant annexure related to the above SPV which have been spread between annexure I to X.

4.10 Palsit Dankuni Private Tollway Limited ("PDPTL" or "Dankuni Palsit")

Palsit Dankuni Private Tollway Limited ("PDPTL" or "Dankuni Palsit") was awarded on the basis of premium payable to the Authority immediately after the first (1st) anniversary of Project Completion Date, a premium in the form of an additional concession fee for every year of the remaining Concession Period, to be calculated on total Realisable Fee. The Premium to be paid for the 2nd year after Project Completion Date shall equal to 10.80% of the total Realisable Fee during that year. For all subsequent years, the Premium shall be determined on the total Realisable Fee in the respective year at the percentage to be arrived at by increasing the percentage of Premium by an additional 1% as compared to the immediately preceding year. For this project, PDTPL was engaged for six laning of National Corridor NH-19 from Palsit to Dankuni (up to NH-6 Connector) from km. 588.870 to km. 652.700 (total design length- 63.830 km) in the State of West Bengal under Bharatmala Pariyojana to be executed on BOT (Toll) basis. A concession agreement dated June 14, 2021 was entered into between the NHAI and IHMTL. Being a four to six laning project, tolling commenced in April 2022.

Concession Period: The concession period for this project is 17 years commencing from 31 January 2022. As per the concession agreement, PDTPL is entitled to collect fees from project highway users, subject to the National Highways fee rules. The toll rates are revised annually on 01 April subject to and in accordance with such fee rules.

Operation and Maintenance: During the concession period, PDTPL is required to operate and maintain the facilities relating to this project, and if required, modify, repair or otherwise make improvements to the project highway in accordance with the concession agreement.

The key details of IRB Hapur Moradabad Tollway Limited are as follows:

Particulars	Details
Project name	6 laning of Dankuni to Palsit of NH-79 in West Bengal on BOT (Toll) basis
Name of concessionaire	Palsit Dankuni Tollway Private Limited
State	West Benngal
NH	NH-79
PPP mode	Design, Build, Finance, Operate and Transfer ("DBFOT")
Execution of concession agreement date	Jun 14, 2021
Appointed date	Jan 31, 2022
Provisional Completion certificate date	Jul 29, 2024
Scheduled concession end date	Apr 01, 2039
Original concession period (yrs)	17 years
Expected Concession End Date as per Target traffic – Article 29 of CA	July 22, 2036
Tollable length (Kms)	74.72
Toll plaza (No.)	1

The shareholding pattern of IRB Hapur Moradabad Tollway Limited as on 31 December 2022 is as follows:

Name of shareholder	No. of Shares held	Stake%
IRB Infrastructure Developers Limited	49,994	0.04%
IRB Infrastructure Trust	121200000	99.96%
Nominee of IRB Infrastructure Developers Limited	6	Less than 0.01
Total	**12,12,50,000**	**100**

For the list of approvals and disclosure on litigation please refer relevant annexure related to the above SPV which have been spread between annexure I to X.

5. Industry Overview

5.1 Indian Economy

India is on track to become the world's third-largest economy in under a decade from now. With a V-shaped recovery following the pandemic shocks, India's run of success continues and her economy is anticipated to repeat a similar growth trajectory in 2023. The construction of expressways at a record pace, coupled with new freight corridors are set to accelerate the pace of the already flourishing Brand India.

India's goal is to reduce her logistics costs by 6 percentage points from 14 per cent to 8 per cent in the next five years. This would ensure that logistics play the role of a growth engine in the Indian economy, according to National Logistics Policy.

Market Size and Growth:

Real GDP or GDP at Constant (2011-12) Prices in the year FY2023 is estimated at INR 157.60 lakh crore, as against the Provisional Estimate of GDP for the year FY2022 of INR 147.36 lakh crore, released on 31 May 2022. The growth in real GDP during FY2023 is estimated at 7.0 per cent as compared to 8.7 per cent in FY2022.

5.2 Infrastructure Sector in India

The infrastructure sector is a key driver for the Indian economy. The infrastructure sector includes power, bridges, dams, roads, and urban infrastructure development.

Market Size:

India is expected to become the third-largest construction market globally by 2022. India has a requirement of investment worth INR 50 trillion (USD 777.73 billion) across infrastructure by 2022 for sustainable development in the country. Foreign Direct Investment (FDI) in construction development (townships, housing, built-up infrastructure and construction development projects) and construction (infrastructure) activity sectors stood at USD 26.22 billion and USD 28.64 billion, respectively, between April 2000-June 2022.

5.3 Road and Highway Sector in India (Sector background)

India has the second largest road network in the world of about 63.73 lakh kilometers (kms) which is the second largest in the world.

As on 30 November 2022, the length of various categories of roads is as under:

National Highways	1,44,634 km
State Highways	1,86,908 km
Other Roads	59,02,539 km

5.4 Sector Trends

The Government of India has launched major initiatives to upgrade and strengthen National Highways through various phases of the National Highways Development Project (NHDP). The status of various programmes up to 31.12.2021 are as under:

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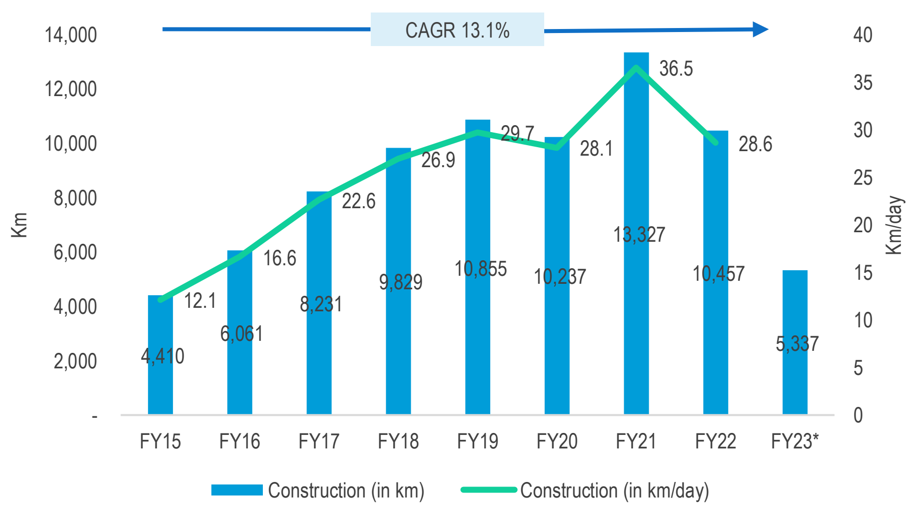
Components / Scheme	Total Length in km	Length completed up to 31.03.2021 in km	Length completed during 01.04.2021 to 31.12.2021 in km	Length Completed up to 31.12.2021 in km
A. BharatmalaPariyojana Phase-I				
Economic Corridors	9,000	1,167	390	1,557
Inter Corridors & Feeder Roads	6,000	348	214	562
National Corridor Efficiency Improvement	5,000	774	238	1,012
Border & International Road Connectivity	2,000	901	219	1,120
Roads	2,000	29	23	52
Expressways	800	267	182	449
Subtotal	**24,800**	**3,486**	**1,266**	**4,752**
Balance road works under NHDP	10,000	1,782	462	2,244
Grand Total	**34,800**	**5,268**	**1,728**	**6,996**
B. Other Schemes				
SARDP-NE (Phase A+Arunachal Pradesh)	6,418	3,828	293	4,121
LWE (including Vijayawada Ranchi Route)	6,085	5,704	37	5,741
EAP(WB+JICA+ADB)	2,855	1,280	126	1,406

Source: https://economictimes.indiatimes.com/news/economy/indicators/mission-2047-indias-march-to-become-third-largest-economy/articleshow/97346381.cms; https://www.pib.gov.in/PressReleasePage.aspx?PRID=1889192; https://pib.gov.in/PressReleasePage.aspx?PRID=1888480; https://morth.nic.in/sites/default/files/Annual%20Report_21-22-1.pdf; https://www.ibef.org/download/1673947723_Infrastructure-November-2022.pdf

5.5 Momentum in the Expansion of Roadways

- Highway construction in India increased at 13.1 per cent CAGR between FY2015-22. The pace of National Highways (NH) construction has increased consistently between FY2015 and FY2022 due to the systematic push through corridor-based National Highway development approach. In FY2015, the pace of NH construction was about 12 km/ day which increased to about 29 km/ day in FY2022.



Note: FY23 data is upto December 29, 2022

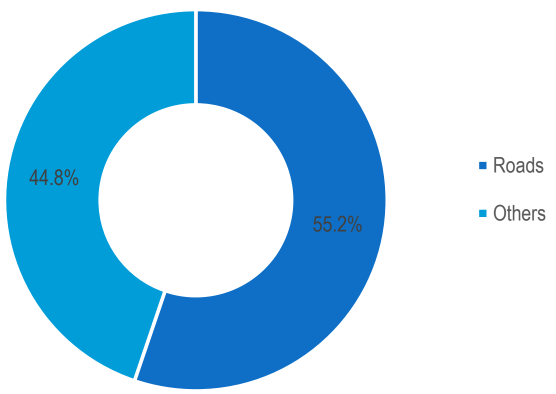
- The Government of India has allocated INR 111 lakh crore (USD 1.34 trillion) under the National Infrastructure Pipeline for FY2019-25. The roads sector is expected to account for 18 per cent of capital expenditure over FY2019-25.
- In September 2022, the government approved rail-cum-road bridge across the Brahmaputra river near the existing Saraighat bridge at Guwahati at the cost of INR 996.75 crore (USD 122.27 million) which will be shared by NHAI & Ministry of Railways.

5.6 Private Financing under Public Private Partnership (PPP)

The PPP framework was introduced to increase the efficiency of infrastructure projects through long-term collaboration between the public sector and private businesses.

- In FY21, there were 125 PPP projects worth US$ 23.25 billion in India.
- NHAI targets 450 kilometers of the Build–operate–transfer (BOT) projects in FY22 and is looking forward to bidding out 600-1000 kilometers of highway stretch under the Build–operate–transfer (BOT) model as of November 2021.
- In August 2020, the Government of India revised the Model Concession Agreement for BOT projects to plug delays by imposing a deadline on the NHAI and incentivizing timely work by concessionaires. According to revised norms, the NHAI will have to hand over 90 per cent of the project land (vacant and ready to build) to private developers, thus creating a more market-friendly sector and attracting more private players.
- In November 2020, L&T Construction bagged a contract to build India's longest river bridge, across the Brahmaputra River connecting Dhubri in Assam to Phulbari in Meghalaya, valued at INR 2,500–5,000 crore (US$ 339.76–679.53 million).
- KKR, a global investment firm, announced to acquire the entire stake of Global Infrastructure Partners in Highway Concessions One (HC1) and seven other highway assets totaling 487 kms.

Total PPP Projects in India (FY2021)



Source: https://www.ibef.org/industry/roads-india

5.7 Evolution of PPP in road sector in India

PPP in the road sector in India has passed through several distinct phases:

- Build- Operate-Transfer:
  It is a form of project financing, wherein a private entity receives a concession from the private or public sector to finance, design, construct, own, and operate a facility stated in the concession contract. This enables the project proponent to recover its investment, operating, and maintenance expenses in the project. But significant improvements in private participation were observed. Private sector participation in BOT projects peaked till Financial Year (FY)12. But a steep decline in PPP participation was observed in FY13 and FY14 with many viable projects unable to attract even a single bid.

- Hybrid Annuity Mode (HAM):
  HAM was introduced to reinvigorate PPP participation in the road sector after interest in BOT projects waned. It has mainly provided advantages to the developers in form of reduction in Initial funding requirements in PPP projects as 60 per cent of the bid project cost is to be arranged by the concessionaire. This reduces the initial equity requirement and encourages participation by mid-sized developers to invest in PPP projects. Further, debt requirements go down from 70 per cent to around 42 per cent of the project cost. The introduction and strong implementation of HAM has seen HAM become the preferred PPP mode in India.

- Toll- Operate- Transfer (TOT)
  TOT is a model for 31 operational national highway projects where investors make a lump sum payment in return for long-term toll collection rights backed by a sound tolling system. Three TOT bundles have been floated by NHAI so far out of which financial closure of one bundle was achieved in August 2018 with the highest bidder bid at least 1.5 times the IECV and for one bundle bid process is ongoing.

  The National Highways Authority of India is looking to tweak the BOT framework as the Government plans to revive the BOT model to make it more attractive to private investors and lenders.

5.8 Policy Initiatives

- Under the Union Budget 2021-22, the Government of India allocated INR 19,000 (USD 2.37 billion) for Pradhan Mantri Gram Sadak Yojana (PMGSY), a 36 per cent rise over the earlier estimate of 2021-22. As of 14 July 2022, the number of roads constructed under PMGSY stood at 13,217 with a total length of 65,320 kms.

- The government of India has set up the India Infrastructure Finance Company (IIFCL) to provide long-term funding for infrastructure projects. Interest payments on external commercial borrowings for infrastructure are now subject to a lower withholding tax of 5 per cent vis-a-vis 20 per cent earlier. Infrastructure debt funds income is exempt from income tax.

- The Bhoomi Rashi portal accelerates the process of publication of notifications for land acquisition. It has been useful in reducing the time taken for providing notification regarding approval and publication of land acquisition.

- In October 2020, a memorandum of understanding (MoU) has been signed with the NHAI by Guru Nanak Dev University (GNDU) to conduct advanced research on various aspects, including highway architecture, protection, and revitalisation, The GNDU will undertake studies on ~137 km length of the National Highways passing through Pathankot, Gurdaspur and Amritsar districts.

- In October 2021, the government announced rules to improve road safety, such as fixed driving hours for commercial truck drivers and a mandate to install sleep detection sensors in commercial vehicles.

- In December 2020, the Ministry of Road Transport and Highways signed an MoU with the Federal Ministry of Climate Action, Environment, Energy, Mobility, Innovation and Technology of the Republic of Austria on technology cooperation in the road infrastructure sector.

- FASTag is an electronic toll collection system, operated by NHAI. A mobile application has been launched for the purchase of tags and top-up of FASTags. Toll collections at national and state highways through FASTag touched INR 50,855 crore in FY2022, the highest yearly figure and 46 per cent more than in FY2021.

- The Indian government launched the Gati Shakti-National Master Plan, which will help lead a holistic and integrated development of infrastructure generating immense employment opportunities in the country. The aim of the plan is to create a digital platform that would enable 16 ministries to collaborate on integrated planning and coordinated implementation of projects. The plan will also bring together departments such as railways, roads & highways and others and implementation will be done with the help of geo-satellite imaging and Big Data, land and logistics. India's Gati Shakti program has consolidated a list of 81 high-impact projects, out of which road infrastructure projects were the top priority. The major highway projects include the Delhi-Mumbai expressway (1,350 kms), Amritsar-Jamnagar expressway (1,257 kms) and Saharanpur-Dehradun expressway (210 kms). The main aim of this program is a faster approval process which can be done through the Gati shakti portal and digitized the approval process completely.

Source: https://www.business-standard.com/article/current-affairs/fastag-collections-hit-rs-50k-crore-up-46-year-on-year-in-2022-123012401078_1.html

5.9 Budgetary Outlay for Roads

- The total expenditure of the Ministry in 2023-24 is estimated at INR 2,70,435 crore. This is 25 per cent higher than the revised estimates for FY2022-23. The highest expenditure (60 per cent of the total expenditure) is towards NHAI. In Union Budget 2023-24, NHAI is allocated INR 1,62,207 crore, all of which is budgetary support.
- Among the marquee projects, the 1,350-km Delhi-Mumbai Expressway, with an estimated cost of about INR 1 lakh crore, will be commissioned in phases in CY2023.
- The 210-km Delhi-Dehradun Expressway is also under construction and will start getting commissioned in CY2024.
- The Delhi-Amritsar-Katra Expressway, spanning 670 km, is also a signature project of the government with an estimated cost of about INR 35,000 crore.

- Expenditure for Bharatmala is met from various funds meant for NHAI. In FY2023-24, INR 42,772 crore worth of spending is meant to be met from these funds.
- An Infrastructure Finance Secretariat will be established to assist stakeholders and encourage private investment in infrastructure such as roads, railways and power. Particularly vulnerable tribal groups (PVTGs) will be provided with facilities such as road and telecom connectivity, safe housing, and clean drinking water under the Pradhan Mantri PVTG Development Mission.
- Critical transport infrastructure projects for last and first mile connectivity for coal, steel, fertilizer and food grain sectors have been identified. They will be taken up on priority with investment of INR 75,000 crore, of which INR 15,000 crore will come from private sources.

Source: https://www.ibef.org/industry/roads-india; https://indianexpress.com/article/business/budget/union-budget-push-for-highways-sector-nhai-allocation-up-8418768/; https://prsindia.org/budgets/parliament/demand-for-grants-2023-24-analysis-road-transport-and-highways

5.10 Way Forward (Outlook)

- The market for roads and highways has projected a CAGR of 36.16 per cent during 2016-2025, on account of growing government initiatives to improve transportation infrastructure in the country.

- The Indian road network is on track to reach world-class standards with widescale expansions and makeovers. Highways are the most integral aspect of a country's functioning, connecting people, goods, and other raw materials.

- The central government's 'Bharatmala' project has helped in vigorously building a solid network of roads, highways, and expressways. India also plans to build at least 26 green expressways by 2025.

- The government's focus has not just been restricted to building premier roads but also aims to connect major industrial towns. The government will also connect every metro, town and village through a robust road connectivity system.

- India's expanding road and highway network has even reached the neglected and treacherous terrains of the Northeastern and Northern parts of the country.

- The Border Road Organisation has been working overtime to build roads along the Indian border, enhancing the country's military capabilities and road infrastructure is of paramount importance for speedy logistical support.

- The roadmap to India's infrastructure is exciting and the new decade seems to be promising. More and more green and clean initiatives are happening across government bodies in major countries, especially, the Indian government has given the much-needed push to the infrastructure sector in the recent 2021 budget. India is looking at a USD 5 trillion economy dream.

- The logistics sector in India is rising at a CAGR of 10.5 per cent annually which shows that both in terms of investments and revenue the infra game is going strong.

- India is now at a juncture where a huge investment in research and development for energy-efficient and green fuel is much-needed. Thus, boosting the overall infrastructure.

Source: https://www.ibef.org/blogs/growth-of-infrastructure-sector-a-potential-boost-to-the-indian-economy; https://economictimes.indiatimes.com/industry/transportation/roadways/indian-growth-story-accelerated-by-highway-expansion/articleshow/93945121.cms?from=mdr

6. Valuation Approach

The standard of value used in our analysis is fair value, which is often defined as the price, in terms of cash or equivalent, that a buyer could reasonably be expected to pay, and a seller could reasonably be expected to accept, if the business were exposed for sale on the open market for a reasonable period of time, with both buyer and seller being in possession of the pertinent facts and neither being under any compulsion to act.

There are several commonly used and internationally accepted methods for determining the fair value of companies, which have been considered in the present case, to the extent relevant and applicable. Accordingly, we have carried out valuation of the SPVs as on 31 December 2022.
It should be understood that the valuation of any company or its assets is inherently subjective and is subject to certain uncertainties and contingencies, all of which are difficult to predict and are beyond our control. In performing our analysis, we made assumptions with respect to industry performance and general business and economic conditions, many of which are beyond the control of the SPVs. In addition, this valuation will fluctuate with changes in prevailing market conditions, the conditions and prospects, financial and otherwise, of the SPVs, and other factors which generally influence the valuation analysis.

The application of any particular method of valuation depends on the purpose for which the valuation is done. Although different values may exist for different purposes, it cannot be too strongly emphasized that a valuer can only arrive at one value for one purpose. Our choice of methodology of valuation has been arrived at using usual and conventional methodologies adopted for transactions of a similar nature and our reasonable judgment, in an independent and bona fide manner is based on our previous experience of assignments of a similar nature.

We have estimated the fair value of equity of the InvIT using Sum of the Parts ("Sum of the Parts") method by adding the individual EV of each SPV and adjusting with below the line items of the Condensed Interim Special Purpose Consolidated financials of the Trust as on 31 December 2022. EV of each SPV has been estimated using DCF method under the income approach.

In respect of going concerns, certain valuation techniques have evolved over time and are commonly in vogue. These can be broadly categorised as follows:

<u>Comparable Companies Market Multiple ("CCM") Method</u>

Under this method, the value of the equity shares of a company/ business undertaking is arrived at by using multiples derived from valuations of comparable companies, as apparent through stock market valuations of listed companies. This valuation is based on the principle that market valuations, taking place between informed buyers and informed sellers, incorporate all factors relevant for the assessment of the value of the company.

Relevant multiples need to be chosen carefully and adjusted for differences between the circumstances. In identifying the comparable companies, the business description and various operating metrics were analysed.

We have not considered this method in our valuation analysis in the absence of closely comparable listed companies having similar geographical locations, stage of growth, size, terms and profitability. Further, road tolling assets are finite life assets having unique revenue drivers like unexpired concession period, traffic expected at those specified tolls being the major idiosyncratic variables. Further every company has a variety of such unique road tolling assets which makes the overall company even more specific. This makes every road toll asset unique and hence unless a comparable road toll asset ca be found that matches all such variables, comparable companies method shall not be relevant. In the current situation, we could not find any such companies in the listed space that was comparable in the light of the above explained factors and hence CCM Method was not applied.

Comparable Companies Transaction Multiple ("CTM") Method

Under the CTM method, the value of the equity shares of a company/ business undertaking is arrived at by using the prices implied by reported transactions/ deals of comparable companies.

Relevant multiples need to be chosen carefully and adjusted for differences between the circumstances.

Road tolling assets are finite life assets having unique revenue drivers like unexpired concession period, traffic expected at those specified tolls being the major idiosyncratic variables. Further every company has a variety of such unique road tolling assets which makes the overall company even more specific. This makes every road toll asset unique and hence unless a comparable road toll asset transaction ca be found that matches all such variables, comparable transactions method shall not be relevant. In the current situation, we could not find any such transactions in the last one year, we believe that the older transactions are not relevant for our valuation considering share price movements and changes in the macro-economic situation in India. Also, transactions multiples as times tend to be biased due to premium which may be embedded in the price for strategic benefits and synergies which an acquirer may perceive in the target.

Accordingly, we have not applied the Comparable Transactions Multiple Method for the valuation of the SPVs.

Net Asset Value (NAV) Method

The asset-based valuation technique is based on the value of the underlying net assets of the business either on a book value basis or realisable value basis or replacement cost basis. The cost approach assumes that a prudent investor would pay no more for an entity than the amount for which he could replace or re-create it or an asset with similar utility. Under a going-concern premise, the cost approach usually is best suited for use in valuing asset-intensive companies, such as investment or real estate holding companies, or companies with unstable or unpredictable earnings.

In the present case of valuing the SPVs, we have not considered this method as the underlying earnings are fairly stable, and a going concern business plan has been provided by the Management. Further, in the extant case, the entire business is based on finite period cash flow generation and a cost approach would not capture the present value of such expected cash flow as cost approach is not forward looking.

Discounted Cash Flows (DCF) Method

DCF method has been considered suitable to value road projects because cash flow for such assets is the base premise of such assets based on revenue drivers like concession period awarded, expected traffic on the specific road asset and inflation-based price increase DCF is a method that shall ensure capturing such idiosyncratic features and hence has been considered suitable for the current valuation and has been applied.

Under the DCF method, the projected free cash flows to the firm are discounted at the weighted average cost of capital. The sum of the discounted value of such free cash flows is the value of the firm.

Using the DCF analysis involves determining the following:

Estimating future free cash flows:

Free cash flows are the cash flows expected to be generated by the company that is available to all providers of the company's capital — both debt and equity.

Appropriate discount rate to be applied to cash flows, i.e., the cost of capital:

This discount rate, which is applied to the free cash flows, should reflect the opportunity cost to all the capital providers (namely shareholders and creditors), weighted by their relative contribution to the total capital of the company. The opportunity cost to the capital provider equals the rate of return the capital provider expects to earn on other investments of equivalent risk.

The value so computed by discounting the cash flows to the firm is adjusted for net borrowings, surplus asset including investments, minority interests, equity instruments granted as part of the share-based payment, and other matters to arrive at an aggregate equity value of the company.

In the present case, we have been provided with the financial projections of all the 10 SPVs. As such, we have considered this method for valuing the SPVs.

7. Valuation Analysis

Discounted Cash Flow Method (Free Cash Flows to Firm)

Using the DCF analysis involves determining the following:

Estimating future free cash flows:
Free cash flows are the cash flows expected to be generated by each individual SPV and available to the capital providers in each SPV has been estimated based on projected financial information provided by the Management. Projections provided by the Management are only the best estimates of each individual SPV's growth and sustainability of profitability margins. Although we have reviewed the financial forecast provided by the Management for consistency and reasonableness, we have not specifically validated these financial projections and have relied on the estimates provided by the Management.

Appropriate discount rate to be applied to cash flows i.e., the cost of capital:
This discount rate, which is applied to the free cash flows, should reflect the opportunity cost to all the capital providers (namely shareholders and creditors), weighted by their relative contribution to the total capital for each individual SPV. The opportunity cost to the capital provider equals the rate of return the capital provider expects to earn on other investments of equivalent risk.

Arriving at equity value from enterprise value:
The fair value basis of combined equity of the 10 SPVs for this purpose has been determined after taking into consideration all the factors and methodologies mentioned hereinabove. As explained above, we have given 100 per cent weightage to the DCF methodology to arrive at the EV of a specific SPV.

As a next step, we have adopted a sum-of-parts methodology and arrive at the EV for the entire portfolio of 10 SPVs. Later, we have then made adjustments for debt, debt-like-items, surplus assets, cash and cash equivalents and other adjustments at the Trust level and arrived at the value of 100 per cent interest in equity (on a control, marketable basis) for the Trust.

The key assumptions under the DCF Method

For the DCF analysis, we have relied on the projected financials of the SPVs provided by the Management based on their best estimates on the growth and sustainability of profitability margins of the individual SPVs. Please note that though we have reviewed the financial forecast provided by the Management for consistency and reasonableness based on data available in public domain and traffic consultant reports provided by the Management for each SPV, we have not independently investigated or otherwise verified the data and key inputs estimated by the Management for all the 10 SPVs. Nothing has come to our attention to indicate that the information provided by the Management had material misstatements or would not afford reasonable grounds upon which to base our Report. The Free Cash Flows to Firm ("FCFF") have been calculated for each individual SPV as on the Valuation Date based on the Financial Projections.

The key assumptions and the basis for the valuation are explained in detail below:

<u>Discounting Factor</u>
The discount rate considered for arriving at the present value of the free cash flows to the firm is the Weighted Average Cost of Capital ("WACC"). The WACC for the SPVs as on the Valuation Date are derived as follows:

WACC= (ke x we) + (kd x (1 – t) x wd)
where,
we = weight of equity in the capital structure

wd = weight of debt in the capital structure

ke = cost of equity

kd = cost of debt, and

t = effective tax rate

<u>Cost of Equity ("ke")</u>

The cost of equity is computed using the Capital Asset Pricing Model (CAPM) as shown below:

ke = rf + β (rm-rf) where

ke = Cost of Equity,

rf = Risk Free Return,

β = Beta, a measure of Market Risk

rm = Market Return

Cost of Equity is estimated using the following factors:

- Risk Free Return (rf) – The risk-free rate (rf) is the return on investment with zero risk where actual returns are equal to the expected return. Rf at 7.32 per cent has been considered for each SPV based on the 10 Year normalized Wholesale Debt Market Zero Coupon Bond Yield as of the Valuation Date

- Beta (β) – Beta has been computed by re-levering the average asset beta of comparable companies. Beta has been considered based on 2 year weekly trailing Beta of comparable companies, relevered for each of the SPV specific debt to equity ratio and effective taxes. Refer to Appendix X for a list of comparable companies

- Debt to Equity Ratio (DER) – The DER of peers displays significant variation owing to the difference in the stage of operations and maturity. Accordingly, DER was concluded based on management input for the debt-to-equity ratio of each individual SPV over the projected period.

- Income Tax – Effective tax rate has been applied after considering 80IA and 35AD benefits and applicable MAT credit (if any) in the projected period as represented to us by the Management for each SPV.

- Equity Risk Premium (ERP) – ERP is considered at 7.25 per cent for each SPV.

- Alpha - Alpha premium for each individual SPV is based on the valuer's assessment and reflects idiosyncratic risks. Idiosyncratic risks considered are combination of operational parameters like construction phase and credit parameters like credit rating.

Cost of Debt ("kd")

Marginal cost of raising debt for each SPV is considered based on Management input. Management has represented that for 9 SPVs debt can be refinanced at 8.75 per cent per annum and for PDTPL the debt can be refinanced at 9.0 per cent per annum.

Other notes

- Mid-year convention in arriving at the present value of free cash flows is considered appropriate.
- Management has represented that the probability of devolvement of contingent liabilities is insignificant and accordingly no adjustment was required to be carried out in the valuation of the 10 SPVs.

Debt: There are external borrowing of INR 10,379.9 crores on the combined balance sheet of the Trust. This has been reduced from the combined EV for the computation of equity value the Trust.

Debt-like items: There is a current tax liabilities of INR 15.4 crores on the combined balance sheet of the Trust.

Surplus assets: There are security deposits, advance income tax and investments which are a part of the current assets of the Trust. Such items have been considered as surplus assets and have accordingly been removed from current assets. The combined value of such surplus assets is INR 124.8 crores. This has been added to the combined EV for the computation of equity value of the Trust.

Cash and cash equivalents: There are approximately INR 226.5 crores of cash and cash equivalent on the Trust combined balance sheet. This has been added to the combined EV for the computation of equity value of the Trust.

Other adjustments: Present Value of standalone expenses pertaining to InvIT as on 31 December 2022 amounts to INR 152.9 crores. This has been reduced from the combined EV for the computation of the equity value of the Trust.

8. Valuation of the SPVs

8.1 IRB Westcoast Tollway Limited

Key Inputs in Projections:
The key inputs of the projections provided by the Management supported by independent traffic as follows:

a) Revenue

Revenue is expected to grow at an average rate of 12 per cent-13 per cent in the steady state forecasted period based on the financial plan provided by management which is based on a traffic study.

b) Traffic Volume

Traffic volume as received from the Management supported by traffic study report carried out by GMD Consultants dated December 2022 are considered.

c) Toll rates

- Toll rates have been estimated as per the recent MoRTH notification and Schedule R of the contract agreement. Factor of inflation/growth has been incorporated as per Schedule R. Increase in WPI was calculated based on the WPI numbers based on the latest year number provided by RBI and the forecast are based on the numbers estimated in annual report published by Consensus.

- WPI has been projected to grow by 5 per cent for the projected period.

d) Periodic Maintenance & Routine Maintenance Costs

Estimates for projected Periodic Maintenance & Routine Maintenance cost from the Management are considered.

DCF Method:

- The key assumptions and other key inputs, mentioned on the previous paragraphs, as provided by the Management are considered in the projections.

- The projections provided by the Management, based on Independent traffic, are only the best estimates of growth and sustainability of profitability margins. The financial forecast provided by the Management was reviewed for consistency and reasonableness and have relied on them.

- The explicit period has been considered from 01 January 2023 to 06 February 2048.

- The tax has been calculated as per the provisions of the Income Tax Act, 1961. The interest expense is adjusted in the same for arriving at the tax computation under FCFF.

- The assumptions for Weighted average cost of capital is as follows:

WACC calculation		
		Basis
Risk free rate of return	*7.3%*	10yrs ZCYC as at 30 December 2022
India risk premium	*7.3%*	Incwert Analysis
Beta	0.8	Peer median of 2 yr weekly beta
Alpha	*0.5%*	Valuer judgement
Cost of Equity	***13.6%***	
Cost of Debt	*8.8%*	Management input
Tax Rate	*17.5%*	Rates as per IT Act as applicable here
After Tax Cost of Debt	***7.2%***	
Debt/Equity	*150.0%*	Management input
Debt to Capital %	*60.0%*	
Equity to Capital %	*40.0%*	
Weighted Average Cost of Capital	***9.8%***	
Marginal tax rate	*17.5%*	*MAT rates as per IT applicable here*

- The Business/ Enterprise Value of IWTL as on 31 December 2022 is arrived at INR 3,542.2 crores.

Discounted cash flow	**FY2023**	**FY2024**	**FY2025**	**FY2026**	**FY2027**	**FY2028**	**FY2029**	**FY2030**	**FY2031**	**FY2032**	**FY2033**	**FY2034**
INR crores	3.0months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months
Net Revenue	27.6	157.6	192.2	215.1	240.8	269.3	300.1	334.5	371.8	412.8	456.8	507.9
yoy growth	*n/a*	*37.7%*	*23.2%*	*12.0%*	*12.0%*	*11.8%*	*11.4%*	*11.5%*	*11.1%*	*11.0%*	*10.7%*	*11.2%*
EBITDA	**20.1**	**90.9**	**122.9**	**187.3**	**210.7**	**239.4**	**158.6**	**262.0**	**338.8**	**378.7**	**420.2**	**460.0**
EBITDA margin	*73%*	*58%*	*64%*	*87%*	*87%*	*89%*	*53%*	*78%*	*91%*	*92%*	*92%*	*91%*
Depreciation	4.6	23.7	27.7	31.1	34.8	38.9	43.3	48.3	50.1	48.7	46.1	42.3
EBIT	**15.5**	**67.2**	**95.2**	**156.3**	**175.9**	**200.5**	**115.2**	**213.7**	**288.8**	**330.0**	**374.1**	**417.8**
EBIT margin	*56%*	*43%*	*50%*	*73%*	*73%*	*74%*	*38%*	*64%*	*78%*	*80%*	*82%*	*82%*
Less: tax on EBIT	(1.4)	(11.7)	(16.6)	(27.3)	(30.7)	(35.0)	(20.1)	(37.3)	(50.5)	(57.7)	(65.4)	(73.0)
Change in working capital	100.4	35.2	-	-	-	-	-	-	-	-	-	-
Capex	-	(15.7)	-	-	-	-	-	-	-	-	-	-
Free cash flows to the Firm	**119.1**	**98.7**	**106.3**	**160.0**	**180.0**	**204.3**	**138.4**	**224.6**	**288.4**	**321.0**	**354.8**	**387.1**
Continuing value												
Discounting period (mid-period)	0.12	0.75	1.75	2.75	3.75	4.75	5.75	6.75	7.75	8.75	9.75	10.75
Discount factor	0.99	0.93	0.85	0.77	0.71	0.64	0.59	0.53	0.49	0.44	0.40	0.37
Present value of cash flows as at 31 December 2022	**117.7**	**92.1**	**90.3**	**123.9**	**127.0**	**131.4**	**81.1**	**119.9**	**140.2**	**142.2**	**143.2**	**142.3**

Discounted cash flow	**FY2035**	**FY2036**	**FY2037**	**FY2038**	**FY 2039**	**FY2040**	**FY2041**	**FY2042**	**FY2043**	**FY2044**	**FY2045**	**FY2046**	**FY2047**	**FY2048**
INR crores	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	10.3months
Net Revenue	565.3	626.3	692.4	768.1	851.4	947.4	1048.4	1161.1	1291.2	1436.7	1591.6	1766.2	1954.1	1850.4
yoy growth	*11.3%*	*10.8%*	*10.6%*	*10.9%*	*10.8%*	*11.3%*	*10.7%*	*10.8%*	*11.2%*	*11.3%*	*10.8%*	*11.0%*	*10.6%*	*n/m*
EBITDA	**361.7**	**586.3**	**653.3**	**728.1**	**661.9**	**852.0**	**1,004.2**	**1,114.7**	**1,242.5**	**1,385.4**	**1,537.9**	**1,709.8**	**1,894.9**	**1,797.2**
EBITDA margin	*64%*	*94%*	*94%*	*95%*	*78%*	*90%*	*96%*	*96%*	*96%*	*96%*	*97%*	*97%*	*97%*	*97%*
Depreciation	36.8	30.1	33.3	36.9	40.9	45.5	50.4	55.8	62.0	69.0	76.5	84.8	93.9	88.9
EBIT	**324.9**	**556.2**	**620.1**	**691.2**	**621.0**	**806.5**	**953.8**	**1,059.0**	**1,180.5**	**1,316.4**	**1,461.4**	**1,625.0**	**1,801.0**	**1,708.3**
EBIT margin	*57%*	*89%*	*90%*	*90%*	*73%*	*85%*	*91%*	*91%*	*91%*	*92%*	*92%*	*92%*	*92%*	*92%*
Less: tax on EBIT	(56.8)	(97.2)	(108.3)	(120.8)	(108.5)	(140.9)	(166.7)	(185.0)	(206.2)	(230.0)	(340.7)	(409.0)	(453.3)	(430.0)
Change in working capital	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capex	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Free cash flows to the Firm	**305.0**	**489.1**	**545.0**	**607.3**	**553.4**	**711.1**	**837.6**	**929.7**	**1,036.2**	**1,155.4**	**1,197.2**	**1,300.8**	**1,441.6**	**1,367.3**
Continuing value														
Discounting period (mid-period)	11.75	12.75	13.75	14.75	15.75	16.75	17.75	18.75	19.75	20.75	21.75	22.75	23.75	24.67
Discount factor	0.34	0.31	0.28	0.25	0.23	0.21	0.19	0.17	0.16	0.14	0.13	0.12	0.11	0.10
Present value of cash flows as at 31 December 2022	**102.2**	**149.3**	**151.6**	**153.9**	**127.8**	**149.6**	**160.5**	**162.4**	**164.9**	**167.5**	**158.1**	**156.6**	**158.1**	**137.5**

Valuation Conclusion	
Present value of cash flows	3,551.3
Present value of terminal value	-
Release of WC at the end of concession period	(9.1)
Enterprise value	**3,542.2**

8.2 Solapur Yedeshi Tollway Limited

Key Inputs in Projections:
The key inputs of the projections provided by the Management supported by independent traffic as follows:

a) Revenue

Revenue is expected to grow at an average rate of 10 per cent- 11 per cent in the steady state forecasted period based on the financial plan provided by management which is based on a traffic study.

b) Traffic Volume

Traffic volume as received from the Management supported by traffic study report carried out by GMD Consultants dated December 2022 are considered.

c) Toll rates

- Toll rates have been estimated as per the recent MoRTH notification and Schedule R of the contract agreement. Factor of inflation/growth has been incorporated as per Schedule R. Increase in WPI was calculated based on the WPI numbers are based on the latest year number provided by RBI and the forecast are based on the numbers estimated in annual report published by Consensus

- WPI has been projected to grow by 5 per cent for the projected period.

d) Periodic Maintenance & Routine Maintenance Costs

Estimates for projected Periodic Maintenance & Routine Maintenance cost from the Management are considered.

DCF Method:

- The key assumptions and other key inputs, mentioned on the previous paragraphs, as provided by the Management are considered in the projections.

- The projections provided by the Management, based on Independent traffic and technical studies, are only the best estimates of growth and sustainability of profitability margins. The financial forecast provided by the Management was reviewed for consistency and reasonableness and have relied on them.

- The explicit period has been considered from 01 January 2023 to 20 April 2044.

- The tax has been calculated as per the provisions of the Income Tax Act, 1961. The interest expense is adjusted in the same for arriving at the tax computation under FCFF.

- The assumptions for Weighted average cost of capital is as follows:

WACC calculation		
		Basis
Risk free rate of return	*7.3%*	10yrs ZCYC as at 30 December 2022
India risk premium	*7.3%*	Incwert Analysis
Beta	0.8	Peer median of 2 yr weekly beta
Alpha	*0.5%*	Valuer judgement
Cost of Equity	***13.6%***	
Cost of Debt	*8.8%*	Management input
Tax Rate	*17.5%*	Rates as per IT Act as applicable here
After Tax Cost of Debt	***7.2%***	
Debt/Equity	*150.0%*	Management input
Debt to Capital %	*60.0%*	
Equity to Capital %	*40.0%*	
Weighted Average Cost of Capital	***9.8%***	
Marginal tax rate	*17.5%*	*MAT rates as per IT applicable here*

- The Business/ Enterprise Value of SYTL as on 31 December 2022 is arrived at INR 2,182.1 crores.

Discounted cash flow	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035
INR crores	3.0months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months
Net Revenue	20.7	129.6	143.0	158.0	174.9	194.4	214.5	238.2	264.5	294.9	328.1	363.5	407.1
yoy growth	*n/a*	*10.7%*	*11.0%*	*11.4%*	*11.4%*	*12.0%*	*10.5%*	*11.1%*	*11.0%*	*11.5%*	*11.3%*	*10.8%*	*12.0%*
EBITDA	**17.8**	**111.7**	**111.7**	**119.0**	**133.9**	**172.7**	**191.8**	**214.4**	**239.4**	**268.5**	**239.3**	**270.2**	**309.4**
EBITDA margin	*86%*	*86%*	*78%*	*75%*	*77%*	*89%*	*89%*	*90%*	*91%*	*91%*	*73%*	*74%*	*76%*
Depreciation	2.7	17.7	19.7	16.8	17.8	20.0	22.1	24.5	27.2	30.3	33.7	37.4	41.9
EBIT	15.1	94.0	92.1	102.2	116.1	152.8	169.7	189.9	212.2	238.1	205.6	232.8	267.5
EBIT margin	*73%*	*73%*	*64%*	*65%*	*66%*	*79%*	*79%*	*80%*	*80%*	*81%*	*63%*	*64%*	*66%*
Less: tax on EBIT	(3.6)	(16.4)	(16.1)	(17.9)	(20.3)	(26.7)	(29.7)	(33.2)	(37.1)	(41.6)	(35.9)	(40.7)	(46.7)
Change in working capital	31.2	0.1	18.4	19.4	33.7	6.4	-	-	-	-	-	-	-
Capex	-	-	-	-	-	-	-	-	-	-	-	-	-
Free cash flows to the Firm	**45.5**	**95.4**	**114.1**	**120.5**	**147.4**	**152.5**	**162.1**	**181.2**	**202.4**	**226.9**	**203.4**	**229.5**	**262.7**
Continuing value													
Discounting period (mid-period)	0.12	0.75	1.75	2.75	3.75	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75
Discount factor	0.99	0.93	0.85	0.77	0.71	0.64	0.59	0.53	0.49	0.44	0.40	0.37	0.34
Present value of cash flows as at 31 December 2022	**44.9**	**89.0**	**96.9**	**93.3**	**104.0**	**98.0**	**95.0**	**96.7**	**98.4**	**100.5**	**82.1**	**84.4**	**88.0**

Discounted cash flow	FY2036	FY2037	FY2038	FY 2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045
INR crores	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	0.7months
Net Revenue	452.4	500.9	554.5	617.4	685.8	758.0	839.0	929.8	1036.0	62.8
yoy growth	*11.1%*	*10.7%*	*10.7%*	*11.3%*	*11.1%*	*10.5%*	*10.7%*	*10.8%*	*11.4%*	*n/m*
EBITDA	**420.4**	**467.5**	**519.4**	**580.4**	**647.0**	**717.3**	**754.1**	**840.8**	**942.3**	**60.1**
EBITDA margin	*93%*	*93%*	*94%*	*94%*	*94%*	*95%*	*90%*	*90%*	*91%*	*96%*
Depreciation	46.5	51.5	57.0	63.5	70.5	78.0	86.3	95.6	106.6	6.5
EBIT	373.9	416.0	462.4	516.9	576.4	639.4	667.8	745.1	835.7	53.6
EBIT margin	*83%*	*83%*	*83%*	*84%*	*84%*	*84%*	*80%*	*80%*	*81%*	*85%*
Less: tax on EBIT	(65.3)	(72.7)	(80.8)	(90.3)	(100.7)	(111.7)	(116.7)	(130.2)	(172.1)	(13.5)
Change in working capital	-	-	-	-	-	-	-	-	-	-
Capex	-	-	-	-	-	-	-	-	-	-
Free cash flows to the Firm	**355.1**	**394.8**	**438.6**	**490.1**	**546.3**	**605.6**	**637.4**	**710.6**	**770.1**	**46.6**
Continuing value										
Discounting period (mid-period)	12.75	13.75	14.75	15.75	16.75	17.75	18.75	19.75	20.75	21.27
Discount factor	0.31	0.28	0.25	0.23	0.21	0.19	0.17	0.16	0.14	0.14
Present value of cash flows as at 31 December 2022	**108.4**	**109.8**	**111.2**	**113.2**	**114.9**	**116.1**	**111.3**	**113.1**	**111.6**	**6.4**

Valuation Conclusion	
Present value of cash flows	2,187.3
Present value of terminal value	-
Release of WC at the end of concession period	(5.1)
Enterprise value	**2,182.1**

8.3 Yedeshi Aurangabad Tollway Limited

Key Inputs in Projections:
The key inputs of the projections provided by the Management supported by independent traffic reports as follows:

a) Revenue

Revenue is expected to grow at an average rate of 8 per cent- 9 per cent in the steady state forecasted period based on the financial plan provided by management which is based on a traffic study.

b) Traffic Volume

Traffic volume as received from the Management supported by the traffic study report carried out by GMD Consultants dated December 2022 are considered.

c) Toll rates

- Toll rates have been estimated as per the recent MoRTH notification and Schedule R of the contract agreement. Factor of inflation/growth has been incorporated as per Schedule R. Increase in WPI was calculated based on the WPI numbers are based on the latest year number provided by RBI and the forecast are based on the numbers estimated in annual report published by Consensus.

- WPI has been projected to grow by 5 per cent for the projected period.

d) Periodic Maintenance & Routine Maintenance Costs

Estimates for projected Periodic Maintenance & Routine Maintenance cost from the Management are considered.

DCF Method:

- The key assumptions and other key inputs, mentioned on the previous paragraphs, as provided by the Management are considered in the projections.

- The projections provided by the Management, based on Independent traffic and technical studies, are only the best estimates of growth and sustainability of profitability margins. The financial forecast provided by the Management was reviewed for consistency and reasonableness and have relied on them.

- The explicit period has been considered from 01 January 2023 to 06 December 2045.

- The tax has been calculated as per the provisions of the Income Tax Act, 1961. The interest expense is adjusted in the same for arriving at the tax computation under FCFF.

- The assumptions for Weighted average cost of capital is as follows:

WACC calculation		
		Basis
Risk free rate of return	*7.3%*	10yrs ZCYC as at 30 December 2022
India risk premium	*7.3%*	Incwert Analysis
Beta	0.8	Peer median of 2 yr weekly beta
Alpha	*0.5%*	Valuer judgement
Cost of Equity	***13.6%***	
Cost of Debt	*8.8%*	Management input
Tax Rate	*17.5%*	Rates as per IT Act as applicable here
After Tax Cost of Debt	***7.2%***	
Debt/Equity	*150.0%*	Management input
Debt to Capital %	*60.0%*	
Equity to Capital %	*40.0%*	
Weighted Average Cost of Capital	***9.8%***	
Marginal tax rate	*17.5%*	*MAT rates as per IT applicable here*

- The Business/ Enterprise Value of YATL as on 31 December 2022 is arrived at INR 4,188.4 crores.

Discounted cash flow	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035
INR crores	3months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months
Net Revenue	44.3	258.5	286.1	312.4	342.0	372.3	406.3	446.2	486.6	533.0	580.2	634.0	692.3
yoy growth	*n/a*	*9.8%*	*11.3%*	*9.9%*	*10.1%*	*9.9%*	*9.4%*	*9.8%*	*9.0%*	*9.5%*	*8.9%*	*9.3%*	*9.2%*
EBITDA	**40.0**	**233.7**	**235.9**	**254.7**	**281.4**	**342.3**	**374.9**	**413.3**	**451.9**	**496.5**	**432.2**	**478.5**	**529.4**
EBITDA margin	*90%*	*90%*	*82%*	*82%*	*82%*	*92%*	*92%*	*93%*	*93%*	*93%*	*74%*	*75%*	*76%*
Depreciation	8.5	48.4	53.8	59.2	60.2	59.5	57.7	55.1	56.2	61.6	67.1	73.3	80.0
EBIT	31.5	185.4	182.1	195.5	221.2	282.8	317.2	358.2	395.7	434.9	365.1	405.2	449.3
EBIT margin	*71%*	*72%*	*64%*	*63%*	*65%*	*76%*	*78%*	*80%*	*81%*	*82%*	*63%*	*64%*	*65%*
Less: tax on EBIT	(7.1)	(32.4)	(31.8)	(34.2)	(38.7)	(49.4)	(55.4)	(62.6)	(69.1)	(76.0)	(63.8)	(70.8)	(78.5)
Change in working capital	90.2	0.2	29.0	30.5	76.5	15.4	0.0	-	-	-	-	-	-
Capex	-	-	-	-	-	-	-	-	-	-	-	-	-
Free cash flows to the Firm	**123.1**	**201.5**	**233.1**	**251.1**	**319.3**	**308.3**	**319.5**	**350.7**	**382.8**	**420.5**	**368.4**	**407.7**	**450.8**
Continuing value													
Discounting period (mid-period)	0.12	0.75	1.75	2.75	3.75	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75
Discount factor	0.99	0.93	0.85	0.77	0.71	0.64	0.59	0.53	0.49	0.44	0.40	0.37	0.34
Present value of cash flows as at 31 December 2022	**121.7**	**188.0**	**198.1**	**194.4**	**225.3**	**198.2**	**187.1**	**187.1**	**186.1**	**186.3**	**148.7**	**149.9**	**151.1**

Discounted cash flow	FY2036	FY2037	FY2038	FY 2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046
INR crores	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12months	12months	12months	8months
Net Revenue	755.4	821.5	895.5	976.9	1067.8	1162.6	1266.9	1382.6	1511.8	1647.9	1228.1
yoy growth	*9.1%*	*8.8%*	*9.0%*	*9.1%*	*9.3%*	*8.9%*	*9.0%*	*9.1%*	*9.3%*	*9.0%*	*-25.5%*
EBITDA	**711.1**	**775.2**	**846.9**	**925.8**	**953.7**	**1,043.1**	**1,141.3**	**1,320.5**	**1,446.4**	**1,579.5**	**1,178.9**
EBITDA margin	*94%*	*94%*	*95%*	*95%*	*89%*	*90%*	*90%*	*96%*	*96%*	*96%*	*96%*
Depreciation	87.3	94.9	103.5	112.9	123.4	134.4	146.4	159.8	174.7	190.5	141.9
EBIT	623.8	680.3	743.4	812.9	830.3	908.7	994.8	1,160.7	1,271.7	1,389.1	1,037.0
EBIT margin	*83%*	*83%*	*83%*	*83%*	*78%*	*78%*	*79%*	*84%*	*84%*	*84%*	*84%*
Less: tax on EBIT	(109.0)	(118.9)	(129.9)	(142.0)	(145.1)	(158.8)	(173.8)	(202.8)	(222.2)	(275.7)	(261.0)
Change in working capital	-	-	-	-	-	-	-	-	-	-	-
Capex	-	-	-	-	-	-	-	-	-	-	-
Free cash flows to the Firm	**602.1**	**656.4**	**717.0**	**783.8**	**808.6**	**884.3**	**967.4**	**1,117.7**	**1,224.2**	**1,303.8**	**917.9**
Continuing value											
Discounting period (mid-period)	12.75	13.75	14.75	15.75	16.75	17.75	18.75	19.75	20.75	21.75	22.59
Discount factor	0.31	0.28	0.25	0.23	0.21	0.19	0.17	0.16	0.14	0.13	0.12
Present value of cash flows as at 31 December 2022	**183.8**	**182.6**	**181.7**	**181.0**	**170.1**	**169.5**	**169.0**	**177.8**	**177.5**	**172.2**	**112.1**

Valuation Conclusion	
Present value of cash flows	4,199.3
Present value of terminal value	
Release of WC at the end of concession period	(10.9)
Enterprise value	**4,188.4**

8.4 Kaithal Tollway Limited

Key Inputs in Projections:
The key inputs of the projections provided by the Management supported by independent traffic study report as follows:

a) Revenue

Revenue is expected to grow at an average rate of 7 per cent- 8 per cent in the steady state forecasted period based on the financial plan provided by management which is based on traffic study.

b) Traffic Volume

Traffic volume as received from the Management supported by the traffic study report carried out by GMD Consultants dated December 2022 are considered.

c) Toll rates

- Toll rates have been estimated as per the recent MoRTH notification and Schedule R of the contract agreement. Factor of inflation/growth has been incorporated as per Schedule R. Increase in WPI was calculated based on the WPI numbers are based on the latest year number provided by RBI and forecast are based on the numbers estimated in annual report published by Consensus

- WPI has been projected to grow by 5 per cent for the projected period.

d) Periodic Maintenance & Routine Maintenance Costs

Estimates for projected Periodic Maintenance & Routine Maintenance cost from the Management are considered.

DCF Method:

- The key assumptions and other key inputs, mentioned on the previous paragraphs, as provided by the Management are considered in the projections.

- The projections provided by the Management, based on Independent traffic studies, are only the best estimates of growth and sustainability of profitability margins. The financial forecast provided by the Management were reviewed for consistency and reasonableness and have relied on them.

- The explicit period has been considered from 01 January 2023 to 06 February 2049

- The tax has been calculated as per the provisions of the Income Tax Act, 1961. The interest expense is adjusted in the same for arriving at the tax computation under FCFF.

- The assumptions for Weighted average cost of capital is as follows:

WACC calculation		
		Basis
Risk free rate of return	*7.3%*	10yrs ZCYC as at 30 December 2022
India risk premium	*7.3%*	Incwert Analysis
Beta	0.8	Peer median of 2 yr weekly beta
Alpha	*0.5%*	Valuer judgement
Cost of Equity	***13.6%***	
Cost of Debt	*8.8%*	Management input
Tax Rate	*17.5%*	Rates as per IT Act as applicable here
After Tax Cost of Debt	***7.2%***	
Debt/Equity	*150.0%*	Management input
Debt to Capital %	*60.0%*	
Equity to Capital %	*40.0%*	
Weighted Average Cost of Capital	***9.8%***	
Marginal tax rate	*17.5%*	*MAT rates as per IT applicable here*

- The Business/ Enterprise Value of KTL as on 31 December 2022 is arrived at INR 2,434.5 crores.

Discounted cash flow

INR crores	FY2023 3.0months	FY2024 12 months	FY2025 12 months	FY2026 12 months	FY2027 12 months	FY2028 12 months	FY2029 12 months	FY2030 12 months	FY2031 12 months	FY2032 12 months	FY2033 12 months	FY2034 12 months	FY2035 12 months
Net Revenue	38.4	164.7	178.3	194.4	212.0	230.8	250.1	271.5	294.4	319.9	346.1	374.1	406.4
yoy growth	*n/a*	*9.6%*	*8.3%*	*9.0%*	*9.1%*	*8.9%*	*8.3%*	*8.6%*	*8.4%*	*8.7%*	*8.2%*	*8.1%*	*8.6%*
EBITDA	**34.3**	**122.3**	**111.8**	**124.4**	**188.5**	**206.1**	**224.2**	**244.3**	**265.8**	**161.8**	**180.9**	**200.5**	**371.8**
EBITDA margin	*89%*	*74%*	*63%*	*64%*	*89%*	*89%*	*90%*	*90%*	*90%*	*51%*	*52%*	*54%*	*91%*
Depreciation	4.3	23.6	25.6	27.9	30.4	33.1	35.8	38.9	42.1	45.8	49.5	53.5	58.1
EBIT	30.0	98.7	86.2	96.5	158.1	173.0	188.3	205.5	223.7	116.0	131.4	147.0	313.7
EBIT margin	*78%*	*60%*	*48%*	*50%*	*75%*	*75%*	*75%*	*76%*	*76%*	*36%*	*38%*	*39%*	*77%*
Less: tax on EBIT	(4.9)	(17.2)	(15.1)	(16.9)	(27.6)	(30.2)	(32.9)	(35.9)	(39.1)	(20.3)	(23.0)	(25.7)	(54.8)
Change in working capital	(15.3)	14.5	-	-	-	-	-	-	-	-	-	-	-
Capex	-	-	-	-	-	-	-	-	-	-	-	-	-
Free cash flows to the Firm	**14.1**	**119.6**	**96.7**	**107.5**	**160.9**	**175.9**	**191.3**	**208.4**	**226.7**	**141.5**	**157.9**	**174.8**	**317.0**
Continuing value													
Discounting period (mid-period)	0.12	0.75	1.75	2.75	3.75	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75
Discount factor	0.99	0.93	0.85	0.77	0.71	0.64	0.59	0.53	0.49	0.44	0.40	0.37	0.34
Present value of cash flows as at 31 December 2022	**13.9**	**111.6**	**82.2**	**83.3**	**113.5**	**113.1**	**112.0**	**111.2**	**110.2**	**62.7**	**63.8**	**64.3**	**106.2**

Discounted cash flow

INR crores	FY2036 12 months	FY2037 12 months	FY2038 12 months	FY 2039 12 months	FY2040 12 months	FY2041 12 months	FY2042 12 months	FY2043 12 months	FY2044 12 months	FY2045 12 months	FY2046 12 months	FY2047 12 months	FY2048 12 months	FY2049 10.3months
Net Revenue	441.0	476.4	515.2	558.6	607.0	655.6	708.7	765.8	830.9	896.6	970.8	1047.3	1087.6	1003.9
yoy growth	*8.5%*	*8.0%*	*8.1%*	*8.4%*	*8.7%*	*8.0%*	*8.1%*	*8.1%*	*8.5%*	*7.9%*	*8.3%*	*7.9%*	*3.8%*	*n/m*
EBITDA	**404.5**	**438.2**	**475.1**	**516.5**	**468.6**	**510.7**	**556.4**	**714.6**	**777.0**	**840.2**	**911.6**	**985.2**	**1,022.2**	**945.4**
EBITDA margin	*92%*	*92%*	*92%*	*92%*	*77%*	*78%*	*79%*	*93%*	*94%*	*94%*	*94%*	*94%*	*94%*	*94%*
Depreciation	63.0	68.1	73.6	78.2	76.6	82.7	89.3	96.5	104.6	112.8	122.1	131.6	136.6	126.0
EBIT	341.5	370.2	401.5	438.3	392.0	428.0	467.1	618.2	672.4	727.4	789.5	853.5	885.6	819.4
EBIT margin	*77%*	*78%*	*78%*	*78%*	*65%*	*65%*	*66%*	*81%*	*81%*	*81%*	*81%*	*81%*	*81%*	*82%*
Less: tax on EBIT	(59.7)	(64.7)	(70.2)	(76.6)	(68.5)	(74.8)	(81.6)	(108.0)	(117.5)	(127.1)	(137.9)	(149.1)	(185.5)	(206.2)
Change in working capital	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capex	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Free cash flows to the Firm	**344.9**	**373.6**	**405.0**	**439.9**	**400.1**	**435.9**	**474.8**	**606.6**	**659.5**	**713.2**	**773.6**	**836.0**	**836.6**	**739.2**
Continuing value														
Discounting period (mid-period)	12.75	13.75	14.75	15.75	16.75	17.75	18.75	19.75	20.75	21.75	22.75	23.75	24.75	25.67
Discount factor	0.31	0.28	0.25	0.23	0.21	0.19	0.17	0.16	0.14	0.13	0.12	0.11	0.10	0.09
Present value of cash flows as at 31 December 2022	**105.3**	**103.9**	**102.6**	**101.6**	**84.2**	**83.6**	**82.9**	**96.5**	**95.6**	**94.2**	**93.1**	**91.7**	**83.6**	**67.7**

Valuation Conclusion	
Present value of cash flows	2,434.4
Present value of terminal value	-
Release of WC at the end of concession period	0.1
Enterprise value	**2,434.5**

8.5 AE Tollway Limited

Key Inputs in Projections:
The key inputs of the projections provided by the Management supported by an independent traffic study report as follows:

a) Revenue

Revenue is expected to grow at an average rate of 11 per cent- 12 per cent in the steady state forecasted period based on the traffic study report and financial plan provided by management.

b) Traffic Volume

Traffic volume as received from the Management supported by the traffic study report carried out by GMD Consultants dated December 2022 are considered.

c) Toll rates

- Toll rates have been estimated as per the recent MoRTH notification and Schedule R of the contract agreement. Factor of inflation/growth has been incorporated as per Schedule R. Increase in WPI was calculated based on the WPI numbers are based on the latest year number provided by RBI and the forecast are based on the numbers estimated in annual report published by Consensus.

- WPI has been projected to grow by 5 per cent for the projected period.

d) Periodic Maintenance & Routine Maintenance Costs

Estimates for projected Periodic Maintenance & Routine Maintenance cost from the Management are considered.

e) Premium Payable to NHAI

The Premium payable to NHAI is considered as given by the management and validated the same from concession agreement
.

DCF Method:

- The key assumptions and other key inputs, mentioned on the previous paragraphs, as provided by the Management are considered in the projections.

- The projections provided by the Management, based on an Independent traffic study, are only the best estimates of growth and sustainability of profitability margins. The financial forecast provided by the Management were reviewed for consistency and reasonableness and have relied on them.

- The explicit period has been considered from 01 January 2023 to 19 October 2045.

- The tax has been calculated as per the provisions of the Income Tax Act, 1961. The interest expense is adjusted in the same for arriving at the tax computation under FCFF.

- The assumptions for Weighted average cost of capital is as follows:

WACC calculation		Basis
Risk free rate of return	*7.3%*	10yrs ZCYC as at 30 December 2022
India risk premium	*7.3%*	Incwert Analysis
Beta	0.8	Peer median of 2 yr weekly beta
Alpha	*0.5%*	Valuer judgement
Cost of Equity	***13.6%***	
Cost of Debt	*8.8%*	Management input
Tax Rate	*17.5%*	Rates as per IT Act as applicable here
After Tax Cost of Debt	***7.2%***	
Debt/Equity	*150.0%*	Management input
Debt to Capital %	*60.0%*	
Equity to Capital %	*40.0%*	
Weighted Average Cost of Capital	***9.8%***	
Marginal tax rate	*17.5%*	*MAT rates as per IT applicable here*

- The Business/ Enterprise Value of AETL as on 31 December 2022 is arrived at INR 3,154.8 crores.

Discounted cash flow	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035
INR crores	3.0months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months
Net Revenue	33.8	135.6	159.4	185.5	215.1	248.5	286.3	327.6	375.0	429.5	487.8	555.8	629.7
yoy growth	*n/a*	*12.1%*	*11.7%*	*11.5%*	*11.5%*	*11.6%*	*11.4%*	*11.3%*	*11.5%*	*11.8%*	*11.1%*	*11.6%*	*11.2%*
EBITDA	**25.6**	**65.7**	**81.0**	**103.0**	**171.7**	**202.8**	**238.4**	**277.4**	**199.1**	**244.2**	**294.3**	**494.8**	**565.7**
EBITDA margin	*76%*	*48%*	*51%*	*56%*	*80%*	*82%*	*83%*	*85%*	*53%*	*57%*	*60%*	*89%*	*90%*
Depreciation	8.2	34.8	38.8	43.3	48.3	53.9	60.1	66.8	74.5	83.2	92.4	103.1	114.7
EBIT	17.4	31.0	42.2	59.7	123.4	148.9	178.4	210.6	124.6	161.0	201.8	391.6	451.0
EBIT margin	*51%*	*23%*	*26%*	*32%*	*57%*	*60%*	*62%*	*64%*	*33%*	*37%*	*41%*	*70%*	*72%*
Less: tax on EBIT	(2.1)	(5.4)	(7.4)	(10.4)	(21.6)	(26.0)	(31.2)	(36.8)	(21.8)	(28.1)	(35.3)	(68.4)	(78.8)
Change in working capital	(12.7)	42.4	-	-	-	-	-	-	-	-	-	-	-
Capex	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Free cash flows to the Firm	**10.8**	**102.7**	**73.6**	**92.5**	**150.1**	**176.7**	**207.3**	**240.6**	**177.3**	**216.1**	**259.0**	**426.3**	**486.9**
Continuing value													
Discounting period (mid-period)	0.12	0.75	1.75	2.75	3.75	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75
Discount factor	0.99	0.93	0.85	0.77	0.71	0.64	0.59	0.53	0.49	0.44	0.40	0.37	0.34
Present value of cash flows as at 31 December 2022	**10.6**	**95.9**	**62.6**	**71.7**	**105.9**	**113.6**	**121.4**	**128.4**	**86.2**	**95.7**	**104.5**	**156.8**	**163.2**

Discounted cash flow	FY2036	FY2037	FY2038	FY 2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046
INR crores	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	6.6months
Net Revenue	708.9	791.6	884.8	989.5	1,111.9	1,222.6	1,353.4	1,491.5	1,652.2	1,817.6	1,099.9
yoy growth	*10.9%*	*10.1%*	*10.3%*	*10.4%*	*11.0%*	*9.0%*	*9.7%*	*9.3%*	*9.9%*	*9.2%*	*n/m*
EBITDA	**641.5**	**721.2**	**737.3**	**834.4**	**948.7**	**1,136.9**	**1,263.5**	**1,397.0**	**1,552.8**	**1,713.5**	**1,039.4**
EBITDA margin	*90%*	*91%*	*83%*	*84%*	*85%*	*93%*	*93%*	*94%*	*94%*	*94%*	*94%*
Depreciation	125.6	118.1	118.0	130.3	144.7	157.7	173.0	189.1	207.8	226.9	136.5
EBIT	515.9	603.1	619.3	704.1	804.1	979.3	1,090.5	1,207.9	1,345.0	1,486.6	902.8
EBIT margin	*73%*	*76%*	*70%*	*71%*	*72%*	*80%*	*81%*	*81%*	*81%*	*82%*	*82%*
Less: tax on EBIT	(90.1)	(105.4)	(108.2)	(123.0)	(140.5)	(171.1)	(190.5)	(211.0)	(330.6)	(374.2)	(227.2)
Change in working capital	-	-	-	-	-	-	-	-	-	-	-
Capex	-	-	-	-	-	-	-	-	-	-	-
Free cash flows to the Firm	**551.4**	**615.8**	**629.1**	**711.4**	**808.3**	**965.8**	**1,072.9**	**1,186.0**	**1,222.2**	**1,339.4**	**812.1**
Continuing value											
Discounting period (mid-period)	12.75	13.75	14.75	15.75	16.75	17.75	18.75	19.75	20.75	21.75	22.52
Discount factor	0.31	0.28	0.25	0.23	0.21	0.19	0.17	0.16	0.14	0.13	0.12
Present value of cash flows as at 31 December 2022	**168.3**	**171.3**	**159.4**	**164.3**	**170.0**	**185.1**	**187.4**	**188.7**	**177.2**	**176.9**	**99.8**

Valuation Conclusion	
Present value of cash flows	3,164.9
Present value of terminal value	-
Release of WC at the end of concession period	(10.0)
Enterprise value	**3,154.8**

8.6 Udaipur Tollway Limited

Key Inputs in Projections:
The key inputs of the projections provided by the Management supported by independent traffic and study report as follows:

a) Revenue

Revenue is expected to grow at an average rate of 9 per cent - 10 per cent in the steady state forecasted period based on the traffic study report and financial plan provided by management.

b) Traffic Volume

Traffic volume as received from the Management supported by the traffic study report carried out by GMD Consultants dated December 2022 are considered.

c) Toll rates

- Toll rates have been estimated as per the recent MoRTH notification and Schedule R of the contract agreement. Factor of inflation/growth has been incorporated as per Schedule R. Increase in WPI was calculated based on the WPI numbers are based on the latest year number provided by RBI and the forecast are based on the numbers estimated in annual report published by Consensus

- WPI has been projected to grow by 5 per cent for the projected period.

d) Periodic Maintenance & Routine Maintenance Costs

Estimates for projected Periodic Maintenance & Routine Maintenance cost from the Management are considered.

e) Premium Payable to NHAI

The Premium payable to NHAI is considered as given by the management and validated the same from concession agreement.

DCF Method:

- The key assumptions and other key inputs, mentioned on the previous paragraphs, as provided by the Management are considered in the projections.

- The projections provided by the Management, based on Independent traffic studies, are only the best estimates of growth and sustainability of profitability margins. The financial forecast provided by the Management were reviewed for consistency and reasonableness and have relied on them.

- The explicit period has been considered from 01 January 2023 to 11 December 2042.

- The tax has been calculated as per the provisions of the Income Tax Act, 1961. The interest expense is adjusted in the same for arriving at the tax computation under FCFF.

- The assumptions for Weighted average cost of capital is as follows:

WACC calculation		Basis
Risk free rate of return	7.3%	10yrs ZCYC as at 30 December 2022
India risk premium	7.3%	Incwert Analysis
Beta	0.8	Peer median of 2 yr weekly beta
Alpha	0.5%	Valuer judgement
Cost of Equity	**13.6%**	
Cost of Debt	8.8%	Management input
Tax Rate	17.5%	Rates as per IT Act as applicable here
After Tax Cost of Debt	**7.2%**	
Debt/Equity	150.0%	Management input
Debt to Capital %	60.0%	
Equity to Capital %	40.0%	
Weighted Average Cost of Capital	**9.8%**	
Marginal tax rate	*17.5%*	*MAT rates as per IT applicable here*

- The Business/ Enterprise Value of UTL as on 31 December 2022 is arrived at INR 2,600.2 crores.

Discounted cash flow

INR crores	FY2023 3.0months	FY2024 12 months	FY2025 12 months	FY2026 12 months	FY2027 12 months	FY2028 12 months	FY2029 12 months	FY2030 12 months	FY2031 12 months	FY2032 12 months	FY2033 12 months	FY2034 12 months	FY2035 12 months
Net Revenue	28.8	148.1	177.1	209.1	245.7	284.7	314.2	352.0	390.8	434.1	478.8	532.3	587.8
yoy growth	*n/a*	*24.9%*	*10.5%*	*10.6%*	*10.8%*	*10.4%*	*9.7%*	*10.4%*	*9.8%*	*10.0%*	*9.3%*	*10.0%*	*9.5%*
EBITDA	**25.0**	**57.1**	**77.8**	**181.5**	**221.2**	**139.7**	**162.7**	**197.6**	**358.1**	**405.5**	**363.5**	**410.8**	**437.3**
EBITDA margin	*87%*	*39%*	*44%*	*87%*	*90%*	*49%*	*52%*	*56%*	*92%*	*93%*	*76%*	*77%*	*74%*
Depreciation	12.2	46.7	46.4	50.5	56.0	61.8	67.8	74.9	82.2	90.5	98.9	108.8	119.1
EBIT	12.8	10.4	31.4	130.9	165.3	77.9	94.8	122.7	275.8	315.0	264.6	302.0	318.1
EBIT margin	*44%*	*7%*	*18%*	*63%*	*67%*	*27%*	*30%*	*35%*	*71%*	*73%*	*55%*	*57%*	*54%*
Less: tax on EBIT	(1.4)	(1.8)	(5.5)	(22.9)	(28.9)	(13.6)	(16.6)	(21.4)	(48.2)	(55.0)	(46.2)	(52.8)	(55.6)
Change in working capital	(21.1)	-	-	-	-	38.9	-	-	-	-	-	-	-
Capex	-	-	-	-	-	-	-	-	-	-	-	-	-
Free cash flows to the Firm	**2.5**	**55.3**	**72.3**	**158.6**	**192.4**	**165.0**	**146.1**	**176.2**	**309.9**	**350.5**	**317.3**	**358.0**	**381.7**
Continuing value													
Discounting period (mid-period)	0.12	0.75	1.75	2.75	3.75	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75
Discount factor	0.99	0.93	0.85	0.77	0.71	0.64	0.59	0.53	0.49	0.44	0.40	0.37	0.34
Present value of cash flows as at 31 December 2022	**2.5**	**51.5**	**61.5**	**122.8**	**135.7**	**106.1**	**85.6**	**94.0**	**150.7**	**155.3**	**128.1**	**131.7**	**127.9**

Discounted cash flow

INR crores	FY2036 12 months	FY2037 12 months	FY2038 12 months	FY 2039 12 months	FY 2040 12 months	FY 2041 12 months	FY 2042 12 months	FY 2043 8.4months
Net Revenue	649.1	712.6	783.7	862.2	951.7	1,034.8	1,131.9	864.3
yoy growth	*9.7%*	*9.0%*	*9.3%*	*9.3%*	*9.7%*	*8.4%*	*8.9%*	*n/m*
EBITDA	**617.2**	**679.8**	**750.3**	**827.1**	**915.0**	**996.2**	**1,093.0**	**836.0**
EBITDA margin	*95%*	*95%*	*96%*	*96%*	*96%*	*96%*	*97%*	*97%*
Depreciation	130.6	142.4	135.2	98.5	108.1	117.1	127.5	97.0
EBIT	486.5	537.3	615.1	728.6	806.9	879.1	965.5	739.0
EBIT margin	*75%*	*75%*	*78%*	*85%*	*85%*	*85%*	*85%*	*86%*
Less: tax on EBIT	(85.0)	(93.9)	(107.5)	(127.3)	(141.0)	(153.6)	(168.7)	(129.1)
Change in working capital	-	-	-	-	-	-	-	-
Capex	-	-	-	-	-	-	-	-
Free cash flows to the Firm	**532.2**	**585.9**	**642.8**	**699.8**	**774.0**	**842.6**	**924.3**	**706.9**
Continuing value								
Discounting period (mid-period)	12.75	13.75	14.75	15.75	16.75	17.75	18.75	19.60
Discount factor	0.31	0.28	0.25	0.23	0.21	0.19	0.17	0.16
Present value of cash flows as at 31 December 2022	**162.5**	**163.0**	**162.9**	**161.6**	**162.8**	**161.5**	**161.4**	**114.1**

Valuation Conclusion	
Present value of cash flows	2,603.0
Present value of terminal value	-
Release of WC at the end of concession period	(2.7)
Enterprise value	**2,600.2**

8.7 CG Tollway Limited

Key Inputs in Projections:
The key inputs of the projections provided by the Management supported by an independent traffic study report as follows:

a) Revenue

Revenue is expected to grow at an average rate of 9 per cent- 10 per cent in the steady state forecasted period based on the traffic study report and financial plan provided by management.

b) Traffic Volume

Traffic volume as received from the Management supported by the traffic study report carried out by GMD Consultants dated December 2022 are considered.

c) Toll rates

- Toll rates have been estimated as per the recent MoRTH notification and Schedule R of the contract agreement. Factor of inflation/growth has been incorporated as per Schedule R. Increase in WPI was calculated based on the WPI numbers are based on the latest year number provided by RBI and the forecast are based on the numbers estimated in annual report published by Consensus.

- WPI has been projected to grow by 5 per cent for the projected period.

d) Periodic Maintenance & Routine Maintenance Costs

Estimates for projected Periodic Maintenance & Routine Maintenance cost from the Management are considered.

e) Premium Payable to NHAI

The Premium payable to NHAI is considered as given by the management and validated the same from the concession agreement.

DCF Method:

- The key assumptions and other key inputs, mentioned on the previous paragraphs, as provided by the Management are considered in the projections.

- The projections provided by the Management, based on an Independent traffic study, are only the best estimates of growth and sustainability of profitability margins. The financial forecast provided by the Management were reviewed for consistency and reasonableness and have relied on them.

- The explicit period has been considered from 01 January 2023 to 03 February 2042.

- The tax has been calculated as per the provisions of the Income Tax Act, 1961. The interest expense is adjusted in the same for arriving at the tax computation under FCFF.

- The assumptions for Weighted average cost of capital is as follows:

WACC calculation		Basis
Risk free rate of return	*7.3%*	10yrs ZCYC as at 30 December 2022
India risk premium	*7.3%*	Incwert Analysis
Beta	0.8	Peer median of 2 yr weekly beta
Alpha	*0.5%*	Valuer judgement
Cost of Equity	***13.6%***	
Cost of Debt	*8.8%*	Management input
Tax Rate	*17.5%*	Rates as per IT Act as applicable here
After Tax Cost of Debt	***7.2%***	
Debt/Equity	*150.0%*	Management input
Debt to Capital %	*60.0%*	
Equity to Capital %	*40.0%*	
Weighted Average Cost of Capital	***9.8%***	
Marginal tax rate	*17.5%*	*MAT rates as per IT applicable here*

- The Business/ Enterprise Value of CGTL as on 31 December 2022 is arrived at INR 2,642.5 crores.

Discounted cash flow INR crores	FY2023 3.0months	FY2024 12 months	FY2025 12 months	FY2026 12 months	FY2027 12 months	FY2028 12 months	FY2029 12 months	FY2030 12 months	FY2031 12 months	FY2032 12 months	FY2033 12 months	FY2034 12 months	FY2035 12 months
Net Revenue	25.1	138.0	172.2	211.1	253.2	301.7	337.6	382.0	421.5	466.6	515.6	570.1	630.3
yoy growth	*n/a*	*12.4%*	*10.8%*	*11.1%*	*10.7%*	*11.1%*	*10.4%*	*10.7%*	*9.3%*	*9.6%*	*9.3%*	*9.4%*	*9.4%*
EBITDA	**18.1**	**103.7**	**109.3**	**145.0**	**183.8**	**260.1**	**294.1**	**336.3**	**287.3**	**325.3**	**368.0**	**514.6**	**563.1**
EBITDA margin	*72%*	*75%*	*64%*	*69%*	*73%*	*86%*	*87%*	*88%*	*68%*	*70%*	*71%*	*90%*	*89%*
Depreciation	9.4	41.7	46.1	45.0	49.8	55.3	61.0	67.6	73.9	81.0	88.5	96.8	106.0
EBIT	8.7	62.1	63.2	100.0	134.0	204.8	233.0	268.7	213.4	244.3	279.5	417.7	457.1
EBIT margin	*35%*	*45%*	*37%*	*47%*	*53%*	*68%*	*69%*	*70%*	*51%*	*52%*	*54%*	*73%*	*73%*
Less: tax on EBIT	(1.5)	(10.8)	(11.0)	(17.5)	(23.4)	(35.8)	(40.7)	(46.9)	(37.3)	(42.7)	(48.8)	(73.0)	(79.9)
Change in working capital	(35.2)	-	-	-	-	50.0	-	-	-	-	-	-	-
Capex	-	-	-	-	-	-	-	-	-	-	-	-	-
Free cash flows to the Firm	**(18.5)**	**92.9**	**98.3**	**127.5**	**160.3**	**274.3**	**253.4**	**289.3**	**250.0**	**282.6**	**319.1**	**441.6**	**483.3**
Continuing value													
Discounting period (mid-period)	0.12	0.75	1.75	2.75	3.75	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75
Discount factor	0.99	0.93	0.85	0.77	0.71	0.64	0.59	0.53	0.49	0.44	0.40	0.37	0.34
Present value of cash flows as at 31 December 2022	**(18.3)**	**86.7**	**83.5**	**98.8**	**113.1**	**176.4**	**148.4**	**154.4**	**121.6**	**125.2**	**128.8**	**162.4**	**161.9**

Discounted cash flow INR crores	FY2036 12 months	FY2037 12 months	FY2038 12 months	FY 2039 12 months	FY2040 12 months	FY2041 12 months	FY2042 10.2months
Net Revenue	691.3	756.4	829.5	908.8	1,001.5	1,091.4	1,010.8
yoy growth	*9.1%*	*8.7%*	*9.0%*	*8.9%*	*9.4%*	*8.5%*	*n/m*
EBITDA	**583.6**	**643.9**	**711.4**	**838.1**	**927.1**	**1,013.4**	**941.5**
EBITDA margin	*84%*	*85%*	*86%*	*92%*	*93%*	*93%*	*93%*
Depreciation	115.6	125.7	137.0	149.2	163.2	177.0	163.1
EBIT	468.0	518.2	574.4	688.9	763.9	836.4	778.4
EBIT margin	*68%*	*69%*	*69%*	*76%*	*76%*	*77%*	*77%*
Less: tax on EBIT	(81.8)	(90.5)	(100.4)	(120.4)	(133.5)	(146.1)	(157.1)
Change in working capital	-	-	-	-	-	-	-
Capex	-	-	-	-	-	-	-
Free cash flows to the Firm	**501.9**	**553.3**	**611.0**	**717.7**	**793.6**	**867.3**	**784.4**
Continuing value							
Discounting period (mid-period)	12.75	13.75	14.75	15.75	16.75	17.75	18.67
Discount factor	0.31	0.28	0.25	0.23	0.21	0.19	0.18
Present value of cash flows as at 31 December 2022	**153.2**	**153.9**	**154.8**	**165.7**	**167.0**	**166.2**	**138.0**

Valuation Conclusion	
Present value of cash flows	2,641.7
Present value of terminal value	-
Release of WC at the end of concession period	0.8
Enterprise value	**2,642.5**

8.8 Kishangarh Gulabpura Tollway Private Limited

Key Inputs in Projections:
The key inputs of the projections provided by the Management supported by an independent traffic study report as follows:

a) Revenue

Revenue is expected to grow at an average rate of 11 per cent-12 per cent in the steady state forecasted period based on the traffic study report and financial plan provided by management.

b) Traffic Volume

Traffic volume as received from the Management supported by the traffic study report carried out by GMD Consultants dated December 2022 are considered.

c) Toll rates

- Toll rates have been estimated as per the recent MoRTH notification and Schedule R of the contract agreement. Factor of inflation/growth has been incorporated as per Schedule R. Increase in WPI was calculated based on the WPI numbers are based on the latest year number provided by RBI and the forecast are based on the numbers estimated in annual report published by Consensus

- WPI has been projected to grow by 5 per cent for the projected period.

d) Periodic Maintenance & Routine Maintenance Costs

Estimates for projected Periodic Maintenance & Routine Maintenance cost from the Management are considered.

e) Premium Payable to NHAI

The Premium payable to NHAI is considered as given by the management and validated the same from the concession agreement.

DCF Method:

- The key assumptions and other key inputs, mentioned on the previous paragraphs, as provided by the Management are considered in the projections.

- The projections provided by the Management, based on an Independent traffic study, are only the best estimates of growth and sustainability of profitability margins. The financial forecast provided by the Management were reviewed for consistency and reasonableness and have relied on them.

- The explicit period has been considered from 01 January 2023 to 20 June 2042.

- The tax has been calculated as per the provisions of the Income Tax Act, 1961. The interest expense is adjusted in the same for arriving at the tax computation under FCFF.

- The assumptions for Weighted average cost of capital is as follows:

WACC calculation		
		Basis
Risk free rate of return	*7.3%*	10yrs ZCYC as at 30 December 2022
India risk premium	*7.3%*	Incwert Analysis
Beta	0.8	Peer median of 2 yr weekly beta
Alpha	*0.5%*	Valuer judgement
Cost of Equity	***13.6%***	
Cost of Debt	*8.8%*	Management input
Tax Rate	*17.5%*	Rates as per IT Act as applicable here
After Tax Cost of Debt	***7.2%***	
Debt/Equity	*150.0%*	Management input
Debt to Capital %	*60.0%*	
Equity to Capital %	*40.0%*	
Weighted Average Cost of Capital	***9.8%***	
Marginal tax rate	*17.5%*	*MAT rates as per IT applicable here*

- The Business/ Enterprise Value of KGTL as on 31 December 2022 is arrived at INR 2,139.1 crores.

Discounted cash flow	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035
INR crores	3.0months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months
Net Revenue	12.2	104.9	129.1	157.0	189.6	223.3	261.9	292.1	323.6	360.0	399.1	442.4	491.3
yoy growth	*n/m*	*47.8%*	*10.6%*	*10.4%*	*10.7%*	*10.2%*	*10.1%*	*9.9%*	*9.5%*	*9.9%*	*9.5%*	*9.6%*	*9.8%*
EBITDA	**10.3**	**81.0**	**104.1**	**130.8**	**61.7**	**194.4**	**231.6**	**260.3**	**290.1**	**324.7**	**257.9**	**301.7**	**340.2**
EBITDA margin	*84%*	*77%*	*81%*	*83%*	*33%*	*87%*	*88%*	*89%*	*90%*	*90%*	*65%*	*68%*	*69%*
Depreciation	6.3	31.4	34.7	35.1	34.1	37.6	41.4	45.5	49.9	54.8	60.0	65.8	72.2
EBIT	4.0	49.7	69.5	95.7	27.5	156.8	190.2	214.7	240.3	269.9	197.9	235.9	268.0
EBIT margin	*33%*	*47%*	*54%*	*61%*	*15%*	*70%*	*73%*	*74%*	*74%*	*75%*	*50%*	*53%*	*55%*
Less: tax on EBIT	(4.7)	(8.7)	(12.1)	(16.7)	(4.8)	(27.4)	(33.2)	(37.5)	(42.0)	(47.2)	(34.6)	(41.2)	(46.8)
Change in working capital	16.0	36.0	-	-	-	-	-	-	-	-	-	-	-
Capex	-	-	-	-	-	-	-	-	-	-	-	-	-
Free cash flows to the Firm	**21.5**	**108.4**	**92.0**	**114.1**	**56.9**	**167.0**	**198.4**	**222.7**	**248.1**	**277.6**	**223.3**	**260.5**	**293.4**
Continuing value													
Discounting period (mid-period)	0.12	0.75	1.75	2.75	3.75	4.75	5.75	6.75	7.75	8.75	9.75	10.75	11.75
Discount factor	0.99	0.93	0.85	0.77	0.71	0.64	0.59	0.53	0.49	0.44	0.40	0.37	0.34
Present value of cash flows as at 31 December 2022	**21.2**	**101.1**	**78.2**	**88.3**	**40.1**	**107.4**	**116.2**	**118.9**	**120.6**	**123.0**	**90.1**	**95.8**	**98.3**

Discounted cash flow	FY2036	FY2037	FY2038	FY 2039	FY2040	FY2041	FY2042	FY2043
INR crores	12 months	12 months	12 months	12 months	12 months	12 months	12 months	2.7months
Net Revenue	542.7	594.4	654.8	721.9	795.5	871.4	952.2	217.7
yoy growth	*9.6%*	*8.8%*	*9.3%*	*9.3%*	*9.4%*	*8.8%*	*8.8%*	*n/m*
EBITDA	**500.0**	**549.7**	**608.0**	**672.7**	**743.7**	**817.1**	**895.2**	**204.4**
EBITDA margin	*92%*	*92%*	*93%*	*93%*	*93%*	*94%*	*94%*	*94%*
Depreciation	79.1	86.0	94.0	102.8	112.5	122.4	133.2	31.0
EBIT	420.9	463.7	514.0	569.9	631.2	694.7	762.1	173.4
EBIT margin	*78%*	*78%*	*78%*	*79%*	*79%*	*80%*	*80%*	*80%*
Less: tax on EBIT	(73.5)	(81.0)	(89.8)	(99.6)	(110.3)	(121.4)	(183.7)	(43.6)
Change in working capital	-	-	-	-	-	-	-	-
Capex	-	-	-	-	-	-	-	-
Free cash flows to the Firm	**426.4**	**468.7**	**518.2**	**573.1**	**633.4**	**695.7**	**711.5**	**160.8**
Continuing value								
Discounting period (mid-period)	12.75	13.75	14.75	15.75	16.75	17.75	18.75	19.36
Discount factor	0.31	0.28	0.25	0.23	0.21	0.19	0.17	0.16
Present value of cash flows as at 31 December 2022	**130.2**	**130.4**	**131.3**	**132.3**	**133.3**	**133.4**	**124.3**	**26.5**

Valuation Conclusion	
Present value of cash flows	2,140.9
Present value of terminal value	-
Release of WC at the end of concession period	(1.8)
Enterprise value	**2,139.1**

8.9 IRB Hapur Moradabad Tollway Private Limited

Key Inputs in Projections:
The key inputs of the projections provided by the Management supported by an independent traffic study report as follows:

a) Revenue

Revenue is expected to grow at an average rate of 9 per cent-10 per cent in the steady state forecasted period based on traffic study report and financial plan provided by management.

b) Traffic Volume

Traffic volume as received from the Management supported by the traffic study report carried out by GMD Consultants dated December 2022 are considered.

c) Toll rates

- Toll rates have been estimated as per the recent MoRTH notification and Schedule R of the contract agreement. Factor of inflation/growth has been incorporated as per Schedule R. Increase in WPI was calculated based on the WPI numbers are based on the latest year number provided by RBI and the forecast are based on the numbers estimated in annual report published by Consensus.

- WPI has been projected to grow by 5 per cent for the projected period.

d) Periodic Maintenance & Routine Maintenance Costs

Estimates for projected Periodic Maintenance & Routine Maintenance cost from the Management are considered.

e) Premium Payable to NHAI

The Premium payable to NHAI is considered as given by the management and validated the same from the concession agreement.

DCF Method:

- The key assumptions and other key inputs, mentioned on the previous paragraphs, as provided by the Management are considered in the projections.

- The projections provided by the Management, based on Independent traffic and technical studies, are only the best estimates of growth and sustainability of profitability margins. The financial forecast provided by the Management were reviewed for consistency and reasonableness and have relied on them.

- The explicit period has been considered from 01 January 2023 to 24 January 2046.

- The tax has been calculated as per the provisions of the Income Tax Act, 1961. The interest expense is adjusted in the same for arriving at the tax computation under FCFF.

- The assumptions for Weighted average cost of capital is as follows:

WACC calculation		
		Basis
Risk free rate of return	*7.3%*	10yrs ZCYC as at 30 December 2022
India risk premium	*7.3%*	Incwert Analysis
Beta	0.8	Peer median of 2 yr weekly beta
Alpha	*0.5%*	Valuer judgement
Cost of Equity	***13.6%***	
Cost of Debt	*8.8%*	Management input
Tax Rate	*17.5%*	Rates as per IT Act as applicable here
After Tax Cost of Debt	***7.2%***	
Debt/Equity	*150.0%*	Management input
Debt to Capital %	*60.0%*	
Equity to Capital %	*40.0%*	
Weighted Average Cost of Capital	***9.8%***	
Marginal tax rate	*17.5%*	*MAT rates as per IT applicable here*

- The Business/ Enterprise Value of IHMTL as on 31 December 2022 is arrived at INR 4,034.6 crores.

Discounted cash flow	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034
INR crores	3months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months
Net Revenue	44.7	268.3	290.9	320.4	352.5	390.7	425.1	463.9	509.7	555.4	604.0	662.2
yoy growth	*n/a*	*35.6%*	*8.9%*	*9.4%*	*9.3%*	*10.2%*	*8.3%*	*9.0%*	*9.7%*	*8.9%*	*8.7%*	*9.5%*
EBITDA	**42.8**	**255.2**	**281.8**	**221.8**	**252.8**	**295.3**	**414.6**	**447.7**	**424.2**	**467.1**	**535.1**	**647.5**
EBITDA margin	*96%*	*95%*	*97%*	*69%*	*72%*	*76%*	*98%*	*96%*	*83%*	*84%*	*89%*	*98%*
Depreciation	9.5	48.0	52.3	57.2	57.6	63.4	68.7	74.9	82.2	89.5	97.2	106.5
EBIT	33.3	207.1	229.5	164.6	195.2	231.9	345.9	372.8	342.0	377.7	437.9	541.1
EBIT margin	*74%*	*77%*	*79%*	*51%*	*55%*	*59%*	*81%*	*80%*	*67%*	*68%*	*73%*	*82%*
Less: tax on EBIT	(6.9)	(36.2)	(40.1)	(28.8)	(34.1)	(40.5)	(60.4)	(65.1)	(59.8)	(66.0)	(76.5)	(94.5)
Change in working capital	56.5	59.9	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Capex	(114.6)	-	-	-	-	-	-	-	-	-	-	-
Free cash flows to the Firm	**(22.1)**	**278.9**	**241.6**	**193.0**	**218.6**	**254.7**	**354.1**	**382.5**	**364.4**	**401.1**	**458.5**	**552.9**
Continuing value												
Discounting period (mid-period)	0.12	0.75	1.75	2.75	3.75	4.75	5.75	6.75	7.75	8.75	9.75	10.75
Discount factor	0.99	0.93	0.85	0.77	0.71	0.64	0.59	0.53	0.49	0.44	0.40	0.37
Present value of cash flows as at 31 December 2022	**(21.9)**	**260.2**	**205.3**	**149.4**	**154.3**	**163.7**	**207.4**	**204.1**	**177.2**	**177.7**	**185.1**	**203.3**

Discounted cash flow	FY2035	FY2036	FY2037	FY2038	FY 2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046
INR crores	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	12 months	9.8months
Net Revenue	721.2	775.4	833.3	899.7	970.3	1,049.3	1,127.4	1,215.4	1,306.4	1,415.4	1,521.7	1,342.7
yoy growth	*8.8%*	*7.6%*	*7.5%*	*8.0%*	*7.9%*	*8.2%*	*7.5%*	*7.8%*	*7.5%*	*8.3%*	*7.5%*	*n/m*
EBITDA	**708.6**	**550.6**	**590.5**	**648.0**	**949.3**	**1,034.9**	**1,112.3**	**1,199.6**	**1,289.8**	**1,397.9**	**1,503.4**	**1,326.9**
EBITDA margin	*98%*	*71%*	*71%*	*72%*	*98%*	*99%*	*99%*	*99%*	*99%*	*99%*	*99%*	*99%*
Depreciation	115.9	124.7	134.0	144.7	156.0	168.7	181.3	195.5	210.2	227.7	244.8	216.0
EBIT	592.7	426.0	456.5	503.4	793.3	866.2	931.0	1,004.1	1,079.6	1,170.2	1,258.6	1,111.0
EBIT margin	*82%*	*55%*	*55%*	*56%*	*82%*	*83%*	*83%*	*83%*	*83%*	*83%*	*83%*	*83%*
Less: tax on EBIT	(103.6)	(74.4)	(79.8)	(88.0)	(138.6)	(151.3)	(162.7)	(175.4)	(188.6)	(292.7)	(316.8)	(279.6)
Change in working capital	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Capex	-	-	-	-	-	-	-	-	-	-	-	-
Free cash flows to the Firm	**605.0**	**476.1**	**510.7**	**560.0**	**810.7**	**883.5**	**949.6**	**1,024.1**	**1,101.1**	**1,105.2**	**1,186.6**	**1,047.3**
Continuing value												
Discounting period (mid-period)	11.75	12.75	13.75	14.75	15.75	16.75	17.75	18.75	19.75	20.75	21.75	22.66
Discount factor	0.34	0.31	0.28	0.25	0.23	0.21	0.19	0.17	0.16	0.14	0.13	0.12
Present value of cash flows as at 31 December 2022	**202.7**	**145.4**	**142.0**	**141.9**	**187.2**	**185.9**	**182.0**	**178.8**	**175.2**	**160.2**	**156.7**	**127.1**

Valuation Conclusion	
Present value of cash flows	4,051.0
Present value of terminal value	-
Release of WC at the end of concession period	(16.4)
Enterprise value	**4,034.6**

8.10 Palsit Dankuni Tollway Private Limited

Key Inputs in Projections:
The key inputs of the projections provided by the Management supported by an independent traffic study report as follows:

f) Revenue

Revenue is expected to grow at an average rate of 11 per cent -12 per cent in the steady state forecasted period based on the traffic study report and financial plan provided by management.

g) Traffic Volume

Traffic volume as received from the Management supported by the traffic study report carried out by GMD Consultants dated December 2022 are considered.

h) Toll rates

- Toll rates have been estimated as per the recent MoRTH notification and Schedule R of the contract agreement. Factor of inflation/growth has been incorporated as per Schedule R. Increase in WPI was calculated based on the WPI numbers are based on the latest year number provided by RBI and the forecast are based on the numbers estimated in annual report published by Consensus.

- WPI has been projected to grow by 5 per cent for the projected period.

i) Periodic Maintenance & Routine Maintenance Costs

Estimates for projected Periodic Maintenance & Routine Maintenance cost from the Management are considered.

j) Premium Payable to NHAI

The Premium payable to NHAI is considered as given by the management and validated the same from the concession agreement.

DCF Method:

- The key assumptions and other key inputs, mentioned on the previous paragraphs, as provided by the Management are considered in the projections.

- The projections provided by the Management, based on Independent traffic and technical studies, are only the best estimates of growth and sustainability of profitability margins. The financial forecast provided by the Management were reviewed for consistency and reasonableness and have relied on them.

- The explicit period has been considered from 01 January 2023 to 22 July 2036.

- The tax has been calculated as per the provisions of the Income Tax Act, 1961. The interest expense is adjusted in the same for arriving at the tax computation under FCFF.

- The assumptions for Weighted average cost of capital is as follows:

WACC calculation		Basis
Risk free rate of return	*7.3%*	10yrs ZCYC as at 30 December 2022
India risk premium	*7.3%*	Incwert Analysis
Beta	0.8	Peer median of 2 yr weekly beta
Alpha	*1.5%*	Valuer judgement
Cost of Equity	***14.3%***	
Cost of Debt	*9.0%*	Management input
Tax Rate	*25.2%*	Rates as per IT Act as applicable here
After Tax Cost of Debt	***6.7%***	
Debt/Equity	1.50	Management input
Debt to Capital %	*60.0%*	
Equity to Capital %	*40.0%*	
Weighted Average Cost of Capital	***9.7%***	
Marginal tax rate	*25.2%*	MAT rates as per IT applicable here

- The Business/ Enterprise Value of PDTPL as on 31 December 2022 is arrived at INR 942.9 crores.

Discounted cash flow **INR crores**	**FY2023** 3months	**FY2024** 12 months	**FY2025** 12 months	**FY2026** 12 months	**FY2027** 12 months	**FY2028** 12 months	**FY2029** 12 months	**FY2030** 12 months	**FY2031** 12 months	**FY2032** 12 months
Net Revenue	54.9	220.3	292.6	386.8	382.5	418.5	449.6	490.8	527.2	569.9
yoy growth	*n/a*	*5.8%*	*32.8%*	*30.8%*	*10.2%*	*10.7%*	*9.8%*	*10.4%*	*8.7%*	*9.4%*
EBITDA	**48.1**	**176.7**	**245.1**	**336.6**	**329.5**	**362.4**	**354.8**	**386.4**	**423.2**	**500.8**
EBITDA margin	*n/a*	*80%*	*84%*	*87%*	*86%*	*87%*	*79%*	*79%*	*80%*	*88%*
Depreciation	6.3	67.1	89.1	116.5	128.4	142.2	156.1	172.3	187.3	204.9
EBIT	41.8	109.6	156.0	220.1	201.1	220.2	198.7	214.0	235.9	296.0
EBIT margin	*76%*	*50%*	*53%*	*57%*	*53%*	*53%*	*44%*	*44%*	*45%*	*52%*
Less: tax on EBIT	(10.9)	(27.6)	(39.2)	(55.4)	(50.6)	(55.4)	(50.0)	(53.9)	(59.4)	(74.5)
Change in working capital	(11.1)	-	(85.0)	-	-	85.0	-	-	-	-
Capex	(397.5)	(995.8)	(185.6)	-	-	-	-	-	-	-
Free cash flows to the Firm	**(371.5)**	**(846.7)**	**(64.8)**	**281.2**	**278.9**	**392.0**	**304.8**	**332.5**	**363.8**	**426.3**
Continuing value										
Discounting period (mid-period)	0.12	0.75	1.75	2.75	3.75	4.75	5.75	6.75	7.75	8.75
Discount factor	0.99	0.93	0.85	0.77	0.71	0.64	0.59	0.53	0.49	0.44
Present value of cash flows as at 31 December 2022	**(367.3)**	**(789.9)**	**(55.1)**	**217.8**	**196.9**	**252.1**	**178.6**	**177.6**	**177.0**	**189.0**

Discounted cash flow **INR crores**	**FY2033** 12 months	**FY2034** 12 months	**FY2035** 12 months	**FY2036** 12 months	**FY2037** 3.7months
Net Revenue	611.7	659.4	710.7	759.7	249.7
yoy growth	*8.6%*	*9.1%*	*9.1%*	*8.5%*	*-66.6%*
EBITDA	**539.1**	**583.0**	**630.2**	**624.2**	**209.6**
EBITDA margin	*88%*	*88%*	*89%*	*82%*	*84%*
Depreciation	222.5	242.7	264.8	287.2	96.0
EBIT	316.6	340.3	365.4	337.0	113.7
EBIT margin	*52%*	*52%*	*51%*	*44%*	*46%*
Less: tax on EBIT	(79.7)	(85.6)	(92.0)	(84.8)	(28.6)
Change in working capital	-	-	-	-	-
Capex	-	-	-	-	-
Free cash flows to the Firm	**459.4**	**497.4**	**538.3**	**539.4**	**181.0**
Continuing value					
Discounting period (mid-period)	9.75	10.75	11.75	12.75	13.40
Discount factor	0.40	0.37	0.34	0.31	0.29
Present value of cash flows as at 31 December 2022	**185.6**	**183.1**	**180.5**	**164.9**	**52.1**

Valuation Conclusion	
Present value of cash flows	942.9
Present value of terminal value	-
Release of WC at the end of concession period	-
Enterprise value	**942.9**

8.11 Valuation Summary

The derived enterprise value and equity value, based on the valuation approach and methodology as discussed above, as on 31 December 2022 is as under:

FCFF method- Equity value of the Trust			
Sl. No	**Name of SPV**	**Short name of SPV**	**Enterprise value (INR crores)**
1	Goa Kundapur	IWTL	3,542.2
2	Solapur Yedeshi	SYTL	2,182.1
3	Yedeshi Aurangabad	YATL	4,188.4
4	Kaithal - Rajasthan	KTL	2,434.5
5	Agra Etawah	AETL	3,154.8
6	Udaipur Rajasthan Gujarat	UTL	2,600.2
7	Gulabpura Chittorgarh	CGTL	2,642.5
8	Kishangarh Gulabpura	KGTL	2,139.1
9	Hapur Moradabad	IHMTL	4,034.6
10	Dankuni - Palsit	PDTPL	942.9
	Total Enterprise Value	**Total**	**27,861.5**

Computation of fair value of the equity of the Trust			
Valuation approach	**Method**	**INR crores**	**Weight (%)**
Income approach	DCF	27,861.5	100%
Market approach	Comparable companies method	n/a	0%
Cost approach	NAV	n/a	0%
Enterprise value for the combined portfolio of 10 SPVs		27,861.5	100%
Less: Debt		(10,379.9)	
Less: Debt-like-items		(15.4)	
Less: Present value of stand alone expenses pertaining to InvIT as on 31 December 2022		(152.9)	
Add: Cash and cash equivalents		226.5	
Add: Surplus assets		124.8	
Value of 100% interest in equity (on a control, marketable basis)		**17,664.6**	
Number of units outstanding		87,92,93,265	
Value per unit		**200.90**	

Notes:

1. *Adjustments for debt, cash & cash equivalents and surplus assets have been made considering provisional and Condensed Interim Special Purpose Consolidated Financial statements of InvIT as on 31 December 2022.*
2. *Debt of INR 10,379.9 crores includes loan from banks, loan from financial institutions and non-convertible debentures.*
3. *Debt like items consist of current tax liabilities amounting INR 15.4 crores.*
4. *Surplus assets of INR 124.8 crores primarily comprise investments in IDBI liquid fund, L&T liquid fund, SBI liquid fund, interest accrued on fixed deposit, interest receivable from bank and current tax assets.*
5. *Standalone expenses pertaining to InvIT has been considered based on Management business plan.*
6. *Management has represented that the probability of devolvement of contingent liabilities is insignificant and accordingly no adjustment was required to be carried out in the valuation of the 10 SPVs.*
7. *Money payable to related parties (INR 3,575 crores) forming part of non-current liabilities (INR 3,548.3 crores) and current liabilities (INR 26.7 crores) on the Trust combined balance sheet as on Valuation Date and will be settled against amount receivable from NHAI against claim. Hence, the same has not been considered as a Debt-like item based on management representation.*

Fair value of 100 per cent equity interest in the Trust has been computed at INR 17,664.6 crores. Value per fully paid up unit is INR 200.90/- (Indian Rupees Two Hundred Point Ninety Only) (face value per unit: INR 100/-) based on 87,92,93,265 number of units as of the Valuation Date.

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9. Annexures

Additional procedures to be complied with in accordance with SEBI InvIT Regulations
List of Disclosures

Additional procedures to be complied with in accordance with SEBI InvIT regulations as per Schedule V of the SEBI InvIT Regulations:

a) List of one-time sanctions/approvals which are obtained or pending along with up-to-date/overdue periodic clearances

As given by the Management, the list of one-time sanctions/approvals which are obtained or pending along with up-to-date/overdue periodic clearances of all the 10 SPVs are included in earlier sections in the Report and details are mentioned in Annexures.

b) Statement of assets

Management has represented that all assets and liabilities of the 10 SPVs till the date of transfer of assets to InvIT has been taken over by the Trust.

c) Estimates of already carried as well as proposed major repairs & improvements

Past major repairs and improvements as on the Valuation Date

Management has represented that major repairs have not been carried out in the past as the 10 SPVs being transferred have been recently operationalized or are being constructed.

Future estimate of major repairs and improvements as on the Valuation Date

Future estimates of major repairs and improvements as on the Valuation Date (Amt in INR crores)

Name of SPV	FY2024 12mths Forecast	FY2025 12mths Forecast	FY2026 12mths Forecast	FY2027 12mths Forecast	FY2028 12mths Forecast	FY2029 12mths Forecast	FY2030 12mths Forecast	FY2031 12mths Forecast	FY2032 12mths Forecast	FY2033 12mths Forecast	FY2034 12mths Forecast
IWTL	40.9	42.5	-	1.3	-	110.6	40.6	-	-	1.6	11.9
SYTL	-	12.6	19.4	20.3	-	-	-	-	-	61.2	64.3
YATL	-	24.4	30.5	32.1	-	-	-	-	-	109.8	115.4
KTL	21.9	45.2	47.6	-	-	-	-	-	128.0	133.7	140.5
AETL	32.1	39.1	41.1	-	-	-	-	123.1	129.6	135.4	-
UTL	69.1	76.5	4.1	-	119.7	125.5	127.5	4.8	-	85.9	91.2
CGTL	-	27.0	28.4	29.9	-	-	-	86.1	90.7	94.7	-
KGTL	-	-	-	100.4	-	-	-	-	-	104.4	102.0
IHMTL	4.4	-	89.2	89.9	85.2	-	5.4	74.3	76.7	56.9	2.4
PDTPL	0.2	0.0	0.0	0.0	0.0	35.9	42.2	38.6	0.0	0.0	0.0

Future estimates of major repairs and improvements as on the Valuation Date (Amt in INR crores)

Name of SPV	FY2035 12mths Forecast	FY2036 12mths Forecast	FY2037 12mths Forecast	FY2038 12mths Forecast	FY 2039 12mths Forecast	FY 2040 12mths Forecast	FY2041 12mths Forecast	FY2042 12mths Forecast	FY 2043 12mths Forecast	FY2044 12mths Forecast
IWTL	166.5	1.9	-	-	148.5	53.2	-	-	-	-
SYTL	67.4	-	-	-	-	-	-	42.1	44.2	46.5
YATL	120.9	-	-	-	-	60.4	63.3	66.5	-	-
KTL	-	-	-	-	-	94.1	98.6	103.6	-	-
AETL	-	-	-	73.5	77.3	81.3	-	-	-	-
UTL	119.3	-	-	-	-	-	-	-	-	-
CGTL	8.9	46.3	48.4	50.8	-	-	-	-	-	-
KGTL	110.5	-	-	-	-	-	-	-	-	-
IHMTL	-	211.8	229.5	238.0	7.0	-	-	-	-	-
PDTPL	0.0	50.5	12.5	-	-	-	-	-	-	-

d) Revenue pendencies including local authority taxes associated with InvIT asset & compounding charges

Management has represented that there are no revenue pendencies including local authority taxes pending to be payable to the Government authorities with respect to all the 10 SPVs.

e) On-going material litigations including tax disputes in relation to the assets

As represented by the Management, the list of the ongoing material litigations of all the 10 SPVs, have been included In Annexures 1 to 10.

f) Vulnerability to natural to induced hazards that may not have been covered in town planning/building control

Management has represented that there are no such natural or induced hazards that have been not considered in town planning/building control with respect to all the 10 SPVs.

g) Site Visit Photographs

Site visit of all the 10 SPVs was conducted. Photographs taken during the site visit have been included in earlier sections in the Report.

Caveat to Disclosures in Annexures:

The Valuer has not independently verified the documents related to the disclosures mentioned in the Annexures and have relied on the representation by the Management for the same.

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9.1 Annexure I IWTL – Table 1: List of one-time sanctions/approvals

Sl.No	Description	Remarks
A	Permission of State government for extraction of boulders from quarry.	Received
B	Permission of Village Panchayat & Pollution control board for installation of crushers	Received,
C-1	License for use of explosives.	Received
C-2	Permission of state government for drawing water from Rivers & reservoir.	Not Applicable
D-1	License from Inspector of factories or competent authorities for setting up Batching Plant.	Received
D-2	Clearance from Pollution control board for Setting up Batching Plant	Received
E-1	Permission of Village Panchayat & Pollution control board for Asphalt Plant	Received
E-2	Permission of Village Panchayat & State government for Borrow earth	Received
F-1	Permission of State Government for Cutting of trees	Received
F-2	Any other permits or clearance required under applicable Laws	Labour License taken.

9.2 Annexure I IWTL – Table 2 List of ongoing material litigations or litigations where financial implication cannot be ascertained

Sl. No.	Complainant/ Applicant/ Plaintiff	Respondents	Name & Address of the Court and case number	Brief Description of Case	Status as on December 2022	Financial implications	Whether below the materiality l
1	Mr. Sachhidananda Shetty.	The Chief General Manager, Modern Road Makers Pvt. Ltd.	Judicial Magistrate First Class Court, Kundapura.	The plaintiff has filed this suit praying that stay should be given for the stoppage work of NH-66 to set right certain anomalies in the tree cutting tender awarded to him by the NHAI in Kundapur forest division in respect of cutting of reserved categories of trees like teak, Bethonne, Matti, Sandalwood & seasom.	There are no Adverse orders against the company. The matter is pending	Land acquisition and related cost, cutting the necessary trees for road widening work, and related cost, etc are the sole responsibilities of NHAI. Further the concessionaire is not a party in the tender awarded to the plaintiff for cutting of the trees. Hence, there are no financial implications in this matter.	Cannot be ascertained.
2	Laxman Neelakanth Desai, Goangeri, Majali, Karwar	IRB West Coast Tollway Pvt Ltd,	Civil Judge & JMFC II Court, Karwar	The plaintiff has filed the suit to restrain the defendants from undertaking the blasting of the rocks/hill in unscientific manner as it has caused loss to the plaintiff.	There are no Adverse orders against the company. The matter is pending	The company and plaintiff had mediated the dispute partly and the company has paid a sum of Rs. 175000/- to the plaintiff in the interest of the project. The matter is pending for final determination. As the company has complied with all the necessary provisions and undertaken the work with all safety precautions, the company feels that there are no financial implications in this matter.	Cannot be ascertained.
3	Venkatramana S	Chief General Manager (IRB), Kumta	JMFC at Bhatkal (O.S. No. 103/2018)	The plaintiff has filed this suit challenging the land acquisition and has prayed that the respondents should be restrained from doing the work against the provisions of the land acquisition act.	The matter is dosposed by the court.	The responsibility of the entire process of land acquisition and payment of compensation is of NHAI. Hence, that there are no financial implications in this matter.	Cannot be ascertained.
4	Mr. Vithobha Ganesh Naik	IRB West Coast Tollway Pvt Ltd,	Principal Judge, Karwar	The complainant is alleging that IRB WTL is encroaching upon the Petitioner's land to construct the highway	There are no Adverse orders against the company. The matter is pending		

9.3 Annexure II SYTL – Table 1: List of one-time sanctions/Approvals

Note. Management has represented that one-time sanctions/approvals are not applicable for SYTL as the project has achieved commercial operational date (COD). These sanctions/approvals are applicable during the construction phase only.

9.4 Annexure II SYTL – Table 2: List of ongoing material litigations

Nil

9.5 Annexure III YATL – Table 1: List of one-time sanctions/approvals

Note. Management has represented that one-time sanctions/approvals are not applicable for YATL as the project has achieved commercial operational date (COD). These sanctions/approvals are applicable during the construction phase only.

9.6 Annexure III YATL – Table 2: List of ongoing material litigations

Sl. No.	Complainant/ Applicant/ Plaintiff	Respondents	Name & Address of the Court and case number	Brief Description of Case	Status as on December 2022	Financial implications	Whether below the materiality limit of Rs. 7.89 Crores
1	Shaikh Rafiq and others	IRB Infrastructure Developers Limited and others	Bombay High Court Aurangabad Bench	This matter is pertaining to Yedeshi Aurangabad Project.	The matter is pending.	The responsibility of the entire process of land acquisition and payment of compensation is of NHAI. Hence, there are no financial implications on the company.	Cannot be ascertained.
			Writ Petition 5410/2015	The petitioner is aggrieved by the award wherein his land is acquired by NHAI, for construction of highway. Hence, the petitioners have prayed not to change the existing alignment of the proposed road widening of NH 211 passing through petitioners village and to restrain respondents from proceeding further with any change in the existing alignment			
2	Panditrao Chausalkar and others	IRB Infrastructure Developers Limited And Others	Bombay High Court Aurangabad Bench	This matter is pertaining to Yedeshi Aurangabad Project.	The matter is pending.	The responsibility of the entire process of land acquisition and payment of compensation is of NHAI. Hence, there are no financial implications on the company.	Cannot be ascertained.
			Writ Petition 92/2017	The petitioner is aggrieved by the award wherein his land is acquired by NHAI, for construction of highway. Hence, the petitioners have prayed that the land acquisition should be set aside, the respondents should be restrained from acquiring the land belonging to the petitioners, etc..			
3	Pruthviraj shahane	IRB Infrastructure Developers Limited and others	Civil Judge senior division, Beed.	This matter is pertaining to Yedeshi Aurangabad Project.	The matter is pending.	The responsibility of the entire process of land acquisition and payment of compensation is of NHAI. Utility shifting is being done on the land provided by NHAI Hence, there are no financial implications on the company.	Cannot be ascertained.
			Civil suit number 10/2016	The Plaintiff claims that the electricity poles & DP coming within road alignment / area have been replaced but erected & installed within his private land which has not been acquired.			
4	Yedeshi Aurangabad Tollway Ltd	NHAI	Arbitration	YATL (Claimant) had submitted claims to NHAI for compensation as per Clause 35.2 and Clause 35.3 of the Concession Agreement on account of delays attributable to NHAI. The claim for cost stands at Rs. 1,501.84 Crore in terms of Clause 35.2 and extension of Concession Period for 831.08 days in terms of Clause 35.3 of the Concession Agreement. YATL had proposed to NHAI for amicable settlement through CCIE. Since no written settlement reached between the Parties, YATL invoked arbitration on 09.03.2022 in terms of Clause 44.3 of the Concession Agreement.	The matter is pending.	Rs. 1720.80 Cr +interest & extension of 869.41 days	No

9.7 Annexure IV KTL – Table 1: List of one-time sanctions/approvals

Note. Management has represented that one-time sanctions/approvals are not applicable for KTL as the project has achieved commercial operational date (COD). These sanctions/approvals are applicable during the construction phase only.

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9.8 Annexure IV KTL – Table 2: List of ongoing material litigations

Sl. No.	Complainant/ Applicant/ Plaintiff	Respondents	Name & Address of the Court and case number	Brief Description of Case	Status as on December 2022	Financial implications	Whether below the materiality limit of Rs. 7.89 Crores
1	SirsaEagle CHS Ltd. and another	National Highways Authority of India and Others (Kaithal Tollway Pvt. Ltd. is Respondent Number 5)	Punjab and Haryana High Court, Writ Petition Number 27756/2017	The Petitioner has challenged the levy and collection of toll on the project, and has prayed that the notification by which the toll is collected should be quashed and issue the directions for frame policy for the local transporters which may not act against the financial interest of the poor local villagers who travel in busses.	The matter is pending.	Financial implications cannot be ascertained as not mentioned in the petition.	Cannot be ascertained.
						Similar writ petition challenging the toll collection on the project was filed in Punjab and Haryana High Court by Azad Singh (reported under closed litigations writ petition number 22648/2017), has been dismissed by the High Court. The concessionaire has been collecting the toll on the project as per the concession agreement and the toll notification. The provisional completion certificate has been issued to the concessionaire as per the terms of the concession agreement. Considering the merits of the case, there are no financial implications in this matter.	
2	Kaithal Tollway Ltd	NHAI	Arbitration	Claimant had submitted claims to NHAI for compensation as per Clause 35.2 and Clause 35.3 of the Concession Agreement on account of delays attributable to NHAI. The claim for cost stands at Rs. 190.68 Crore in terms of Clause 35.2 and extension of Concession Period for 136.77 days in terms of Clause 35.3 of the Concession Agreement. The Claimant crystallised dispute on 09.03.2022 (and subsequently invoked arbitration on 19.04.2022) Against the claim of Rs 100.1 Cr on account of Farmer's strike, Rs 58.48 Cr was released by NHAI on 10.10.2022 NHAI recommended extension of Concession Period of 365 days. The Balance claim amount of Rs 41.62 Crore was disputed. and arbitration was invoked This matter is clubbed with the above referred arbitration.	The matter is pending	Rs. 288.07 Cr + 582.77 days of extension of Concesison Period	No

9.9 Annexure V AETL – Table 1: List of one-time sanctions/approvals

Note. Management has represented that one-time sanctions/approvals are not applicable for AETL as the project has achieved commercial operational date (COD). These sanctions / approvals are applicable during the construction phase only.

9.10 Annexure V AETL – Table 2: List of ongoing material litigations

Sl. No.	Complainant/ Applicant/ Plaintiff	Respondents	Name & Address of the Court and case number	Brief Description of Case	Status as on December 2022	Financial implications	Whether below the materiality limit of Rs. 7.89 Crores
1	AE Tollway Limited	NHAI	Arbitration	Arbitraion is invoked. AETL filed Statement of Claim account of delay in completion of construction and other Force Majeure claims such as Covid 19 etc. along with claim for loss of revenue during the delayed period..	The matter is pending	Rs. 1317.98 Cr + interest & Extension to Concession Period by 351.41 days	No
2	Hakim Singh Yadav and others	AE Tollway Private Limited	High Court of Allahabad	The petitiiner filed a writ petition before the High Court of Allahabad against the Sponsor and others (the "Respondents") in relation to the drainage system for the road asset operated by AETL.	the matter is pending.		
				AETL had crystallised dispute and requested NHAI to take up the matter of payment of premium with proportionate reduction of revenue losses (the figures under dispute are excess payment of Premium of Rs. 12.84 Cr and outstanding payment of Premium including interest of Rs.55.34 Cr as on June 07, 2021) on account of Covid and delay in completion of construction as a dispute and for amicable settlement though Conciliation. Since no written settlement reached between the Parties, the AETL on 14.03.2022 invoked arbitration as per Clause 44.3 of the Concession Agreement. The matter is pending.			

9.11 Annexure VI UTL – Table 1: List of one-time sanctions/approvals

Note. Management has represented that one-time sanctions/approvals are not applicable for UTL as the project has achieved commercial operational date (COD). These sanctions/approvals are applicable during the construction phase only.

9.12 Annexure VI UTL – Table 2: List of ongoing material litigations

Sl. No.	Complainant/ Applicant/ Plaintiff	Respondents	Name & Address of the Court and case number	Brief Description of Case	Status as on December 2022	Financial implications	Whether below the materiality limit of Rs. 7.89 Crores
1	Hiteshkumar Ramanlal Gandhi	Bhairulal Salvi (Bus Driver)	FIR number 0299 dated 18/11/2017, Kherwada Police Station	Bus driver Mr. Bhairulal Salvi has damaged the toll booths by pelting the stone & created violence in smooth tolling operations at Khandiobri Toll.	The matter is being investigated by the police.	The FIR is filed against the Bus driver, by the employee of the company. The FIR is filed by the employee of the company against the bus driver. There are no proceedings against the company.	Cannot be ascertained.
	(Shift Incharge Khandiobri Toll)	Dist - Bhilwada.	Tah – Kherwara, Dist – Udaipur State – Rajasthan				
2	Udaipur Tollway Ltd	NHAI	Arbitration	Claimants filed Statement of Claim including the claim on account of compensation of Force Majeure Cost and extension in Concession Period on account of COVID 19) , Claim for compensation under Clause 35.2 & 35.3 along with a prayer that Premium is applicable after 6 months of Actual completion	The matter is pending	Commencement of Premium after 6 months of actual completion Claim Rs. 906.08 Cr + interest & extension of 214.99 days	No

9.13 Annexure VII CGTL – Table 1: List of one-time sanctions/approvals

Note. Management has represented that one-time sanctions/approvals are not applicable for CGTL as the project has achieved commercial operational date (COD). These sanctions/approvals are applicable during the construction phase only.

9.14 Annexure VII CGTL – Table 2: List of ongoing material litigations

Sl. No.	Complainant/ Applicant/ Plaintiff	Respondents	Name & Address of the Court and case number	Brief Description of Case	Status as on December 2022	Financial implications	Whether below the materiality limit of Rs. 7.89 Crores
1	Shri Azad Sharma & Other	NHAI and others (The Manager, IRB is respondent number 7)	Lok Adalat, Bhilwara	The plaintiff has filed case challenging the collection of toll without completion of six lane.	The matter is pending	The company is collecting the toll as per the toll notification and concession agreement with NHAI.	Cannot be ascertained.
				Plaintiff /Petitioners have prayed that collection of toll shall be stopped until works of six lanes are completed and toll collected in the name of six laning shall be returned with interest.		Since, the project consists from 4 laining to 6 laining, hence, during the construction period, the company collects only 75% of the prescribed toll amount as per the toll fee notification. These toll rates are fixed for construction period. The company has good case on merits. The company has not violated any of the concession agreement provisions and hence, there are no financial implications in the matter.	
2	CGTollway Ltd	NHAI	Arbitration	Claimants filed Statement of Claim including the claim on account of compensation of Force Majeure Cost and extension in Concession Period on account of COVID 19) , Claim for compensation under Clause 35.2 & 35.3 along with a prayer that Premium is applicable after 6 months of Actual completion	The matter is pending	Commencement of Premium after 6 months of actual completion Claim: Rs. 502.12 + + interest & extension of 241.37 days	No

9.15 Annexure VIII KGTL – Table 1: List of one-time sanctions/approvals

Note. Management has represented that one-time sanctions/approvals are not applicable for KGTL as the project has achieved commercial operational date (COD). These sanctions/approvals are applicable during the construction phase only.

9.16 Annexure VIII KGTL – Table 2: List of ongoing material litigations

Sl. No.	Complainant/ Applicant/ Plaintiff	Respondents	Name & Address of the Court and case number	Brief Description of Case	Status as on December 2022	Financial implications	Whether below the materiality limit of Rs. 7.89 Crores
1	Kishangarh Gulabpura Tollway Ltd	NHAI	Arbitration	Claimants filed Statement of Claim including the claim on account of compensation of Force Majeure Cost and extension in Concession Period on account of COVID 19) , Claim for compensation under Clause 35.2 & 35.3 along with a prayer that Premium is applicable after 6 months of Actual completion	The matter is pending	Commencement of Premium after 6 months of actual completion Claim :Rs. 868.96 + + interest & extension of 387.18 days	

9.17 Annexure IX IHMTL – Table 1: List of one-time sanctions/approvals

Note. Management has represented that one-time sanctions/approvals are not applicable for IHMTL as the project has achieved commercial operational date (COD). These sanctions/approvals are applicable during the construction phase only.

9.18 Annexure IX IHMTL – Table 2: List of ongoing material litigations

Nil

9.19 Annexure X PDTPL – Table 1: List of one-time sanctions/approvals

Sl.No	Description	Remarks
A	Permission of the State Government for extraction of boulder from quarry.	Applied
B	Permission of Village Panchayat and Pollution Control Board for installation of crusher;	Applied
C	License for use of explosives	Applied
D	Permission of state government for drawing water from river/reservoir	Not Applicable
E	License from the inspector of factories or other competent authority for setting up Batching plant.	Received
F	Clearance of Pollution Control Board for setting up Batching Plant;	Received
G	Clearance of Village Panchayats and Pollution Control Board for Asphalt Plant	Received
H	Permission of Village Panchayat and State Government for borrow areas	Received
I	Permission of State Government for cutting of trees	Received
J	Any other permits or clearances required under Applicable Laws	Labour License taken.

9.20 Annexure X PDTPL – Table 2: List of ongoing material litigations

Nil

9.21 Annexure XI – Comparable companies' description

List of comparable companies
Sadbhav Engineering Limited
MEP Infrastructure Developers Limited
IRB Infrastructure Developers Limited
Ashoka Buildcon Limited

9.22 Annexure XII – Parties to the InvIT

- IRB Infrastructure Trust ("the Trust")
- IRB Infrastructure Developers Limited (in its capacity as "Sponsor" of the Trust)
- MMK Toll Road Private Limited (in its capacity as "Investment Manager" of the Trust) &
- IDBI Trusteeship Services Limited (as the "Trustee" of the Trust)

***END OF REPORT**

ANNEXURE B

TRAFFIC REPORTS

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AGRA TO ETAWAH (KM 199.660 TO KM 323.525) SECTION OF NH-2 IN THE STATE OF UTTAR PRADESH.

JANUARY 2023

TRAFFIC STUDY & REVENUE PROJECTION REPORT (FINAL)

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AGRA TO ETAWAH (KM 199.660 TO KM 323.525)

SECTION OF NH-2 IN THE STATE OF

UTTAR PRADESH.

TRAFFIC STUDY & REVENUE
PROJECTION REPORT
(FINAL)

JANUARY 2023

GMD CONSULTANTS ★ NAVI MUMBAI ★

CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

AADT	-	Annual Average Daily Traffic	**NHAI**	-	National Highway Authority of India
BOT	-	Build Operate Transfer	**NHDP**	-	National Highways Development Project
CAGR	-	Compound Annual Growth Rate	**NSDP**	-	Net State Domestic Product
CTV	-	Classified traffic volume	**O&M**	-	Operation & Maintenance
DBFOT	-	Design, Build, Finance, Operate & Transfer	**PCDP**	-	Per Capita Domestic Product
EME	-	Earth Moving Equipment	**PCI**	-	Per Capita Income
GDP	-	Gross Domestic Product	**PCU**	-	Passenger Car Unit
GSDP	-	Gross State Domestic Product	**PSC**	-	Pre-stressed Concrete
HCM	-	Heavy Construction Machinery	**RCC**	-	Reinforced cement concrete
HCV	-	Heavy Commercial Vehicle	**RHS**	-	Right Hand Side
HTMS	-	Highway Traffic Management System	**SH**	-	State Highway
IRC	-	Indian Road Congress	**TP**	-	Toll Plaza
IRR	-	Internal Rate of Return	**WPI**	-	Wholesale Price Index
LCV	-	Light Commercial Vehicle	**SIR**	-	Special Investment Region
LHS	-	Left Hand Side	**c.**	-	Circa
LGV	-	Light Goods Vehicle	**ROB**	-	Railway Over Bridge
MAV	-	Multi Axle Vehicle	**MDR**	-	Major District Road
MORTH	-	Ministry of Road Transport and Highways	**ODR**	-	Other District Road
NH	-	National Highway	**CA**	-	Concession Agreement
PCC	-	Plain Cement Concrete	**RMT**	-	Running Meter
CR	-	Coarse Rubble			

CHAPTER 1

INTRODUCTION

1.1 Background

The Government of India through National Highway Authority of India (NHAI) embarked upon a program to enhance the traffic capacity and safety for efficient transportation of goods as well as passenger traffic on National Highway Sections under NHDP Phase V. Under Phase V NHAI has planned to convert 6,500 km of existing 4-lane National Highways into 6-lane National Highway. Sections envisaged under 6-laning comprise the Golden Quadrilateral section (5,700 km) and some other sections which are 800 km in length.

The project under consideration, **Agra** to **Etawah** section of NH-2 from km 199.660 to km 323.525is one such road project NHAI intended to implement on a BOT basis in the DBFOT format. *M/s AE Tollway. Ltd*. (Concessionaire) has been awarded the Project for a concession period of 24 years starting from 1st August 2016. The Project has been commissioned and is currently in the operation / maintenance phase. Six Laning of project has also been completed in Nov 2020.

Length of project road is 123.865 Kms. The project road is section of NH-2, which starts from Delhi and ends at Kolkata and is a part of the Golden Quadrilateral Project. The project road section passes through the districts of Agra, Firozabad and Etawah.

Project road alignment passes through the towns/ built-up areas of Tundla, Firozabad, Shikohabad, Sirsaganj, & Jaswantnagar. Following figure shows alignment of project road section from Agra to Etawah.

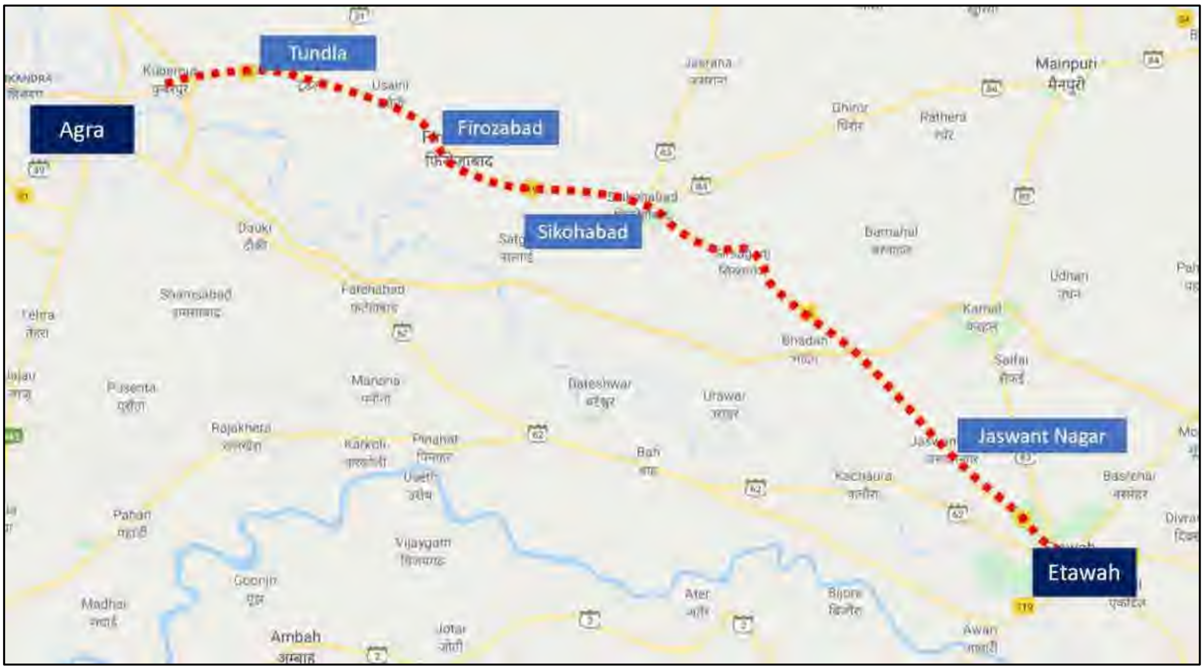

Figure 1-1: Alignment of Project Stretch

1.2 Objective of the Study

M/s IRB INFRASTRUCTURE TRUST has engaged *GMD Consultants* to assess the future traffic and toll potential of project along with related operation & maintenance expenditure involved.

This report named as **"Traffic Study &*Toll Revenue Projection Report*"** mainly focuses on traffic and revenue aspects of the project. Other parameters like competing road, area developments etc. have been considered from a traffic development point of view.

1.2.1 Scope of Services

The broad scope of work covered in the assignment is as follows

a) Analysis of Traffic Growth

b) Toll Rate Growth

c) Revenue Forecasting

The Concessionaire has provided basic traffic data and other project details on the basis of which the above analysis has been carried out.

CHAPTER 2

PROJECT DETAILS

2.1 Project Corridor

National Highway 2 (NH 2) which is now renumbered as NH-19 is oldest highway in India and connects state of Delhi, Haryana, Uttar Pradesh, Bihar, Jharkhand and West Bengal. It constitutes a major portion of historical grand truck road.

It connects the national capital Delhi to the Kolkata, as well as important cities Mathura, Agra, Kanpur, Allahabad, Varanasi, Dhanbad, Asansol, Durgapur and Bardhman. The highway is part of the Golden Quadrilateral project undertaken by National Highways Authority of India (NHAI).

The project road is a link between Agra and Kanpur in the state of Uttar Pradesh. The main project influence area of the project road consists of the three districts through which the project road passes. In addition, the project influence area includes the districts of Kanpur, Mathura and Aligarh also.

2.2 Project Stretch Description

Section of NH-2 from Agra to Etawah is part of major transportation link in the area connecting industrial cities of Agra- Kanpur and Lucknow. Important cities of Firozabad, Shikohabad, and Jaswant Nagar fall on project alignment. Firozabad has famous glass work industry. Like other parts of India rapid ribbon development is happening around these cities on project highway. This also contributes to sustainable traffic growth.

There are two operative toll plazas at project stretch. First is at Tundla at Km 224.950 and second at Gurau at Km 285.200. Following figure show project alignment and toll plaza locations.

Figure 2-1: Project Alignment with Toll Plaza

2.3 Project Corridor Illustration

Six laning of project stretch is complete. Following photographs illustrate project section along the corridor.

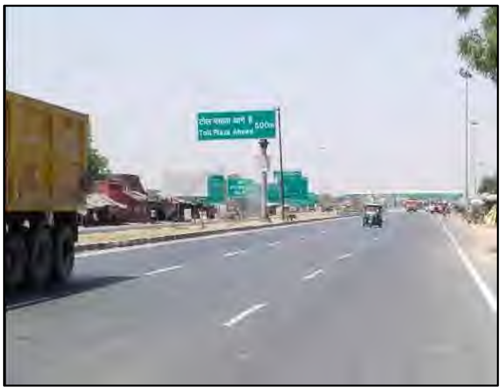

Figure 2-2: Photographs showing Project Corridor

CHAPTER 3

TRAFFIC SURVEYS AND ANALYSIS

3.1 Traffic Surveys

The Consultants have collected the required information for project corridor to understand the general traffic and travel characteristics on the corridor.

The following traffic data has been collected from client for project.

- Classified traffic volume counts at toll plaza locations on Agra- Etawah section of NH-2 for year 2017-18, 2018-19, 2019-20, 2020-21 ,2021-22 and Six-Monthly traffic data from April 2022 to September 2022.
- Local Component of traffic
- Component of Return Journey
- Component of Monthly Pass Journey

The main objective of the traffic data analysis is to:

- Determine the existing traffic movement characteristics of the project
- Establish base year traffic
- Identification of travel patterns and modal split of project traffic
- Deriving growth factors for traffic forecasting
- Estimation of corridor traffic including traffic diversion if any
- Preparation of revenue model and projection of revenue as per toll policy for various scenarios

Table 3-1below lists provides details of locations from where traffic details have been collected.

Table 3-1 : Traffic Data Details

SR. NO	LOCATION	CTV	Single Journey Traffic	Daily Return Journey	Monthly Pass	Local Pass
1	Km 224.950 Toll Plaza at Tundla	AADT for Year 2017-18, 2018-19, 2019-20,2020-21 ,2021-22 & Six Monthly Data from April 22 to September 22	For Year 2017-18, 2018-19, 2019-20, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2017-18, 2018-19, 2019-20, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2017-18, 2018-19, 2019-20, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2017-18, 2018-19, 2019-20, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22
2	Km 285.200 Toll Plaza at Gurau	AADT for Year 2017-18, 2018-19, 2019-20,2020-21 ,2021-22 & Six Monthly Data from April 22 to September 22	For Year 2017-18, 2018-19, 2019-20, 2020-21,2021-22 & Six Monthly Data from April 22 to September 22	For Year 2017-18, 2018-19, 2019-20, 2020-21,2021-22 & Six Monthly Data from April 22 to September 22	For Year 2017-18, 2018-19, 2019-20, 2020-21,2021-22 & Six Monthly Data from April 22 to September 22	For Year 2017-18, 2018-19, 2019-20, 2020-21 ,2021-22 & Six Monthly Data from April 22 to September 22

Toll plaza no. 1 & 2 are located in Uttar Pradesh.

3.2 Classified Traffic Volume

The objective of conducting a Classified Traffic Volume Count is to understand the traffic flow pattern including modal split on a roadway. The Classified Traffic Volume

Count survey has been provided by the concessionaire of project highway from actual traffic data gathered at toll plaza locations based on monthly data shared with NHAI.

The vehicles can broadly be classified into fast moving / motorized and slow moving / non-motorized vehicles, which can be further classified into specific categories of vehicles. The groupings of vehicles are further segregated to capture the tollable vehicle categories specifically and toll exempted vehicles are counted separately. The detailed vehicle classification system as per IRC: 64-1990 is given in table below

Table 3-2 : Vehicle Classification System

<table>
<tr><th colspan="2">Vehicle Type</th></tr>
<tr><td colspan="2">Auto Rickshaw</td></tr>
<tr><td>Passenger Car</td><td>Car, Jeep, Taxi & Van (Old / new technology)</td></tr>
<tr><td rowspan="2">Bus</td><td>Mini Bus</td></tr>
<tr><td>Standard Bus</td></tr>
<tr><td rowspan="5">Truck</td><td>Light Goods Vehicle (LCV)</td></tr>
<tr><td>2 – Axle Truck</td></tr>
<tr><td>3 Axle Truck (HCV)</td></tr>
<tr><td>Multi Axle Truck (4-6 Axle)</td></tr>
<tr><td>Oversized Vehicles (7 or more axles)</td></tr>
<tr><td>Other Vehicles</td><td>Agriculture Tractor, Tractor & Trailer</td></tr>
</table>

Source - IRC: 64 – 1990

However, since project highway is currently under toll operation, the data collected is corresponding to category of tollable vehicles. Following are the type of vehicles as per concession agreement.

- Car / Jeep / van
- Min Bus /LCV
- Bus
- Truck
- 3-Axle
- Multi Axle

3.3 Traffic Characteristic

Toll revenue of project highway does not solely depend on traffic volume. There are certain characteristics of traffic which have substantial potential to affect toll collection. Component of local traffic, component of passenger and commercial traffic, portion of return journey traffic, % of monthly pass traffic are some of such characteristics of traffic. These will be discussed in subsequent sections of report.

3.3.1 Traffic Data

Project concessionaire has provided Traffic data for year 2019-20 ,2020-21, 2021-22 and from April 2022 to September 2022 as under for both toll plazas–

Table 3-3 : Traffic Data at Gurau Toll Plaza at Km 285.200

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)- 2019-20	Annual Average Daily Traffic (Nos.)- 2020-21	Annual Average Daily Traffic (Nos.)- 2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	2071	3535	5268	3524
2	LCV	1097	1286	919	784
3	BUS	494	492	635	517
4	Truck	891	1100	1351	1453
5	3-Axle	901	909	882	860
6	Multi Axle	1426	1760	2138	2367
7	Oversize Vehicle	11	8	4	4
	Total	**6892**	**9090**	**11197**	**9509**

Table 3-4 : Traffic Data at Tundla Toll Plaza at Km 224.950

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)- 2019-20	Annual Average Daily Traffic (Nos.)- 2020-21	Annual Average Daily Traffic (Nos.)- 2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	8324	5849	7347	9515

2	LCV	1917	1514	1012	1141
3	BUS	1148	777	856	1155
4	Truck	1309	1272	1506	1799
5	3-Axle	955	948	924	919
6	Multi Axle	1255	1725	2179	2335
7	Oversize Vehicle	10	11	8	17
	Total	**14918**	**12096**	**13832**	**16880**

Pandemic of COVID-19 (Corona Virus) had impacted entire world. Taking precaution, government of India announced a complete lockdown in last of March 2020 and traffic on highways was stopped which was eased out progressively later. There after India was hit by Covid-19 second and third wave in February 21 to July -21 and December 21 to March-22. Recovering traffic pattern was somewhat again disturbed du to second and third wave of Covid-19. Traffic numbers of for period from April-2020 to March 2021 were not representative of traffic pattern at project corridor due to pandemic lockdown impact. However, for integrity of data same shown above. Traffic has almost recovered from Covid -19 impact as of now.

Since the traffic data available for this update is for only six months, from April 2022 to September 2022, a seasonality factor for balance half year has been applied to average traffic of current six months to arrive at Annual Average Daily Traffic for future projections and revenue calculations.

3.4 Data Analysis

3.4.1 Analysis of Traffic Volume Count

Understanding the character of existing traffic forms the basis of the traffic forecast. The various vehicle types having different sizes and characteristics can be converted into a single unit called Passenger Car Unit (PCU). Passenger Car equivalents for various vehicles are adopted based on recommendations of Indian Road Congress prescribed in “IRC-64-1990: Guidelines for Capacity of Roads in Rural areas”. The adopted passenger car unit values (PCU) are presented in ***Table*** 3-5**.**

Table 3-5 : PCU Factors Adopted for Study

Vehicle Type	PCUs
Car	1.0
Mini Bus	1.5
Standard Bus	3.0
LCV/LGV	1.5
2 Axle Truck	3.0
3 – 6 Axle Truck	4.5
MAV	4.5
Auto Rickshaw	1.0
Van/Tempo	1.0
Agriculture Tractor with Trailer	4.5
Agriculture Tractor without Trailer	1.5

Source: IRC: 64-1990

Traffic volume at each toll plaza was converted to PCU and same is presented as under

Table 3-6 : Traffic in PCU at Project Stretch Base Year 2022-23

Year	Toll Plaza Location (Km)	Traffic No	PCU	PCU Index
2019-2020	Gurau Km 285.200	6892	17043	2.47
	Tundla Km 224.950	14918	27128	1.82
2020-2021	Gurau Km 285.200	9090	20922	2.30

	Tundla Km 224.950	12096	24923	2.06
2021-2022	Gurau Km 285.200	11197	24889	2.22
	Tundla Km 224.950	13832	28565	2.07
2022-2023	Gurau Km 285.200	9509	23860	2.51
	Tundla Km 224.950	16880	33428	1.98

It can be observed from above that project traffic has PCU index close to 2.5 at Guarau which is an indicator of high proportion of commercial traffic in traffic mix. At Tundla the index is ore toward passenger traffic due to urban impact. Following figure illustrates variation of PCU index at two toll plaza locations.

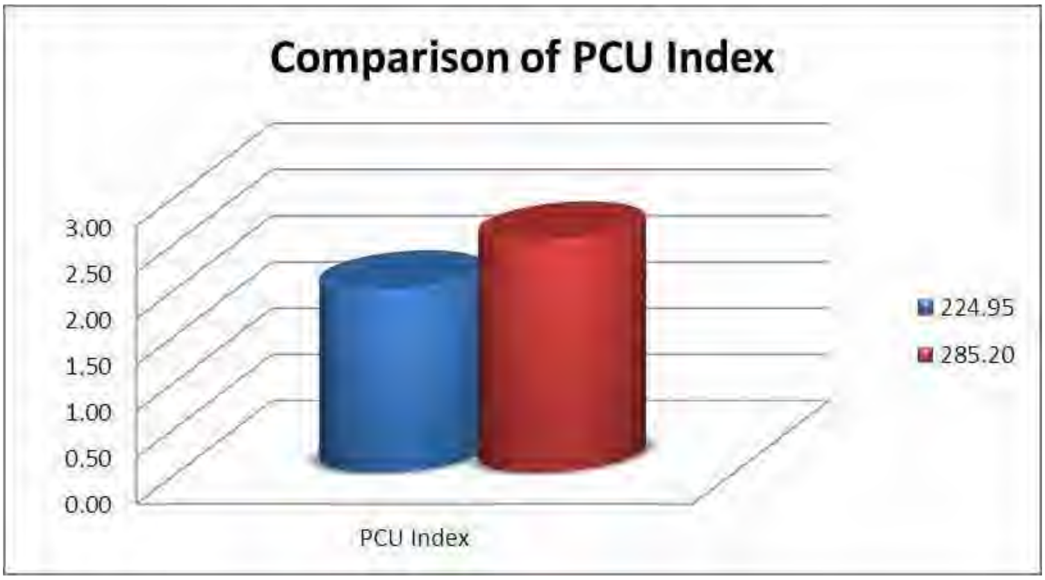

Figure 3-1: Comparison of PCU Index

3.4.2 Components of Traffic

As discussed previously, components of traffic volume play an important role in determining project revenue. A larger component of commercial traffic with higher axle configuration adds to project revenue positively. Similarly, a larger component of local traffic affects the project revenue potential negatively.

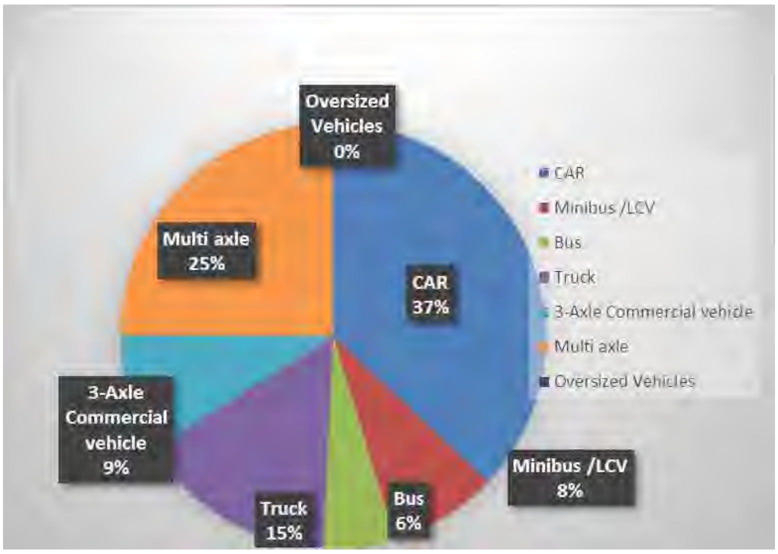

Figure 3-2 :Model Split of Tollable Vehicle-Km 285.200

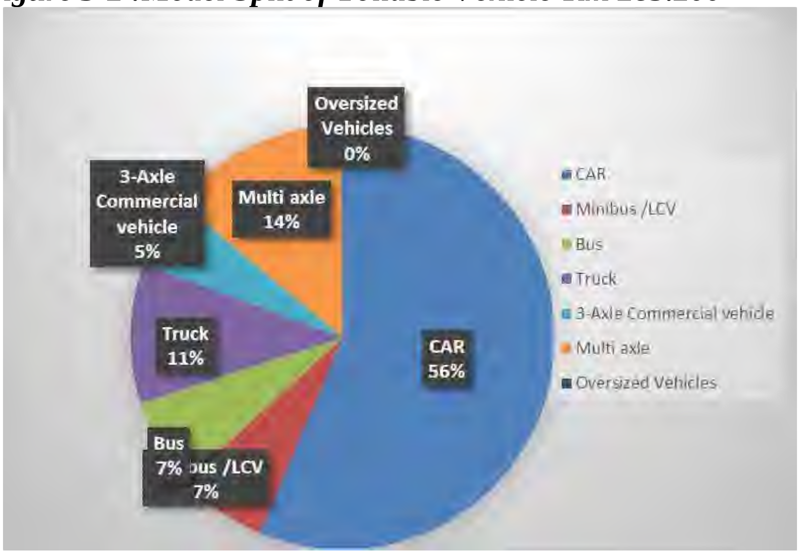

Figure 3-3 :Model Split of Tollable Vehicle-Km 224.950

It is observed that car traffic forms about 37% of total traffic at Gurau toll plaza location while multi axle commercial vehicles and trucks are about 63% of total traffic.

While at Tundla toll plaza car share rises to 56% and commercial vehicles multi axle and trucks share about 44%. This is due presence of strong urban impact of Tundla.

Another important bifurcation of traffic is components of traffic with respect various type of toll ticketing like

1. Single Journey
2. Multi Journey
3. Monthly Pass (Local and General)

The following table provides numbers of vehicles falling in each of above category on base year 2022-23

Table 3-7 : Journey Type Bifurcation of Traffic at Gurau Toll Plaza KM 285.200

Sr. No	Type	Traffic Volume (Nos.)
		2022-23
1	Single Journey	6526
2	Return Journey	2952
3	Local Commercial Single Journey	21
4	Monthly Pass Local	10
5	Monthly Pass	0

Most dominant part of the above is the single journey type followed by return journey at project stretch. Monthly pass commuters are a very low fraction of the total traffic on the project corridor.

The single journey component in total traffic numbers is a high as 69%. Return journey component is 31%. The number of monthly pass is 0% at Gurau toll plaza. This indicates higher share of long traffic.

Following tables give the detail of journey distribution at Tundla toll plaza at Km 224.950.

Table 3-8 : Journey Type Bifurcation of Traffic at Tundla Toll Plaza KM 224.950

Sr. No	Type	Traffic Volume (Nos.)
		2022-23
1	Single Journey	8299
2	Return Journey	8340
3	Local Commercial Single Journey	85
4	Monthly Pass Local	147

5	Monthly Pass	10

At Tundla toll plaza single journey share drops to 49% while return share is 49% respectively. Monthly pass is 0% and Local 2%.

It is observed that the project corridor demonstrates a similar pattern of single journey dominated mix of traffic across the entire stretch which is typical of major national highways.

3.5 Secondary Data Collection

There are several other factors which have a substantial impact on traffic pattern and growth on any project corridor. Following are some of such important factors

- Industrial development around project corridor and its catchment
- Educational infrastructure along project corridor
- Demographic pattern
- Urban area development
- Tourism potential
- Upcoming major infrastructural or Industrial projects
- Special Industry in project corridor
- Overall trends of economic growth local as well as national / regional

Hence in addition to traffic details on project site, secondary data was also collected from various other sources. Typical secondary data includes the following:

1. Vehicle registration data of regional and national level.
2. Economic Data
   a) GDP
   b) NSDP
   c) Population Growth
   d) Per Capita Income growth
   e) Industrial Growth
   f) Special Industry Potential
   g) Regional and National development vision / plan
   h) Any other relevant data
3. Competing road network

We have collected and utilized such underlying data in the study to estimate the growth and risk factors for traffic along the project corridor.

CHAPTER 4

INFLUENCE ZONE TRANSPORT NETWORK ANALYSIS

4.1 Introduction

Highway corridors behave like integrated circuit network and more often than not every road is connected to various networks having different origin and destinations. Traffic running on these networks behave like fluid and flow on network on alignment of least friction.

Following Factors can be considered as major contributors to friction on transportation network

- Travel Speed / Travel Time
- Geometric deficiencies like blind horizontal curves and steep vertical gradients etc.,
- Configuration of road
- Riding quality
- Traffic delays,
- Length of road,
- Passing through built up or Urban Area,
- Terrain,
- Facilities,

4.2 Competing / Alternate route

Project stretch has toll application history from last few years, and it can be assumed that project traffic is settled. However, for analysis point of view there can be one alternate route using Agra Lucknow Expressway at local level.

At regional level, this route connects Delhi to Kanpur and then goes towards Pryagraj and West Bengal. Most obvious alternate route is through Lucknow – Agra Expressway again.

Following maps show these routes in relation to project stretch at both local and regional level.

Figure 4-1: Alternate route at regional level

Figure 4-2: Alternate route at local level

It can be observed that project highway forms the one of the main spines of the corridor between Agra and Etawah. Agra – Lucknow Expressway is a faster connectivity for obvious regions. It's in operation for last few years and most of the traffic which had potential of diversion had done it so. Traffic on project road is now settled and it can be assumed as dedicated traffic on project road for logistic obligations. With six laning now complete, project stretch has become slightly more attractive due to improved level of service.

At regional level also the difference between two alignment is only of Agra- Lucknow Expressway. Hence there too, regional level traffic is expected to have settled.

Following table provides summary of analysis of alternate route/ roads discussed above.

Table 4-1 : Competing Roads Details

Sr. No	Route Details	Designation	Length (Km)	Avg. Speed (KMPH)	Time Taken (Min)	Observations
Regional Level						
1	Delhi to Kanpur Via Agra-Lucknow Expressway	Alternate Route	474	70	6 Hr 40 Min	Alternate route running for years after toll on project road. Traffic Settled. No further diversion expected
	Delhi to Kanpur Via Project Road (NH-19)	Project Road	470	65	7 Hr 10 Min	
Local Level						
2	Agra to Etawah Via Agra-Lucknow Expressway	Alternate Route	123	65	1 Hr. 52 Min	Alternate route running for years after toll on project road. Traffic Settled. No further diversion expected
	Agra to tawah Via Project Road (NH-19)	Project Road	129	50	2 Hr. 30 Min	

Under these circumstances it is not envisaged that commercial or passenger traffic would switch to alternate roads from the project road. Further, it may be noted that during its construction phase project road had many bottlenecks like Firozabad bypass etc. Due to this part of traffic preferred Agra Lucknow expressway over project road despite higher toll tariff at Agra – Lucknow Expressway. Now as these bottlenecks are removed it is expected that some part of traffic would return to Project Corridor due to improved level of service and low toll fee as compared to Agra – Lucknow Expressway.

CHAPTER 5

GROWTH OF TRAFFIC ON PROJECT HIGHWAY

5.1 Introduction

Traffic growth is a function of the interplay of a number of contributory factors such as National economy, Government policy, socio-economic conditions of the people, and changes in land uses along the project corridor precincts etc. As these factors have a number of uncertainties associated with them, forecasts of traffic are dependent on the projections of other factors such as population, gross domestic product (GDP), vehicle ownership, per capita income (PCI), agricultural output, fuel consumption etc. Future pattern of change in these factors can be estimated with only a reasonable degree of accuracy and hence the resultant traffic forecast levels may not be precise.

Traffic growth forecast for project corridor Surat- Dahisar section of NH-8has been done taking the above factors into consideration. "**IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**" is established best practice and has been used for traffic growth forecast.

5.2 Trend Analysis

One of the methods of estimation of future rate of growth is to assume the same rate of growth as in the past. Although such a method is more suitable to projects of short durations say 5-10 years, however for long term projections it would-be erroneous to assume that the past rate of growth will continue to prevail for a long time in future. Economic conditions, which are major influencing factors, are bound to change over a long period of time. Thus, it would be necessary to modify the past trends of growth suitably.

Elasticity model of growth projection is one of the most widely acceptable methods for traffic forecast. The same is recommended in **IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**.

In this method the past trend of vehicular data is paired with an economic indicator and a regression analysis is done to yield the economic model of growth. Growth of vehicle traffic varies for different type of vehicle. It is a proven fact that the growth pattern for passenger and goods vehicle is different. Traffic growth on any highway

typically depends on number of economic parameters. Most important and direct parameters are given as under

- Per Capita Income
- Net State Domestic Product (NSDP)
- Population

It can be observed that the ownership of a car is more closely related to affordability; hence per capita is the index which closely fits the growth of car traffic among other criteria. In a similar fashion, the following can be pairs of vehicle type and independent variable for elasticity modeling of growth.

- Car / Jeep – Par Capita Income
- Bus / Minibus – Population
- Goods Vehicle – NSDP

5.3 Estimation of Traffic Demand Elasticity

Elasticity of traffic demand is defined as the rate at which traffic intensity varies due to a change in the corresponding indicator selected. Hence, in order to estimate the elasticity of traffic demand, it is necessary to establish relationship between the growth in number of given category of vehicles with the relevant economic variable considered, such as NSDP, per capita income and population growth. Latest available data for vehicle registration, per capita income, NSDP and population is used in analysis.

As per IRC: 108-1996 the model for estimating elasticity index for the project corridor is of the following form and is given as below:

Log (P) = k x Log (EI) + A

Where,

P = Number of Vehicles (Mode wise)

EI = Economic Indicator

A = Regression constant

k = Elasticity coefficient (Regression coefficient)

The elasticity for car and bus (passenger vehicles) is calculated based on the Population and Per Capita Domestic Product (PCDP) and the elasticity for trucks is calculated based on the Net State Domestic Product (NSDP).

The project corridor spreads across state of Uttar. Toll plazas at Tunda and Gurau are in the state of Uttar Pradesh. Project corridor has certain impact of traffic from Delhi, and Haryana also. For elasticity calculations, working data from these states has been analyzed.

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Uttar Pradesh State.

Table 5-1 : Per Capita Income Vs Car Uttar Pradesh

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	32002	1108100	4.51	6.04		
2013	32908	1205374	4.52	6.08	3%	
2014	34044	1423020	4.53	6.15	3%	
2015	34583	1572217	4.54	6.20	2%	
2016	36973	1746117	4.57	6.24	7%	
2017	40641	2027972	4.61	6.31	10%	4.94%

Regression analysis of same is given in figure below

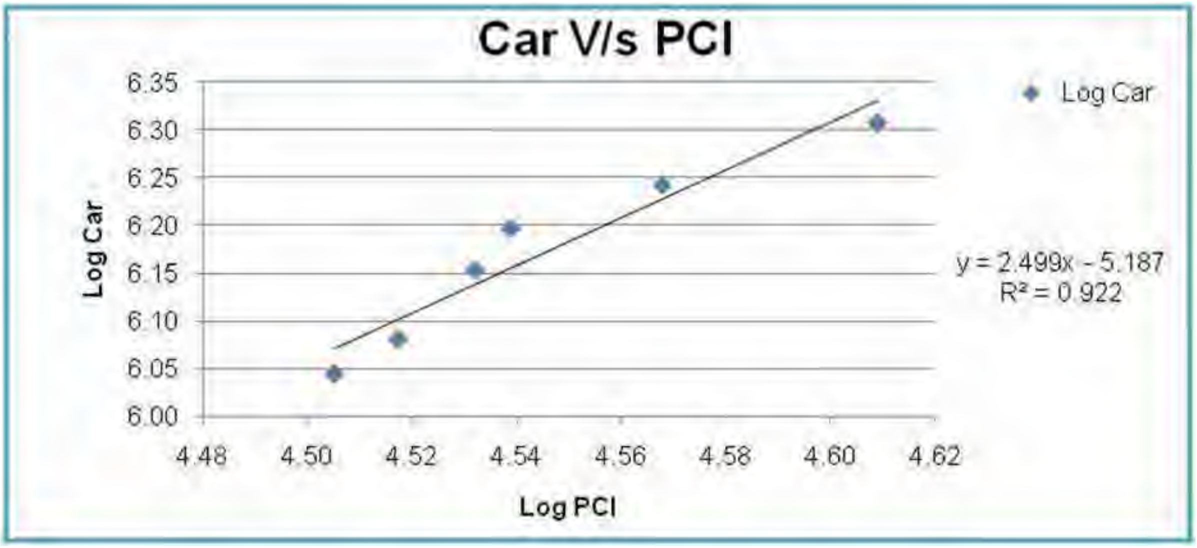

Figure 5-1: Regression and Elasticity PCI vs. Car–Extrapolation Uttar Pradesh

Table 5-2 : Population Vs Bus Uttar Pradesh

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	199812341	57901	8.30	4.76		
2013	203382046	64147	8.31	4.81	2%	
2014	206942855	74389	8.32	4.87	2%	
2015	210493544	80460	8.32	4.91	2%	
2016	214032922	89127	8.33	4.95	2%	
2017	217559836	112020	8.34	5.05	2%	1.72%

Regression analysis of same is given in figure below

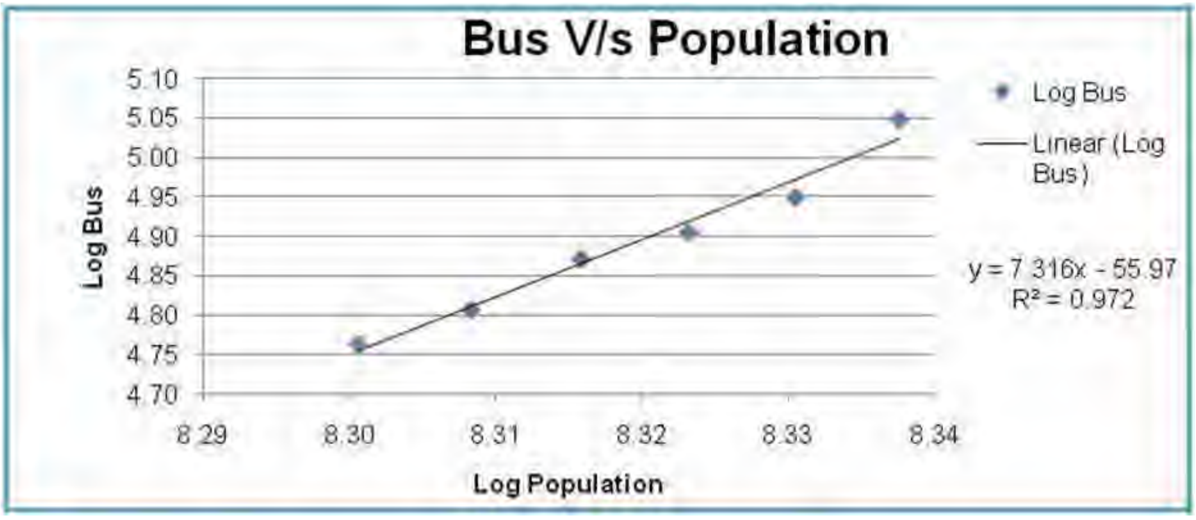

Figure 5-2: Regression and Elasticity Population vs. Bus – Extrapolation Uttar Pradesh

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-3 : LCV Traffic Vs NSDP Uttar Pradesh

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	645132	176164	5.81	5.25		
2013	673552	213657	5.83	5.33	4%	
2014	707469	265025	5.85	5.42	5%	
2015	729686	294022	5.86	5.47	3%	
2016	792049	316815	5.90	5.50	9%	5.28%

Following figure depict regression analysis and extrapolation.

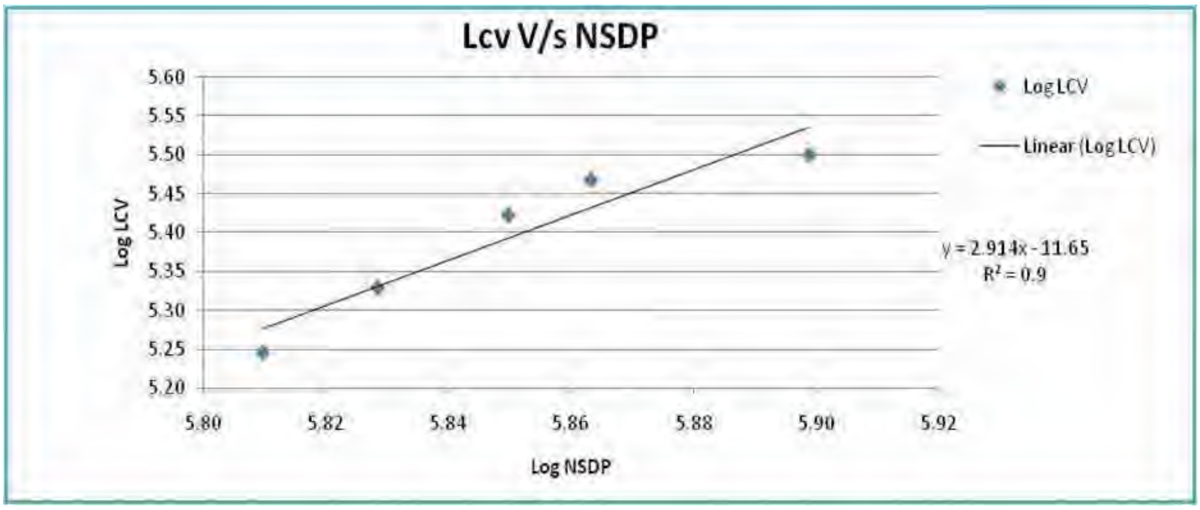

Figure 5-3: Regression and Elasticity NSDP vs. LCV Traffic – extrapolation Uttar Pradesh

Table 5-4 : Truck Traffic Vs NSDP Uttar Pradesh

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	645132	162813	5.81	5.21		
2013	673552	186404	5.83	5.27	4%	
2014	707469	202761	5.85	5.31	5%	
2015	729686	217609	5.86	5.34	3%	
2016	792049	245688	5.90	5.39	9%	
2017	883962	265167	5.95	5.42	12%	6.55%

Following figure depict regression analysis and extrapolation.

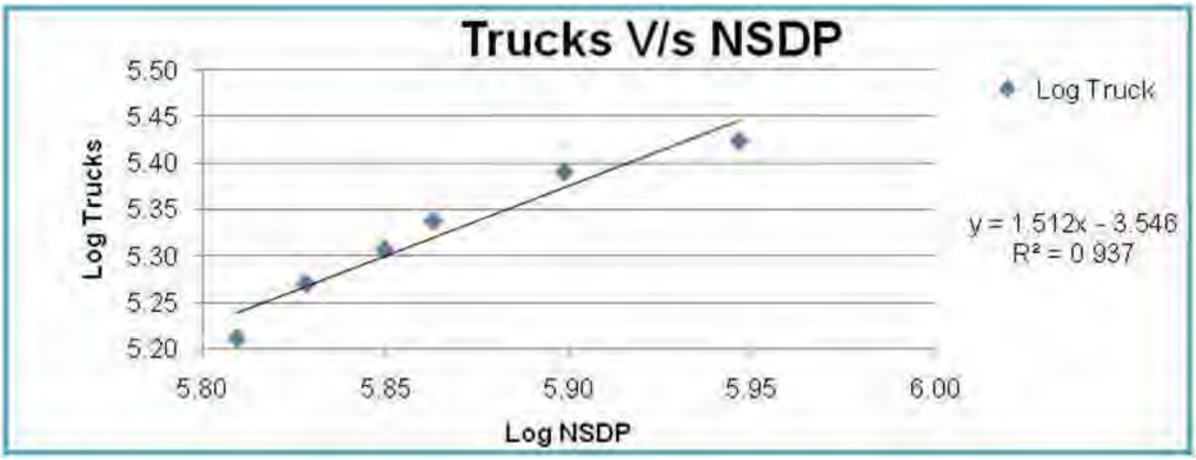

Figure 5-4: Regression and Elasticity NSDP vs. Truck Traffic – extrapolation Uttar Pradesh

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below

Table 5-5 : Summary Regression Analysis Uttar Pradesh

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average IV Growth (5yrs)	Growth Elastic Model	Remarks
Uttar Pradesh	Car/Jeep	PCI	y = 2.499x + -5.1874	R^2 = 0.922	2.4990	4.94%	12.34%	Good Regression
	Bus	Population	y = 7.3167x - -55.9791	R^2 = 0.9726	7.3167	1.72%	12.56%	Good Regression
	LCV	NSDP	y = 2.9149x - -11.6585	R^2 = 0.9	2.9149	5.28%	15.40%	Good Regression
	Truck	NSDP	y = 1.5121x - -3.5463	R^2 = 0.9373	1.5121	6.55%	9.90%	Good Regression

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Delhi State.

Table 5-6 : Per Capita Income Vs Car Delhi

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	185361	2172069	5.27	6.34		
2013	193175	2416974	5.29	6.38	4%	
2014	202216	2568380	5.31	6.41	5%	
2015	215726	2730071	5.33	6.44	7%	
2016	235737	2986579	5.37	6.48	9%	
2017	247255	3061817	5.39	6.49	5%	5.95%

Regression analysis of same is given in figure below

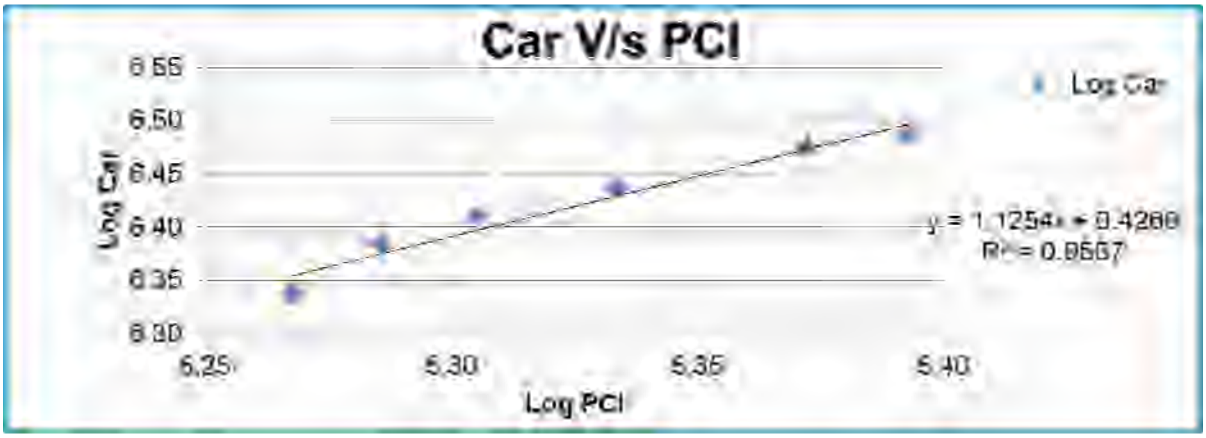

Figure 5-5: Regression and Elasticity PCI vs. Car–Extrapolation Delhi

Table 5-7 : Population Vs Bus Delhi

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	16787941	109790	7.22	5.04		
2013	17071599	19917	7.23	4.30	2%	
2014	17354281	19595	7.24	4.29	2%	
2015	17635897	19700	7.25	4.29	2%	
2016	17916359	43723	7.25	4.64	2%	
2017	18195583	41686	7.26	4.62	2%	1.62%

Regression analysis of same is given in figure below

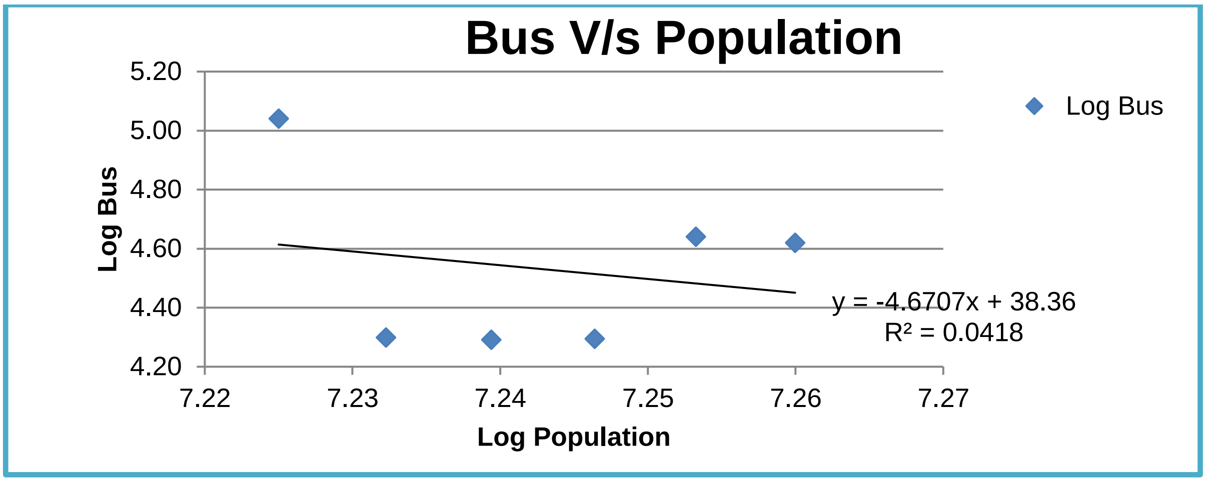

Figure 5-6: Regression and Elasticity Population vs. Bus – Extrapolation Delhi

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-8 : LCV Traffic Vs NSDP Delhi

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth (5 Year)
2012	314650	124547	5.50	5.10		
2013	334193	126539	5.52	5.10	6%	
2014	356528	136110	5.55	5.13	7%	
2015	387639	145903	5.59	5.16	9%	
2016	431730	183486	5.64	5.26	11%	
2017	461476	221068	5.66	5.34	7%	7.98%

Following figure depict regression analysis and extrapolation.

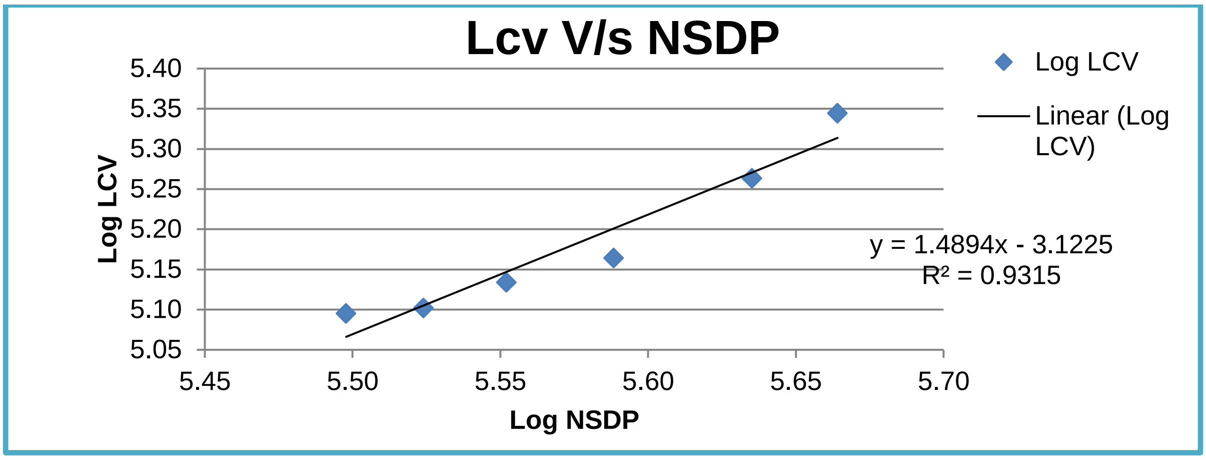

Figure 5-7: Regression and Elasticity NSDP vs. LCV Traffic – extrapolation Delhi

Table 5-9 : Truck Traffic Vs NSDP Delhi

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	314650	4792	5.50	3.68		
2013	334193	5176	5.52	3.71	6%	
2014	356528	6093	5.55	3.78	7%	
2015	387639	7503	5.59	3.88	9%	
2016	431730	8703	5.64	3.94	11%	
2017	461476	10440	5.66	4.02	7%	7.98%

Following figure depict regression analysis and extrapolation.

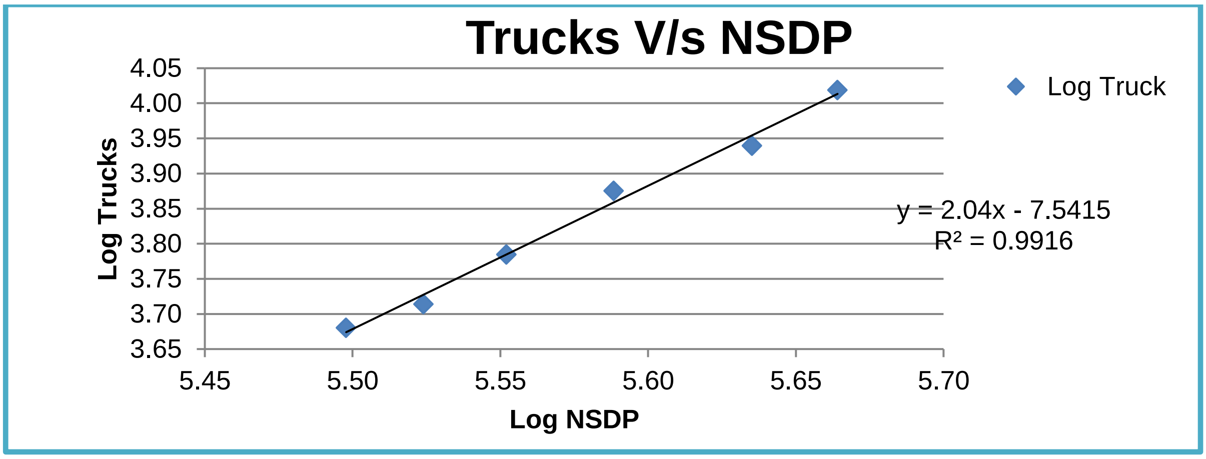

Figure 5-8: Regression and Elasticity NSDP vs. Truck Traffic – extrapolation Delhi

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below

Table 5-10 : Summary Regression Analysis Delhi

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average IV Growth (5yrs)	Growth Elastic Model	Remarks
Delhi	Car/Jeep	PCI	y = 1.1254x + 0.4266	R² = 0.9567	1.1254	5.95%	6.69%	Good Regression
	Bus	Population	y = -4.6707x - 38.36	R² = 0.0418	-4.6707	1.62%	-7.58%	Poor Regression
	LCV	NSDP	y = 1.4894x - -3.1225	R² = 0.9315	1.4894	7.98%	11.88%	Good Regression
	Truck	NSDP	y = 2.04x - -7.5415	R² = 0.9916	2.0400	7.98%	16.27%	Good Regression

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Haryana State.

Table 5-11 : Per Capita Income Vs Car Haryana

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	106085	989519	5.03	6.00		
2013	111780	1134616	5.05	6.05	5%	
2014	119791	1278272	5.08	6.11	7%	
2015	125032	1420621	5.10	6.15	4%	
2016	137818	1711692	5.14	6.23	10%	
2017	150241	1851788	5.18	6.27	9%	7.23%

Regression analysis of same is given in figure below

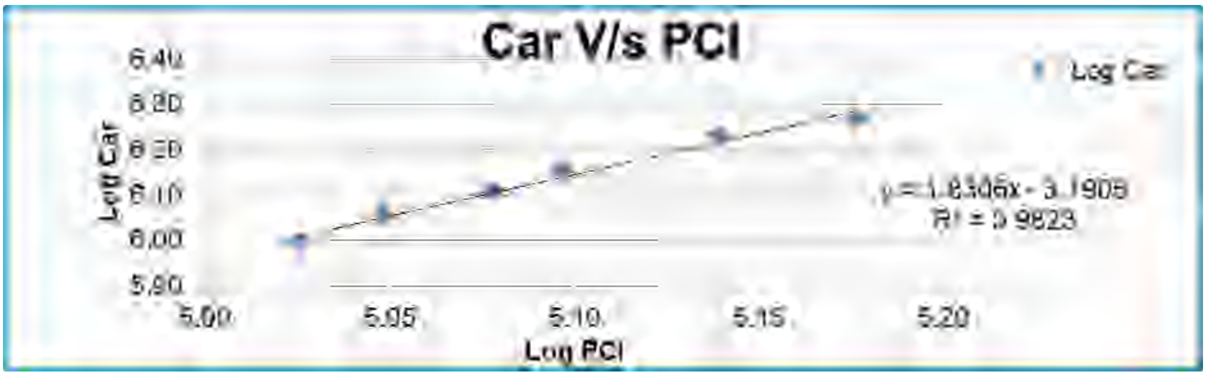

Figure 5-9: Regression and Elasticity PCI vs. Car–Extrapolation Haryana

Table 5-12 : Population Vs Bus Haryana

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	25351462	39153	7.40	4.59		
2013	25751257	43456	7.41	4.64	2%	
2014	26149236	46558	7.42	4.67	2%	
2015	26545282	52640	7.42	4.72	2%	
2016	26939286	55781	7.43	4.75	1%	
2017	27331141	60129	7.44	4.78	1%	1.52%

Regression analysis of same is given in figure below

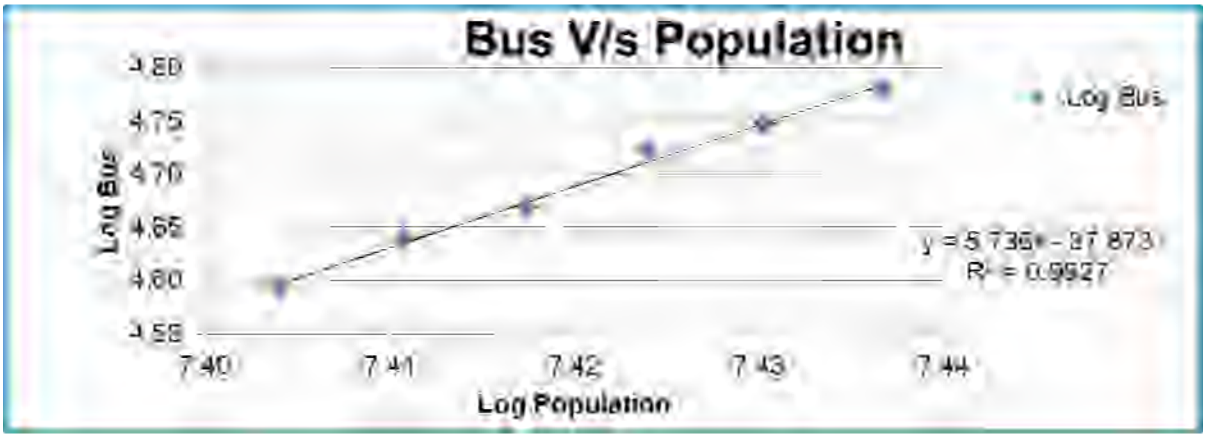

Figure 5-10: Regression and Elasticity Population vs. Bus – Extrapolation Haryana

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-13 : LCV Traffic Vs NSDP Haryana

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth (5 Year)
2012	271152	124897	5.43	5.10		
2013	289756	137511	5.46	5.14	7%	
2014	314931	152069	5.50	5.18	9%	
2015	333359	167901	5.52	5.23	6%	
2016	372659	182776	5.57	5.26	12%	

Following figure depict regression analysis and extrapolation.

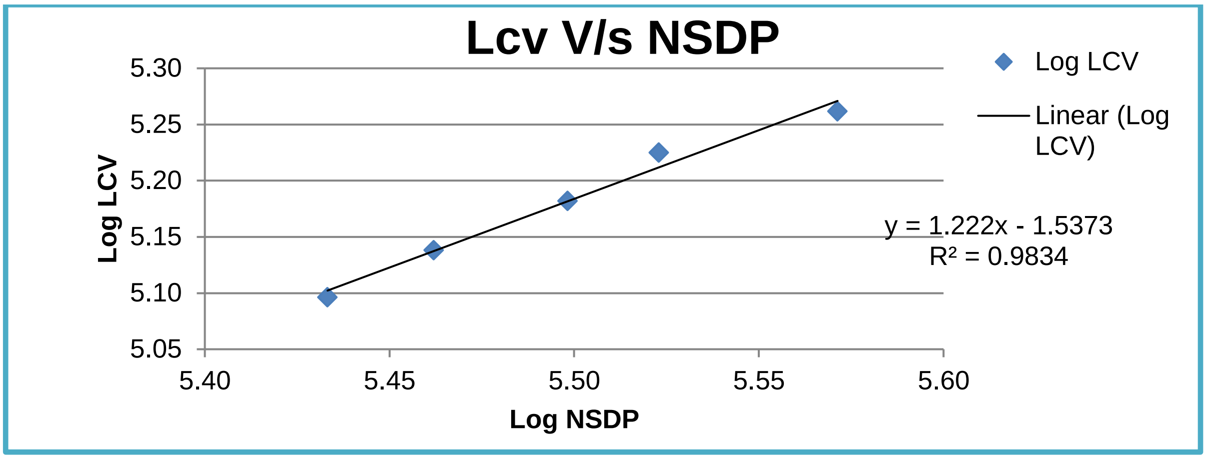

Figure 5-11: Regression and Elasticity NSDP vs. LCV Traffic – extrapolation Haryana

Table 5-14 : Truck Traffic Vs NSDP Haryana

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	271152	292735	5.43	5.47		
2013	289756	307509	5.46	5.49	7%	
2014	314931	327882	5.50	5.52	9%	
2015	333359	348732	5.52	5.54	6%	
2016	372659	367730	5.57	5.57	12%	
2017	412006	390321	5.61	5.59	11%	8.75%

Following figure depict regression analysis and extrapolation.

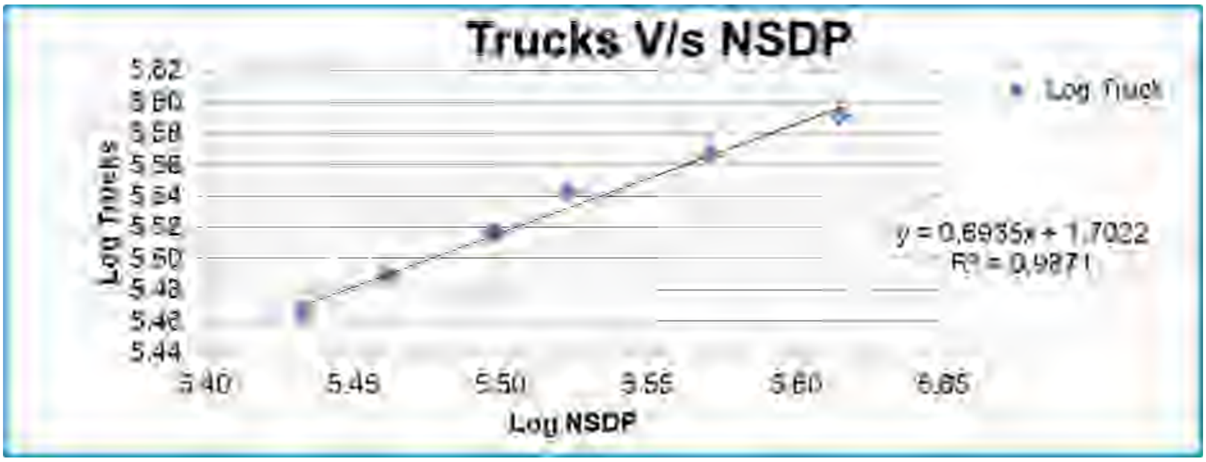

Figure 5-12: Regression and Elasticity NSDP vs. Truck Traffic – extrapolation Haryana

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below

Table 5-15 : Summary Regression Analysis Haryana

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average IV Growth (5yrs)	Growth Elastic Model	Remarks
Haryana	Car/Jeep	PCI	y = 1.8306x + -3.1905	R^2 = 0.9823	1.8306	7.23%	13.24%	Good Regression
	Bus	Population	y = 5.736x - -37.8732	R^2 = 0.9927	5.7360	1.52%	8.69%	Good Regression
	LCV	NSDP	y = 1.222x - -1.5373	R^2 = 0.9834	1.2220	8.30%	10.14%	Good Regression
	Truck	NSDP	y = 0.6935x - 1.7022	R^2 = 0.9871	0.6935	8.75%	6.07%	Good Regression

Economical model for predicting growth is good tool, however other local, regional, national factors should also be considered before finalizing growth factors. Considering factors such as proposed developments and other influencing economic factors, moderated growth should be considered. These factors are discussed in subsequent sections.

5.4 Analysis of Historic Traffic Data

Historical traffic data forms useful information for any highway project. It provides useful information for establishing past trend of growth. Project stretch of Agra to Etawah has recently been commissioned and is under tolling operation since 2016-17. As traffic data available with the project concessionaire of three years, we do not have sufficient data points to be able to establish a reliable past trend of traffic growth. Moreover part two years traffic is affected by COVID-19 impact. A minimum of about 5 -6 years' traffic data is required for establishing a reliable past trend.

5.5 Other Factors Influencing Growth

There are many factors which have impact on traffic growth. As discussed previously these factors can be economical, social, educational, and industrial.

Potentiality of such factors for project highway is discussed as under.

ECONOMY

After witnessing a slowdown during 2011-12, the economy recovered in 2013-14, and a high growth rate of GDP was recorded in up to 2018-19. Pandemic of COVID-19 impacted all economies of world including India. Following figure show trend of GDP growth in India.

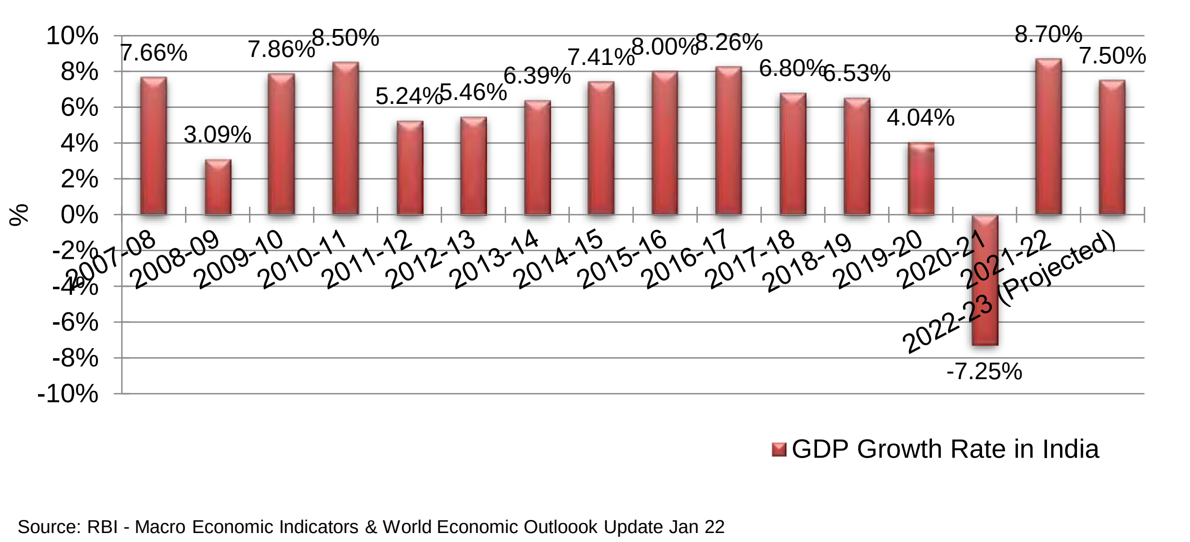

Figure 5-13 : Growth of GDP in India

FY 2017-18 recorded a growth of 6.7% which had slight impact of GST and demonetization. Indian economy appears on recovery path with estimated growth of 6.8% in FY 2018-19. Government took major policy decision including tax infrastructure reforming, banking sector improvement and ease of doing business.

Major economies of world collapsed due to pandemic COVID-19 including India. Indian economy is also registered negative growth in financial year 2020-21. After that Indian economy recovered handsomely and registered a growth of about 9% in Year 2021-22. This was partly due to low base of year 2020-21 as well.

Honorable Prime Minister has announced a major relief package of Rs. 20 lakh crores which is about 10% of GDP. This is aimed at turning this major crisis of COVID-19 into opportunity by providing major impetus to industrial production to the limit of becoming a self-reliant economy. With major thrust of this package being on **Make -In- India** it is expected that industry in India would grow at rapid pace and recover handsomely in post COVID-19 scenario. World Economic Outlook update also has predicted a growth rate of about 7.5 % in year 2022-23.

5.6 Developments along and around the Project Corridor & State

Though growth of Delhi has been consistently below the national average economic growth, it is the largest state in terms of population and consumption driven demand for goods and services will remain significantly high. The rate of growth of NSDP also seems to be catching up with the national average over the years. Other regions in the influence area states namely Delhi, Haryana and Uttarakhand are all growing significantly faster than the national average. Considering the scenario, it may be assumed that the traffic growth on project highway would remain high and there are minimal risks in terms of growth.

Table 5-16 : GDP of India, UP and other important states

Year	India (GDP)	Bihar	Haryana	Madhya Pradesh	Maharashtra	Odisha	Punjab	Rajasthan	Uttar Pradesh	Uttarakhand	West Bengal	Delhi
1980-81	12336	514	357	623	1464	529	504	560	1631	138	830	269
1981-82	13030	543	371	639	1498	528	551	607	1670	141	808	291
1982-83	13411	548	394	668	1556	497	568	620	1800	152	840	328
1983-84	14464	601	402	702	1654	597	578	761	1871	158	939	320
1984-85	15037	658	418	668	1675	569	623	706	1900	161	964	333
1985-86	15663	672	493	726	1807	635	670	704	1975	167	1005	386
1986-87	16339	725	493	694	1832	643	694	771	2060	174	1045	411
1987-88	16917	685	484	789	1955	623	730	718	2154	182	1101	447
1988-89	18635	772	602	847	2159	754	769	1014	2434	206	1148	486
1989-90	19778	759	610	865	2515	805	834	993	2502	212	1188	531
1990-91	20824	831	674	987	2629	668	849	1149	2651	224	1251	553
1991-92	21122	784	688	916	2620	753	888	1061	2662	225	1349	638
1992-93	22254	737	688	983	3017	740	930	1220	2690	228	1389	660
1993-94	23519	755	719	1088	3349	788	970	1121	2757	233	1490	705
1994-95	25023	842	771	1107	3414	826	995	1325	2901	254	1594	790
1995-96	26846	712	787	1174	3791	864	1032	1374	2995	251	1713	804
1996-97	28987	893	879	1252	3941	804	1107	1535	3327	267	1832	915
1997-98	30234	850	887	1318	4158	920	1137	1721	3292	270	1985	1063
1998-99	32255	904	934	1405	4324	948	1203	1797	3316	274	2112	1116
1999-00	34837	950	1002	1552	4735	1008	1267	1801	3440	274	2264	1170
2000-01	36282	1106	1081	1426	4589	982	1309	1743	3511	308	2343	1215
2001-02	38236	1043	1165	1528	4751	1042	1326	1941	3575	323	2512	1262
2002-03	39719	1175	1236	1449	5079	1034	1348	1708	3690	353	2600	1359
2003-04	42883	1099	1358	1611	5471	1185	1433	2251	3885	381	2753	1433
2004-05	45906	1238	1475	1664	5948	1340	1504	2196	4079	431	2936	1588
2005-06	50257	1207	1608	1748	6810	1399	1577	2344	4317	492	3121	1752
2006-07	55066	1416	1791	1907	7748	1574	1748	2620	4660	551	3366	1969
2007-08	60199	1489	1931	1997	8650	1708	1899	2739	4959	648	3627	2191
2008-09	64248	1716	2080	2250	8786	1837	2004	2969	5336	716	3774	2464
2009-10	69769	1798	2340	2463	9634	1852	2132	3142	5668	839	4067	2667
2010-11	75987	2073	2498	2592	10732	1968	2270	3614	6120	927	4313	2888
2011-12	81069	2285	2712	2824	11222	2042	2392	3953	6451	1020	4471	3147
2012-13	85463	2369	2894	3069	11842	2163	2518	4098	6736	1095	4838	3342
2013-14	90636	2469	3142	3226	12671	2331	2675	4343	7075	1178	5247	3565
2014-15	97121	2557	3314	3394	13322	2359	2777	4656	7297	1257	5633	3882

Year	India (GDP)	Bihar	Haryana	Madhya Pradesh	Maharashtra	Odisha	Punjab	Rajasthan	Uttar Pradesh	Uttarakhand	West Bengal	Delhi
2015-16	105033	2749	3612	3597	14417	2557	2926	4981	7894	1355	-	4291
2016-17	112476	3033	3927	4129	15744	2828	3095	5352	8457	1448	-	4658
2017-18	119762	-	-	4432	-	3029	-	5736	9011	1547	-	5035
Growth 1981-2018	6.34	5.05	6.88	5.44	6.82	4.83	5.17	6.49	4.73	6.75	5.79	8.24
Growth 1994-2018	7.02	6.23	7.66	6.03	6.96	5.77	5.17	7.04	5.06	8.20	6.54	8.53
Growth 2000-2018	7.10	7.07	8.37	6.00	7.32	6.30	5.40	6.65	5.50	10.10	6.27	8.45

5.6.1 Industrial Units along Project Corridor

There are number of big and small industrial units along project corridor. Following figure show some of these along corridor.

Figure 5-14 : Industrial Units along project corridor

Following is the list of industrial units along project corridor

1. Leather Park, **Agra**
2. Export Promotional Industrial Park (EPIP)
3. Foundry Nagar (BK Casting, Agricultural Industries, Paint Industries, Plastic Industries, Metal Industries), **Agra**
4. Industrial Estate, **Agra**
5. Agarbatti Industry
6. Glass Industries, **Firozabad**

7. Pipe Industries, Glass Bulb Industries
8. Agro Industries, Glass Industries, Cold Storage
9. Food Processing Industries
10. PVC Pipe Industries
11. Rural Industrial Estate, **Jaswant Nagar**
12. **Etawah**(Caplock Industries Private Limited, Rice Mills)

Such industries along project corridor and urban development around major cities of Firozabad, Tundla, Shikohabad, Jaswantnagar and Wtawah provide impetus to project traffic on corridor.

5.7 Recommended Growth Rates of Traffic

Based on the above analysis and after giving due consideration to the entire listed factors, the following overall growth rates are recommended for each category of vehicle as under. Rate of growth is moderated in light of overall regional trend. Growth of Multi-Axle is kept slightly higher as trend of technological advances in logistic industry favors multi-axle over 2/3 axle carriage. It is also expected that as the economy moves from developing to developed, rate of growth diminishes. Same growth rate is not sustainable for long. Hence growth rates have been suitably stepped down in future years.

Growth rates are recommended for three scenarios for sensitivity analysis namely **Optimistic, Pessimistic** and **Most Likely** with a positive and negative variation from Most Likely case for corridor in both states.

5.7.1 Recommended Growth Rates of Traffic for Project Stretch

Table 5-17 : Recommended Growth Rates Optimistic

Category / Year	2022-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
Car/Jeep/Van	8.96%	8.75%	8.71%	7.42%	6.23%	5.15%
Bus	4.86%	4.70%	4.68%	3.29%	2.58%	1.95%
LCV	5.91%	5.71%	5.65%	4.63%	3.71%	3.16%
2- Axle	6.25%	6.07%	6.01%	5.06%	4.20%	3.42%
3 - Axle	6.59%	6.39%	6.33%	5.32%	4.41%	3.59%
4 to 6 Axle	6.93%	6.72%	6.64%	5.58%	4.62%	3.76%
7 and Above Axle	6.93%	6.72%	6.64%	5.58%	4.62%	3.76%

Table 5-18 : Recommended Growth Rates Pessimistic

Category / Year	2022-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
Car/Jeep/Van	8.46%	8.25%	8.21%	6.92%	5.73%	4.65%
Bus	4.36%	4.20%	4.18%	2.79%	2.08%	1.45%
LCV	5.41%	5.21%	5.15%	4.13%	3.21%	2.66%
2- Axle	5.75%	5.57%	5.51%	4.56%	3.70%	2.92%
3 - Axle	6.09%	5.89%	5.83%	4.82%	3.91%	3.09%
4 to 6 Axle	6.43%	6.22%	6.14%	5.08%	4.12%	3.26%
7 and Above Axle	6.43%	6.22%	6.14%	5.08%	4.12%	3.26%

Table 5-19 : Recommended Growth Rates Most Likely

Category / Year	2022-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
Car/Jeep/Van	8.71%	8.50%	8.46%	7.17%	5.98%	4.90%
Bus	4.61%	4.45%	4.43%	3.04%	2.33%	1.70%
LCV	5.66%	5.46%	5.40%	4.38%	3.46%	2.91%
2- Axle	6.00%	5.82%	5.76%	4.81%	3.95%	3.17%
3 - Axle	6.34%	6.14%	6.08%	5.07%	4.16%	3.34%
4 to 6 Axle	6.68%	6.47%	6.39%	5.33%	4.37%	3.51%
7 and Above Axle	6.68%	6.47%	6.39%	5.33%	4.37%	3.51%

With completion of project corridor and removal of bottlenecks as discussed in previous chapter, certain part of traffic would return to project road which had started using Agra - Lucknow Expressway as preferred route. This also has been considered while estimating future traffic and revenue on project road.

Traffic and revenue has been worked out on the basis of above growths and same is presented in subsequent chapter of report.

5.8 COVID-19 Impact

All social and economic activities had been completely disrupted due worldwide pandemic of Corona Virus. This had affected traffic on project stretch as well. Traffic was severely affected form March-2020 due to lockdown and then in second wave and third waves.

Government has announced a mega economic stimulate and package of Rs. 20 Lakh Crore to bring the economy back on track and recover the losses. Traffic has shown impressive recovery post lockdown period and has recovered to normal level.

CHAPTER 6
TRAFFIC FORECAST

6.1 Traffic Projections

Growth rates recommended in previous section of report are used to arrive at traffic projections for future years. Toll plaza wise futuristic traffic projection is given in tables below.

These projections have been done for following three cases of growth up to concession period

1. Optimistic Scenario
2. Pessimistic Scenario
3. Most Likely Scenario

Table 6-1 : Total Tollable Traffic @ Toll Plaza 1- Chainage 224.95 KM (Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2022-23	9515	1141	1155	1799	919	2335	17	16880	33428
2023-24	10367	1209	1211	1911	979	2497	18	18192	35801
2024-25	11295	1281	1270	2030	1043	2670	19	19608	38346
2025-26	12283	1354	1330	2153	1110	2849	20	21099	41004
2026-27	13358	1431	1392	2283	1181	3040	21	22706	43847
2027-28	14527	1513	1457	2421	1256	3244	22	24440	46896
2028-29	15799	1599	1525	2567	1336	3462	23	26311	50164
2029-30	17182	1690	1597	2722	1421	3695	25	28332	53677
2030-31	18678	1785	1671	2885	1510	3941	27	30497	57410
2031-32	20304	1886	1749	3058	1605	4203	29	32834	61413
2032-33	22073	1993	1830	3242	1706	4482	31	35357	65705
2033-34	23997	2106	1915	3436	1814	4779	33	38080	70305
2034-35	26086	2225	2005	3642	1929	5097	35	41019	75246
2035-36	28022	2328	2071	3826	2032	5381	37	43697	79682
2036-37	30101	2435	2139	4019	2140	5682	39	46555	84392
2037-38	32334	2548	2209	4222	2254	6000	41	49608	89396
2038-39	34733	2665	2281	4436	2374	6335	43	52867	94705
2039-40	37310	2788	2355	4660	2500	6689	45	56347	100340
2040-41	39636	2891	2416	4855	2610	6998	47	59453	105318
2041-42	42107	2998	2478	5058	2725	7322	49	62737	110557
2042-43	44732	3109	2541	5270	2845	7660	51	66208	116063
2043-44	47520	3224	2607	5491	2970	8014	53	69879	121862
2044-45	50483	3343	2674	5722	3101	8384	55	73762	127964
2045-46	53082	3449	2727	5917	3212	8699	57	77143	133226
2046-47	55815	3558	2780	6119	3327	9026	59	80684	138713

Table 6-2 : TotalTollable Traffic @ Toll Plaza 2- Chainage 285.20 KM

(Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercia l vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2022-23	3524	784	517	1453	860	2367	4	9509	23860
2023-24	3840	830	542	1544	917	2532	4	10209	25506
2024-25	4184	879	568	1641	977	2708	4	10961	27265
2025-26	4550	929	595	1740	1039	2890	4	11747	29089
2026-27	4948	982	623	1845	1106	3085	4	12593	31044
2027-28	5380	1038	653	1957	1177	3293	4	13502	33135
2028-29	5850	1097	684	2076	1253	3514	4	14478	35366
2029-30	6362	1160	716	2202	1333	3750	4	15527	37748
2030-31	6916	1225	750	2334	1417	3999	4	16645	40270
2031-32	7518	1294	785	2474	1507	4265	4	17847	42968
2032-33	8173	1367	822	2622	1603	4548	4	19139	45849
2033-34	8885	1444	860	2780	1704	4850	4	20527	48926
2034-35	9659	1526	900	2947	1812	5172	4	22020	52217
2035-36	10377	1596	930	3096	1909	5461	4	23373	55169
2036-37	11147	1670	961	3252	2010	5766	4	24810	58286
2037-38	11973	1747	992	3417	2117	6088	4	26338	61586
2038-39	12862	1828	1024	3590	2229	6428	4	27965	65077
2039-40	13816	1913	1058	3772	2348	6787	4	29698	68779
2040-41	14676	1984	1085	3931	2451	7101	4	31232	72026
2041-42	15591	2057	1113	4096	2559	7429	4	32849	75429
2042-43	16563	2134	1141	4268	2672	7773	4	34555	79004
2043-44	17595	2213	1171	4447	2790	8132	4	36352	82751
2044-45	18693	2295	1201	4634	2913	8507	4	38247	86679
2045-46	19655	2368	1224	4793	3017	8827	4	39888	90049
2046-47	20667	2442	1248	4957	3125	9159	4	41602	93554

Table 6-3 : Total Tollable Traffic @ Toll Plaza 1- Chainage 224.95 KM
(Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversize d Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2022-23	9515	1141	1155	1799	919	2335	17	16880	33428
2023-24	10320	1203	1205	1902	975	2485	18	18108	35634
2024-25	11194	1269	1258	2011	1034	2645	19	19430	37995
2025-26	12118	1335	1311	2123	1095	2810	20	20812	40443
2026-27	13119	1405	1366	2240	1159	2984	21	22294	43044
2027-28	14202	1478	1423	2364	1227	3169	22	23885	45821
2028-29	15375	1555	1483	2496	1299	3366	23	25597	48792
2029-30	16644	1636	1545	2634	1376	3575	24	27434	51959
2030-31	18010	1720	1609	2779	1456	3795	25	29394	55312
2031-32	19488	1808	1676	2932	1540	4028	27	31499	58892
2032-33	21087	1900	1745	3094	1629	4275	29	33759	62709
2033-34	22819	1998	1818	3264	1724	4538	31	36192	66795

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversize d Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2034-35	24693	2101	1893	3444	1824	4816	33	38804	71148
2035-36	26404	2187	1946	3601	1912	5061	35	41146	74994
2036-37	28231	2278	2000	3765	2004	5318	37	43633	79053
2037-38	30184	2372	2055	3936	2100	5588	39	46274	83337
2038-39	32273	2470	2112	4115	2201	5872	41	49084	87871
2039-40	34507	2571	2171	4303	2307	6171	43	52073	92670
2040-41	36486	2653	2216	4462	2397	6425	45	54684	96806
2041-42	38579	2738	2261	4626	2491	6690	47	57432	101137
2042-43	40791	2826	2308	4797	2589	6966	49	60326	105680
2043-44	43129	2917	2356	4974	2690	7253	51	63370	110433
2044-45	45601	3011	2405	5158	2795	7552	53	66575	115414
2045-46	47722	3091	2440	5308	2881	7798	55	69295	119584
2046-47	49941	3173	2476	5463	2970	8052	57	72132	123918

Table 6-4 : Total Tollable Traffic @ Toll Plaza 2- Chainage 285.20KM (Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2022-23	3524	784	517	1453	860	2367	4	9509	23860
2023-24	3823	826	539	1537	912	2520	4	10161	25384
2024-25	4147	871	562	1626	968	2682	4	10860	27009
2025-26	4489	916	585	1716	1025	2849	4	11584	28680
2026-27	4859	963	609	1812	1085	3026	4	12358	30457
2027-28	5259	1013	635	1912	1149	3214	4	13186	32348
2028-29	5693	1066	662	2018	1217	3414	4	14074	34364
2029-30	6162	1121	690	2130	1289	3627	4	15023	36510
2030-31	6668	1179	718	2247	1365	3850	4	16031	38770
2031-32	7215	1239	748	2371	1445	4086	4	17108	41171
2032-33	7807	1303	779	2502	1529	4337	4	18261	43726
2033-34	8448	1370	811	2640	1618	4604	4	19495	46446
2034-35	9142	1440	845	2786	1712	4887	4	20816	49341
2035-36	9775	1499	868	2913	1794	5135	4	21988	51874
2036-37	10453	1561	892	3046	1881	5396	4	23233	54552
2037-38	11177	1625	916	3185	1972	5670	4	24549	57367
2038-39	11951	1692	942	3330	2067	5958	4	25944	60335
2039-40	12777	1761	968	3482	2167	6261	4	27420	63462
2040-41	13509	1817	988	3610	2251	6519	4	28698	66135
2041-42	14283	1876	1008	3743	2339	6788	4	30041	68931
2042-43	15101	1936	1029	3881	2430	7068	4	31449	71849
2043-44	15967	1999	1051	4025	2525	7360	4	32931	74907
2044-45	16882	2063	1073	4173	2624	7663	4	34482	78088
2045-46	17667	2118	1089	4294	2705	7912	4	35789	80730
2046-47	18488	2174	1105	4419	2788	8169	4	37147	83464

Traffic projections for Most Likely scenario are given as under

Table 6-5 : Total Tollable Traffic @ Toll Plaza 1-Tundla- Chainage 224.95 KM

(Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2022-23	9515	1141	1155	1799	919	2335	17	16880	33428
2023-24	10343	1206	1208	1907	977	2491	18	18150	35719
2024-25	11245	1275	1263	2021	1039	2657	19	19519	38169
2025-26	12202	1345	1319	2138	1102	2829	20	20955	40717
2026-27	13240	1418	1378	2262	1169	3012	21	22500	43443
2027-28	14365	1495	1439	2394	1241	3207	22	24163	46360
2028-29	15587	1577	1502	2532	1317	3415	23	25953	49477
2029-30	16911	1663	1569	2679	1398	3636	24	27880	52814
2030-31	18341	1752	1638	2833	1482	3869	26	29941	56356
2031-32	19893	1846	1710	2996	1571	4116	28	32160	60141
2032-33	21576	1945	1785	3168	1666	4379	30	34549	64191
2033-34	23402	2050	1864	3350	1767	4659	32	37124	68530
2034-35	25382	2160	1946	3543	1875	4957	34	39897	73174
2035-36	27202	2255	2005	3713	1970	5221	36	42402	77305
2036-37	29153	2353	2066	3892	2070	5499	38	45071	81683
2037-38	31243	2456	2128	4079	2175	5792	40	47913	86317
2038-39	33483	2563	2193	4275	2285	6101	42	50942	91230
2039-40	35883	2674	2259	4480	2400	6426	44	54166	96426
2040-41	38030	2766	2312	4656	2500	6707	46	57017	100972
2041-42	40306	2861	2366	4840	2604	7000	48	60025	105744
2042-43	42718	2960	2421	5030	2712	7306	50	63197	110749
2043-44	45273	3062	2477	5228	2825	7625	52	66542	116003
2044-45	47983	3167	2534	5434	2943	7958	54	70073	121521
2045-46	50334	3259	2577	5606	3041	8238	56	73111	126218
2046-47	52800	3354	2621	5783	3143	8527	58	76286	131105

Table 6-6 : Total Tollable Traffic @ Toll Plaza 2- Gurau - Chainage 285.20 KM
(Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2022-23	3524	784	517	1453	860	2367	4	9509	23860
2023-24	3831	828	541	1540	914	2526	4	10184	25443
2024-25	4165	875	566	1632	972	2695	4	10909	27133
2025-26	4519	922	592	1727	1032	2870	4	11666	28888
2026-27	4903	972	618	1827	1095	3055	4	12474	30747
2027-28	5319	1025	645	1933	1163	3252	4	13341	32732
2028-29	5771	1081	674	2045	1234	3462	4	14271	34849
2029-30	6262	1140	704	2164	1310	3686	4	15270	37111
2030-31	6791	1201	735	2289	1390	3922	4	16332	39502
2031-32	7365	1266	768	2421	1474	4172	4	17470	42045
2032-33	7988	1334	802	2560	1564	4439	4	18691	44761
2033-34	8664	1406	837	2707	1659	4722	4	19999	47649
2034-35	9397	1482	874	2863	1760	5024	4	21404	50737
2035-36	10071	1547	901	3001	1849	5292	4	22665	53477
2036-37	10793	1615	928	3146	1942	5574	4	24002	56365
2037-38	11567	1685	956	3298	2041	5871	4	25422	59417

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2038-39	12395	1759	985	3457	2144	6184	4	26928	62638
2039-40	13284	1836	1015	3623	2253	6514	4	28529	66042
2040-41	14078	1900	1038	3765	2346	6798	4	29929	68984
2041-42	14920	1965	1062	3913	2444	7095	4	31403	72070
2042-43	15813	2033	1087	4067	2546	7405	4	32955	75303
2043-44	16759	2103	1113	4228	2652	7728	4	34587	78687
2044-45	17762	2176	1139	4395	2762	8066	4	36304	82229
2045-46	18633	2239	1158	4534	2854	8349	4	37771	85218
2046-47	19546	2304	1177	4678	2949	8642	4	39300	88321

6.2 Modification in Concession Period

As per Article 29 of the concession agreement, if actual traffic on the project falls short or exceeds Target Traffic on project highway on defined date, concession period shall be modified subject to calculation stipulated therein. For Agra-Etawah project, the Target Date and Target Traffic are defined as under:

Target Date - 1st April 2025

Target Traffic - 52995 PCU

It was observed that as per traffic projections, average traffic volume falls short of target traffic in all scenarios. Probable extension of concession period is estimated according to article 29 of concession agreement which comes to about 5 years. Traffic forecast and revenue projections are done for probable extended period accordingly

Most Likely

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2025	52995	34849	-34%	51%	20%	24	4.8

Optimistic

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2025	52995	35099	-34%	51%	20%	24	4.8

Pessimistic

Target Year	Target Traffi	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)

	c						
2025	52995	34604	-35%	52%	20%	24	4.8

CHAPTER 7

FORECAST OF TOLL REVENUE

7.1 General

This chapter presents the tolling rate calculations, categories and toll revenue of the project.

7.2 Discount Categories

The fee schedule in the CA of Surat-Dahisar section of NH-8 is based on the old toll policy. As per the Toll Notification (Schedule -G) the discounts and special provisions have been considered. In addition to discounts as per Fee Notification concessionaire has declared special category rates also. Salient features of toll rate structure are given as under

1. Monthly Pass: For frequent user's monthly pass would be issued at fee 50 time the single journey fee at 2/3rd Rate.
2. Multiple Journeys (for Return Trip): Will be charged at 1.5 times single journey.
3. Single Journey: Full single journey toll would be charged to this category of vehicles who are infrequent travelers or whose frequency does not yield any discount from the above categories.
4. Local Discounts: Local Car Jeep Van -Rs. 275 per month (for locals residing within a radius of 20 kms from toll plaza). Additionally, local commercial vehicles are charged at 50% rate of single journey.

Building of inflation and escalation of rate on the basis of WPI are done as per toll notification (Schedule G) as given under as extract from concession agreement.

The formula for determining the applicable rate of fee shall be as follows:-

$$\text{Applicable rate of fee} = \text{base rate} + \text{base rate} \times \left\{ \frac{\text{WPI A} - \text{WPI B}}{\text{WPI B}} \right\} \times 0.4$$

Factor of inflation / growth has been incorporated as per Schedule R. WPI numbers (2011-12 series) are available up to 2021-22. A moderate growth in Wholesale Price Index (WPI) has been assumed after that. Following graph provides projection of rate of inflation (WPI) in India. Data has been taken from Office of Economic Advisor web site (www.eaindustry.nic.in). WPI for year 2017-18 and 2018-2019 is worked back by applying a correlation factor for 2004-05 series as 2017-18 and 2018-2019 data is available in 2011-12 series only. Ratio of WPI for year 2016-17 for both series is used for conversion of WPI in 2004-05 series

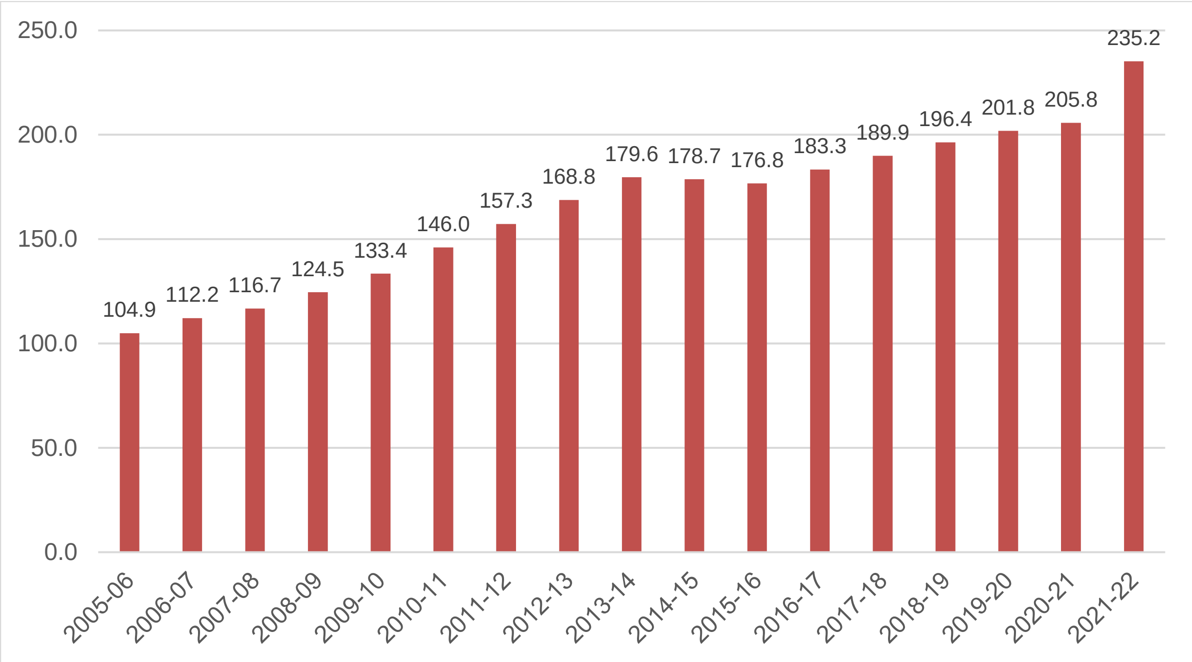

Figure 7-1 : Historical Rate of WPI Inflation in India

Average inflation in WPI in last few years is steadily growing. It grew in range of 4% - 5% in previous years. For future years initially it is takes 5% and Suitably Stepped down for future years.

Estimation of Toll Rates

As per the applicable MORTH notification and Schedule R of contract agreement, the following Base rate of fee for the categories mentioned in the table stands true in the National Highways Fee Rules applicable for contract.

Table 7-1 : Base Toll Rates June 2007-08

Type of Vehicle	Base Rate of Fee / Km (in Rs.)
Car, Jeep, Van or Light Motor Vehicle	0.65

Light Commercial Vehicle, Light Goods Vehicle or Mini Bus	1.05
Bus or Truck (Two Axles)	2.20
Three Axle Commercial Vehicles	2,40
Heavy Construction Machinery (HCM) or Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 axles)	3.45
Oversized Vehicles (7 or more Axles)	4.20

Toll rates are calculated as per guidelines provided in schedule R (rounded to nearest Rs.) for the concession period and are given below.

Thus, worked out rates for various categories of vehicle and discounts are given as under

Table 7-2 : Toll Rates for Single Journey@ Km 224.95

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	100	160	335	335	370
2023-24	105	170	355	355	385
2024-25	110	180	370	370	405
2025-26	115	185	390	390	425
2026-27	120	195	410	410	450
2027-28	125	205	430	430	470
2028-29	135	215	450	450	495
2029-30	140	225	475	475	515
2030-31	145	235	495	495	540
2031-32	155	250	520	520	570
2032-33	160	260	545	545	595
2033-34	170	275	570	570	625
2034-35	175	285	600	600	655
2035-36	185	300	630	630	685
2036-37	195	315	660	660	720
2037-38	205	330	695	695	755
2038-39	215	345	725	725	795
2039-40	225	365	765	765	835
2040-41	235	380	800	800	875
2041-42	250	400	840	840	915
2042-43	260	420	885	885	965
2043-44	275	445	925	925	1010
2044-45	290	465	975	975	1060
2045-46	300	490	1025	1025	1115
2046-47	315	515	1075	1075	1170

Table 7-3 : Toll Rates for Single Journey @ Km 285.20

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	105	175	365	365	395
2023-24	115	180	380	380	415
2024-25	120	190	400	400	440
2025-26	125	200	420	420	460
2026-27	130	210	445	445	485
2027-28	135	220	465	465	505
2028-29	145	230	485	485	530
2029-30	150	245	510	510	555
2030-31	160	255	535	535	585
2031-32	165	270	560	560	610
2032-33	175	280	590	590	640
2033-34	180	295	615	615	675
2034-35	190	310	645	645	705
2035-36	200	325	680	680	740
2036-37	210	340	710	710	775
2037-38	220	355	750	750	815
2038-39	230	375	785	785	855
2039-40	245	395	825	825	900
2040-41	255	410	865	865	945
2041-42	270	435	905	905	990
2042-43	280	455	955	955	1040
2043-44	295	475	1000	1000	1090
2044-45	310	500	1050	1050	1145
2045-46	325	525	1105	1105	1205
2046-47	340	555	1160	1160	1265

Table 7-4 : Toll Rates for Return Journey @ Km 224.95

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	150	240	505	505	550
2023-24	155	255	530	530	580
2024-25	165	265	560	560	610
2025-26	175	280	585	585	640
2026-27	180	295	615	615	675
2027-28	190	310	645	645	705
2028-29	200	325	675	675	740
2029-30	210	340	710	710	775
2030-31	220	355	745	745	810
2031-32	230	370	780	780	850
2032-33	240	390	820	820	895
2033-34	255	410	860	860	935
2034-35	265	430	900	900	980
2035-36	280	450	945	945	1030

2036-37	295	475	990	990	1080
2037-38	305	495	1040	1040	1135
2038-39	320	520	1090	1090	1190
2039-40	340	545	1145	1145	1250
2040-41	355	575	1200	1200	1310
2041-42	375	600	1260	1260	1375
2042-43	390	630	1325	1325	1445
2043-44	410	665	1390	1390	1515
2044-45	430	695	1460	1460	1595
2045-46	455	730	1535	1535	1675
2046-47	475	770	1610	1610	1760

Table 7-5 : Toll Rates for Return Journey @ Km 285.20

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	160	260	545	545	595
2023-24	170	275	575	575	625
2024-25	180	285	600	600	655
2025-26	185	300	635	635	690
2026-27	195	315	665	665	725
2027-28	205	335	695	695	760
2028-29	215	350	730	730	795
2029-30	225	365	765	765	835
2030-31	235	385	805	805	875
2031-32	250	400	840	840	920
2032-33	260	420	885	885	965
2033-34	275	440	925	925	1010
2034-35	285	465	970	970	1060
2035-36	300	485	1020	1020	1110
2036-37	315	510	1070	1070	1165
2037-38	330	535	1120	1120	1225
2038-39	350	560	1175	1175	1285
2039-40	365	590	1235	1235	1345
2040-41	385	620	1295	1295	1415
2041-42	400	650	1360	1360	1485
2042-43	420	680	1430	1430	1560
2043-44	445	715	1500	1500	1635
2044-45	465	750	1575	1575	1720
2045-46	490	790	1655	1655	1805
2046-47	515	830	1740	1740	1895

Table 7-6 : Toll Rates for Monthly pass Local @ 224.95

Year	Car	Mini Bus /LCV
2022-23	315	315
2023-24	330	330
2024-25	345	345
2025-26	365	365
2026-27	385	385
2027-28	400	400
2028-29	420	420
2029-30	440	440
2030-31	460	460
2031-32	485	485
2032-33	510	510
2033-34	535	535
2034-35	560	560
2035-36	585	585
2036-37	615	615
2037-38	645	645
2038-39	675	675
2039-40	710	710
2040-41	745	745
2041-42	785	785
2042-43	825	825
2043-44	865	865
2044-45	905	905
2045-46	955	955
2046-47	1000	1000

Table 7-7 : Toll Rates for Monthly pass Local @ 285.20

Year	Car	Mini Bus /LCV
2022-23	315	315
2023-24	330	330
2024-25	345	345
2025-26	365	365
2026-27	385	385
2027-28	400	400
2028-29	420	420
2029-30	440	440
2030-31	460	460
2031-32	485	485
2032-33	510	510
2033-34	535	535
2034-35	560	560
2035-36	585	585
2036-37	615	615
2037-38	645	645

2038-39	675	675
2039-40	710	710
2040-41	745	745
2041-42	785	785
2042-43	825	825
2043-44	865	865
2044-45	905	905
2045-46	955	955
2046-47	1000	1000

Table 7-8 : Toll Rates for Monthly Pass @ Km 224.95

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2022-23	3320	5365	11240	11240	12260
2023-24	3490	5635	11805	11805	12880
2024-25	3665	5920	12405	12405	13535
2025-26	3850	6220	13035	13035	14220
2026-27	4050	6540	13700	13700	14950
2027-28	4245	6855	14360	14360	15665
2028-29	4445	7185	15050	15050	16420
2029-30	4660	7530	15780	15780	17210
2030-31	4885	7895	16540	16540	18045
2031-32	5125	8275	17345	17345	18920
2032-33	5375	8680	18185	18185	19840
2033-34	5635	9105	19070	19070	20805
2034-35	5910	9545	20005	20005	21820
2035-36	6200	10015	20985	20985	22890
2036-37	6505	10505	22015	22015	24015
2037-38	6825	11025	23100	23100	25200
2038-39	7160	11570	24240	24240	26445
2039-40	7515	12140	25440	25440	27755
2040-41	7890	12745	26705	26705	29130
2041-42	8285	13380	28035	28035	30580
2042-43	8695	14050	29435	29435	32110
2043-44	9130	14750	30905	30905	33715
2044-45	9590	15490	32455	32455	35410
2045-46	10070	16270	34090	34090	37190
2046-47	10580	17090	35810	35810	39065

Table 7-9 : Toll Rates for Monthly Pass @ Km 285.20

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2022-23	3580	5785	12125	12125	13225
2023-24	3765	6080	12735	12735	13895
2024-25	3955	6385	13380	13380	14600
2025-26	4155	6710	14065	14065	15340
2026-27	4365	7055	14780	14780	16125
2027-28	4575	7395	15490	15490	16900
2028-29	4795	7750	16235	16235	17715
2029-30	5030	8125	17020	17020	18570
2030-31	5270	8515	17845	17845	19465
2031-32	5530	8930	18710	18710	20410
2032-33	5795	9365	19620	19620	21400
2033-34	6080	9820	20575	20575	22445
2034-35	6375	10300	21580	21580	23540
2035-36	6690	10805	22635	22635	24695
2036-37	7015	11335	23750	23750	25905
2037-38	7360	11895	24920	24920	27185
2038-39	7725	12480	26150	26150	28525
2039-40	8110	13100	27445	27445	29940
2040-41	8510	13750	28805	28805	31425
2041-42	8935	14435	30240	30240	32990
2042-43	9380	15155	31750	31750	34635
2043-44	9850	15910	33340	33340	36370
2044-45	10345	16710	35015	35015	38195
2045-46	10865	17550	36775	36775	40115
2046-47	11415	18435	38630	38630	42140

7.3 Toll Revenue

As indicated earlier, toll revenue on the Project Road has been calculated in all three scenarios based on above rates and projected traffic. The estimates of toll revenue under ***Optimistic***, ***Pessimistic*** and ***Most Likely*** growth scenarios are presented in the following section.

7.4 Toll Revenue at all toll plazas under Scenarios

Toll Revenue estimates under most likely scenario at each of the toll plaza up to 2024-25 (5 years from the end of original Concession Period) starting from the year 2022-23 are shown in tables below.

Table 7-10 : Toll Revenue Optimistic Scenario

(Rs. Crores)

Year	TP-1	TP2	Total
2022-23	100.37	122.08	**222.45**
2023-24	113.21	137.30	**250.51**
2024-25	126.83	154.26	**281.08**
2025-26	141.64	173.19	**314.83**
2026-27	159.10	193.76	**352.86**
2027-28	178.24	217.63	**395.87**
2028-29	198.93	244.30	**443.23**
2029-30	222.22	273.27	**495.49**
2030-31	249.03	305.83	**554.86**
2031-32	278.72	344.23	**622.96**
2032-33	311.60	383.70	**695.30**
2033-34	347.93	431.41	**779.34**
2034-35	388.73	482.08	**870.81**
2035-36	432.44	537.47	**969.91**
2036-37	476.90	596.04	**1072.94**
2037-38	528.99	660.38	**1189.37**
2038-39	586.77	733.04	**1319.81**
2039-40	653.11	818.68	**1471.79**
2040-41	715.19	896.59	**1611.78**
2041-42	786.16	990.37	**1776.53**
2042-43	863.43	1088.16	**1951.59**
2043-44	951.99	1202.74	**2154.73**
2044-45	1042.55	1321.58	**2364.13**
2045-46	1138.36	1444.53	**2582.89**

Table 7-11 : Toll Revenue Pessimistic Scenario

(Rs. Crores)

Year	TP-1	TP2	Total
2022-23	100.37	122.08	**222.45**
2023-24	112.69	136.66	**249.35**
2024-25	125.65	152.87	**278.52**
2025-26	139.66	170.82	**310.48**
2026-27	156.10	190.21	**346.31**
2027-28	173.97	212.64	**386.61**
2028-29	193.25	237.57	**430.82**
2029-30	214.86	264.45	**479.31**
2030-31	239.69	294.57	**534.26**
2031-32	267.04	330.03	**597.07**
2032-33	297.10	366.12	**663.23**
2033-34	330.19	409.73	**739.91**
2034-35	367.20	455.73	**822.93**
2035-36	406.48	505.75	**912.23**
2036-37	446.19	558.25	**1004.44**
2037-38	492.58	615.52	**1108.11**
2038-39	543.84	680.05	**1223.88**
2039-40	602.55	755.95	**1358.50**

Year	TP-1	TP2	Total
2040-41	656.70	824.02	**1480.72**
2041-42	718.41	905.90	**1624.31**
2042-43	785.22	990.54	**1775.76**
2043-44	861.70	1089.66	**1951.36**
2044-45	939.18	1191.54	**2130.72**
2045-46	1020.57	1296.11	**2316.68**

Table 7-12 : Toll Revenue Most Likely Scenario

(Rs. Crores)

Year	TP-1	TP2	Total
2022-23	100.37	122.08	**222.45**
2023-24	112.96	136.99	**249.94**
2024-25	126.27	153.56	**279.83**
2025-26	140.69	172.00	**312.68**
2026-27	157.63	191.94	**349.57**
2027-28	176.12	215.07	**391.19**
2028-29	196.12	240.84	**436.96**
2029-30	218.58	268.76	**487.35**
2030-31	244.42	300.09	**544.51**
2031-32	272.94	337.01	**609.95**
2032-33	304.28	374.74	**679.02**
2033-34	339.02	420.41	**759.43**
2034-35	377.88	468.62	**846.50**
2035-36	419.28	521.33	**940.61**
2036-37	461.30	576.87	**1038.17**
2037-38	510.49	637.57	**1148.07**
2038-39	564.91	706.11	**1271.02**
2039-40	627.29	786.77	**1414.06**
2040-41	685.29	859.65	**1544.93**
2041-42	751.58	947.28	**1698.86**
2042-43	823.49	1038.20	**1861.69**
2043-44	905.81	1144.81	**2050.63**
2044-45	989.59	1254.89	**2244.49**
2045-46	1078.01	1368.26	**2446.27**

CHAPTER 8

CONCLUSION & RECOMMENDATIONS

8.1 Conclusion & Recommendations

Project stretch of Agra to Etawah section of NH-2 in state of Delhi from km 199.660 to km 323.525 is currently six lane road. The road is in sound condition and serves healthy traffic volumes. Project corridor is a part of the most busy and prominent national highway NH-2 which connects political and cultural capitals of India. This is one of the most important trunk road which spreads across many states. There are large number of townships, industrial corridors and other business establishment coming up along project corridor. As discussed, dominant portion of traffic is long route traffic, which is more sensitive towards the growth of national economy. As Indian economy is poised to grow at 7%+ post COVID-19, the project corridor is expected to pick up the same trend in terms of traffic flow. All these developments have potential to give positive impact to traffic flow on project. The following can be considered as major outcomes of the study

a) There is good amount of tollable traffic running on project

b) Project corridor has potential to witness traffic growth @ 6-8% annually in near future due to various development in area and overall development of economy

c) Project corridor has committed traffic as long route traffic and does not run a risk of traffic leakage due to quality competing road

Based on above it can be considered a stable healthy project from traffic and revenue point of view.

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IRB
INFRASTRUCTURE TRUST

GULABPURA TO CHITTORGARH SECTION OF NH 79
(KM 90.000 TO KM 214.870)
IN THE STATE OF RAJASTHAN

TRAFFIC STUDY & REVENUE PROJECTION REPORT (FINAL)

JANUARY 2023

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CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

AADT	-	Annual Average Daily Traffic	**NHAI**	-	National Highway Authority of India
BOT	-	Build Operate Transfer	**NHDP**	-	National Highways Development Project
CAGR	-	Compound Annual Growth Rate	**NSDP**	-	Net State Domestic Product
CTV	-	Classified traffic volume	**O&M**	-	Operation & Maintenance
DBFOT	-	Design, Build, Finance, Operate & Transfer	**PCDP**	-	Per Capita Domestic Product
EME	-	Earth Moving Equipment	**PCI**	-	Per Capita Income
GDP	-	Gross Domestic Product	**PCU**	-	Passenger Car Unit
GSDP	-	Gross State Domestic Product	**PSC**	-	Pre-stressed Concrete
HCM	-	Heavy Construction Machinery	**RCC**	-	Reinforced cement concrete
HCV	-	Heavy Commercial Vehicle	**RHS**	-	Right Hand Side
HTMS	-	Highway Traffic Management System	**SH**	-	State Highway
IRC	-	Indian Road Congress	**TP**	-	Toll Plaza
IRR	-	Internal Rate of Return	**WPI**	-	Wholesale Price Index
LCV	-	Light Commercial Vehicle	**SIR**	-	Special Investment Region
LHS	-	Left Hand Side	**c.**	-	Circa
LGV	-	Light Goods Vehicle	**ROB**	-	Railway Over Bridge
MAV	-	Multi Axle Vehicle	**MDR**	-	Major District Road
MORTH	-	Ministry of Road Transport and Highways	**ODR**	-	Other District Road
NH	-	National Highway	**CA**	-	Concession Agreement
PCC	-	Plain Cement Concrete	**RMT**	-	Running Meter
CR	-	Coarse Rubble			

CHAPTER 1

INTRODUCTION

1.1 Background

The Government of India through National Highway Authority of India (NHAI) embarked upon a program to enhance the traffic capacity and safety for efficient transportation of goods as well as passenger traffic on National Highway Sections under NHDP Phase V. Under Phase V NHAI has planned to convert 6,500 km of existing 4-lane National Highways into 6-lane National Highway. Sections envisaged under 6-laning comprise the Golden Quadrilateral section (5,700 km) and some other sections which are 800 km in length.

The project under consideration, Six Laning of **Gulabpura** to **Chittorgarh** section of NH-79 from km 90.000 to km 214.870is one such road project NHAI intended to implement on a BOT basis in the DBFOT format. *M/s CG Tollway Ltd*. (Concessionaire) has been awarded the Project for a concession period of 20 years starting from 4th November 2017. The Project has been commissioned and is currently in the operation / maintenance phase for four laning. Six laning of project has also been completed in August 2021.

Length ofprojectroadis124.870Kms. The project road is section of NH-79, which connects Ajmer to Ghat Bilod. Project section of NH-79 passes through district of Bhiwara and Chittorgarh. Project road connects to Udaipur via NH-76.

Project road alignment passes through the towns/ built-up areas Fakirabad, Bhilwara, Gulabpura, & Chittorgarh. Following figure shows alignment of project road section from Gulabpura to Chittorgarh

Figure 1-1: Alignment of Project Stretch

1.2 Objective of the Study

M/s IRB INFRASTRUCTURE TRUST has engaged *GMD Consultants* to assess the future traffic and toll potential of project along with related operation & maintenance expenditure involved.

This report named as **"Traffic Study &*Toll Revenue Projection Report*"** mainly focuses on traffic and revenue aspects of the project. Other parameters like competing road, area developments etc. have been considered from a traffic development point of view.

1.2.1 Scope of Services

The broad scope of work covered in the assignment is as follows

a) Analysis of Traffic Growth
b) Toll Rate Growth
c) Revenue Forecasting

The Concessionaire has provided basic traffic data and other project details on the basis of which the above analysis has been carried out.

CHAPTER 2

PROJECT DETAILS

2.1 Project Corridor

National Highway 79 (NH 79) is important link for traffic connecting Delhi, Jaipur to Udaipur, Chittorgarh and down south.

It is one of the major north-south road connectivity for the traffic from northern states of Haryana, Punjab and Delhi to Industrial and tourist areas of Rajasthan like Jaipur, Chittorgarh, Udaipur and then to Dahod, Ratlam and other parts of Madhya Pradesh.

2.2 Project Stretch Description

Section of NH-79 from Gulabpura to Chittorgarh is part of major transportation link in the area connecting industrial / tourist cities of Jaipur, Bhilwara, Chitttorgar and Udaipur. Important cities of Firozabad, Shikohabad, and Jaswant Nagar fall on project alignment. Major mining industries of marble, Zink, felspar, quarts of Udaipur and textile industry of Bhiwara provide are major contributor of commercial traffic on project corridor. Additionally, Udaipur, Chittorgarh and Bhilwara major tourist centers of India. This adds substantial value for passenger traffic on project corridor section.

Like other parts of India rapid ribbon development is happening around these cities on project highway. This also contributes to sustainable traffic growth.

There are two operative toll plazas at project stretch. First is at Lambia Kalan at Km 121.020 and second at Jojro ka Khera at Km 184.020. Following figure show project alignment and toll plaza locations.

Figure 2-1: Project Alignment with Toll Plaza

2.3 Project Corridor Illustration

Six laning of project stretch is in progress and soon would be completed. Following photographs illustrate project section along the corridor.

Figure 2-2: Photographs showing Project Corridor

CHAPTER 3

TRAFFIC SURVEYS AND ANALYSIS

3.1 Traffic Surveys

The Consultants have collected the required information for project corridor to understand the general traffic and travel characteristics on the corridor.

The following traffic data has been collected from client for project.

- Classified traffic volume counts at toll plaza locations on Gulabpura-Chittorgarh section of NH-79 for year 2018-19, 2019-20, 2020-21, 2021-22 and Six-Monthly traffic data from April 2022 to September 2022.
- Local Component of traffic
- Component of Return Journey
- Component of Monthly Pass Journey

The main objective of the traffic data analysis is to:

- Determine the existing traffic movement characteristics of the project
- Establish base year traffic
- Identification of travel patterns and modal split of project traffic
- Deriving growth factors for traffic forecasting
- Estimation of corridor traffic including traffic diversion if any
- Preparation of revenue model and projection of revenue as per toll policy for various scenarios

Table 3-1below lists provides details of locations from where traffic details have been collected.

Table 3-1 : Traffic Data Details

SR. NO	LOCATION	CTV	Single Journey Traffic	Daily Return Journey	Monthly Pass	Local Pass
1	**Km 121.020 Toll Plaza at Lambia Kalan**	AADT for Year 2018-19, 2019-20, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-20, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-20, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-20, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-20, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22
2	**Km 184.020 Toll Plaza at Jojro ka Khera**	AADT for Year 2018-19, 2019-20, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-20, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-20, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-20, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-20, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22

3.2 Classified Traffic Volume

The objective of conducting a Classified Traffic Volume Count is to understand the traffic flow pattern including modal split on a roadway. The Classified Traffic Volume Count survey has been provided by the concessionaire of project highway from actual traffic data gathered at toll plaza locations based on monthly data shared with NHAI.

The vehicles can broadly be classified into fast moving / motorized and slow moving / non-motorized vehicles, which can be further classified into specific categories of vehicles. The groupings of vehicles are further segregated to capture the tollable vehicle categories specifically and toll exempted vehicles are counted separately. The detailed vehicle classification system as per IRC: 64-1990 is given in table below

Table 3-2 : Vehicle Classification System

Vehicle Type	
Auto Rickshaw	
Passenger Car	Car, Jeep, Taxi & Van (Old / new technology)
Bus	Mini Bus
	Standard Bus
Truck	Light Goods Vehicle (LCV)
	2 – Axle Truck
	3 Axle Truck (HCV)
	Multi Axle Truck (4-6 Axle)
	Oversized Vehicles (7 or more axles)
Other Vehicles	Agriculture Tractor, Tractor & Trailer

Source - IRC: 64 – 1990

However, since project highway is currently under toll operation, the data collected is corresponding to category of tollable vehicles. Following are the type of vehicles as per concession agreement.

- Car / Jeep / van
- Min Bus /LCV
- Bus
- Truck
- 3-Axle
- Multi Axle

3.3 Traffic Characteristic

Toll revenue of project highway does not solely depend on traffic volume. There are certain characteristics of traffic which have substantial potential to affect toll collection. Component of local traffic, component of passenger and commercial traffic, portion of return journey traffic, % of monthly pass traffic are some of such characteristics of traffic. These will be discussed in subsequent sections of report.

3.3.1 Traffic Data

Project concessionaire has provided Traffic data for year 2019-20,2020-21, 2021-22 and from April 2022 to September 2022 as under for both toll plazas–

Table 3-3 : Traffic Data at Lambial Kalan Toll Plaza at Km 121.020

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)-2019-20	Annual Average Daily Traffic (Nos.)-2020-21	Annual Average Daily Traffic (Nos.)-2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	3563	3366	4812	6040
2	Minibus /LCV	1266	933	585	764
3	Bus	428	270	376	436
4	Truck	1587	1321	1788	2402
5	3-Axle Commercial vehicle	2139	1591	1771	2004
6	Multi axle	4606	4011	4587	4996
7	Oversized Vehicle	23	19	30	9
Total		**13612**	**11511**	**13949**	**16651**

Table 3-4 : Traffic Data at Jojro ka Khera Toll Plaza at Km 184.0200

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)-2019-20	Annual Average Daily Traffic (Nos.)-2020-21	Annual Average Daily Traffic (Nos.)-2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	3042	3077	4440	5557
2	Minibus /LCV	1081	824	549	700
3	Bus	423	265	347	404

4	Truck	1285	1164	1634	2232
5	3-Axle Commercial vehicle	1568	1344	1666	1939
6	Multi axle	4360	4201	4934	5407
7	Oversized Vehicle	21	21	21	11
Total		**11781**	**10896**	**13592**	**16249**

Pandemic of COVID-19 (Corona Virus) had impacted entire world. Taking precaution, government of India announced a complete lockdown in last of March 2020 and traffic on highways was stopped which was eased out progressively later. There after India was hit by Covid-19 second and third wave in February 21 to July -21 and December 21 to March-22. Recovering traffic pattern was somewhat again disturbed du to second and third wave of Covid-19. Traffic numbers of for period from April-2020 to March 2021 were not representative of traffic pattern at project corridor due to pandemic lockdown impact. However, for integrity of data same shown above. Traffic has almost recovered from Covid -19 impact as of now.

Since the traffic data available for this update is for only six months, from April 2022 to September 2022, a seasonality factor for balance half year has been applied to average traffic of current six months to arrive at Annual Average Daily Traffic for future projections and revenue calculations.

This data was then bifurcated to various components like through local, monthly, return journey etc. category. Same is discussed in detail in following section.

3.4 Data Analysis

3.4.1 Analysis of Traffic Volume Count

Understanding the character of existing traffic forms the basis of the traffic forecast. The various vehicle types having different sizes and characteristics can be converted into a single unit called Passenger Car Unit (PCU). Passenger Car equivalents for various vehicles are adopted based on recommendations of Indian Road Congress prescribed in "IRC-64-1990: Guidelines for Capacity of Roads in Rural areas". The adopted passenger car unit values (PCU) are presented in ***Table* 3-5.**

Table 3-5 : PCU Factors Adopted for Study

Vehicle Type	PCUs
Car	1.0
Mini Bus	1.5
Standard Bus	3.0
LCV/LGV	1.5
2 Axle Truck	3.0
3 – 6 Axle Truck	4.5
MAV	4.5
Auto Rickshaw	1.0
Van/Tempo	1.0
Agriculture Tractor with Trailer	4.5
Agriculture Tractor without Trailer	1.5

Source: IRC: 64-1990

Traffic volume at each toll plaza was converted to PCU and same is presented as under.

Table 3-6 : Traffic in PCU at Project Stretch Base Year 2022-23

Year	Toll Plaza Location (Km)	Traffic No	PCU	PCU Index
2019-2020	Lambia Kalan Km 121.020	13612	38754	2.85
	Jojro ka Khera Km 184.020	11781	34208	2.90
2020-2021	Lambia Kalan Km 121.020	11511	32446	2.82
	Jojro ka Khera Km 184.020	10896	31630	2.90
2021-2022	Lambia Kalan Km 121.020	13949	38721	2.74
	Jojro ka Khera Km 184.020	13592	38503	2.83

2022-23	Lambia Kalan Km 121.020	16651	44235	2.66
	Jojro ka Khera Km 184.020	16249	44712	2.75

It can be observed from above that project traffic has PCU index close to 3 which is an indicator of high proportion of commercial traffic in traffic mix in project corridor. Following figure illustrates variation of PCU index at four toll plaza locations.

It can be observed that PCU index is consistent at both toll plaza locations.

3.4.2 Components of Traffic

As discussed previously, components of traffic volume play an important role in determining project revenue. A larger component of commercial traffic with higher axle configuration adds to project revenue positively. Similarly, a larger component of local traffic affects the project revenue potential negatively.

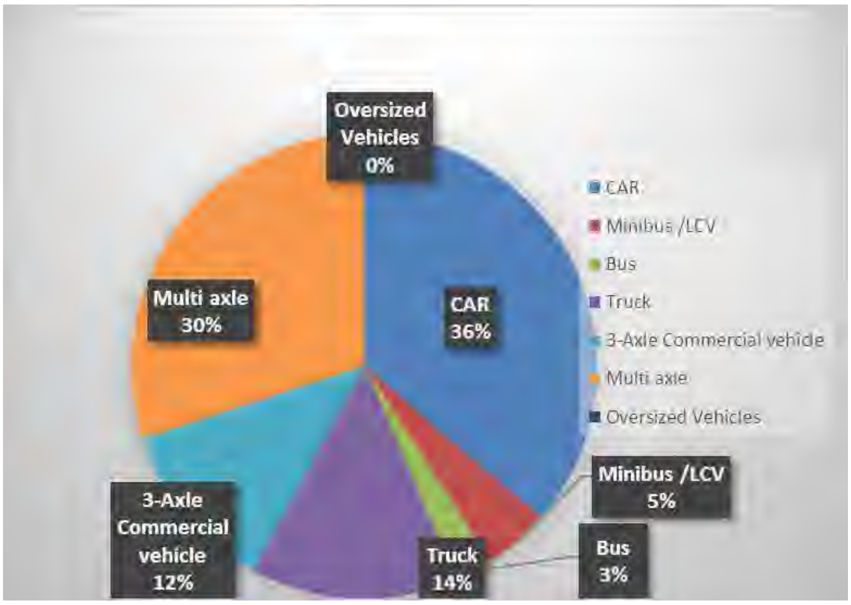


Figure 3-1 :Model Split of Tollable Vehicle-Km 121.020

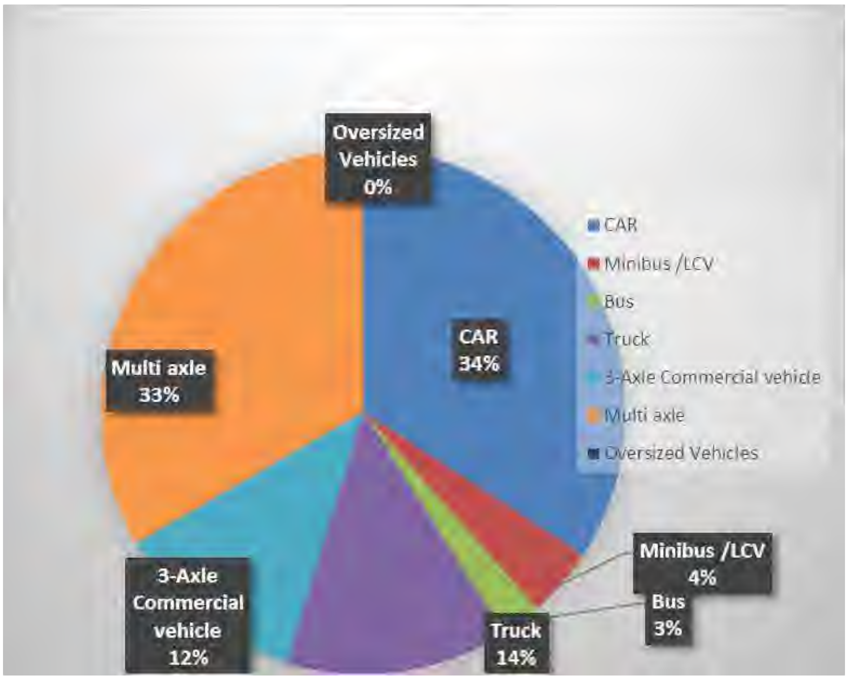


Figure 3-2 :Model Split of Tollable Vehicle- Km 184.020

It is observed that car traffic forms about 36% & 34% of total traffic at toll plaza locations while multi axle commercial vehicles are about 42% & 45% of total traffic. Truck / Bus and LCV share about 14% and 8 % of traffic volume respectively.

Another important bifurcation of traffic is components of traffic with respect various type of toll ticketing like

1. Single Journey
2. Multi Journey
3. Monthly Pass (Local and General)

The following table provides numbers of vehicles falling in each of above category for year 2022-23

Table 3-7 : Journey Type Bifurcation of Traffic at Lambia Kalan TP KM121.020

Sr. No	Type	Traffic Volume (Nos.)
		2022-2023
1	Single Journey	11837

2	Return Journey	4552
3	Local Commercial Single Journey	236
4	Monthly Pass Local	26
5	Monthly Pass	0

Most dominant part of the above is the single journey type followed by return journey at project stretch. Monthly pass commuters are a very low fraction of the total traffic on the project corridor.

The single journey component in total traffic numbers is a high as 71%. Return journey component is 27%. The number of monthly pass Local is 0% and Local commercial Single Journey 2% at Lambia Kalan toll plaza.

Following tables give the detail of journey distribution at Jojro ka Khera toll plaza at Km 184.020.

Table 3-8 : Journey Type Bifurcation of Traffic at Jojro ka KheraTPKm 184.020

Sr. No	Type	Traffic Volume (Nos.)
		2022-2023
1	Single Journey	11305
2	Return Journey	4678
3	Local Commercial Single Journey	257
4	Monthly Pass Local	9
5	Monthly Pass	0

It is observed that the project corridor demonstrates a similar pattern of single journey dominated mix of traffic across the entire stretch which is typical of major national highways.

3.5 Secondary Data Collection

There are several other factors which have a substantial impact on traffic pattern and growth on any project corridor. Following are some of such important factors

- Industrial development around project corridor and its catchment

- Educational infrastructure along project corridor
- Demographic pattern
- Urban area development
- Tourism potential
- Upcoming major infrastructural or Industrial projects
- Special Industry in project corridor
- Overall trends of economic growth local as well as national / regional

Hence in addition to traffic details on project site, secondary data was also collected from various other sources. Typical secondary data includes the following:

1. Vehicle registration data of regional and national level.
2. Economic Data
   a) GDP
   b) NSDP
   c) Population Growth
   d) Per Capita Income growth
   e) Industrial Growth
   f) Special Industry Potential
   g) Regional and National development vision / plan
   h) Any other relevant data
3. Competing road network

We have collected and utilized such underlying data in the study to estimate the growth and risk factors for traffic along the project corridor.

CHAPTER 4

INFLUENCE ZONE TRANSPORT NETWORK ANALYSIS

4.1 Introduction

Highway corridors behave like integrated circuit network and more often than not every road is connected to various networks having different origin and destinations. Traffic running on these networks behave like fluid and flow on network on alignment of least friction.

Following Factors can be considered as major contributors to friction on transportation network

- Travel Speed / Travel Time
- Geometric deficiencies like blind horizontal curves and steep vertical gradients etc.
- Configuration of road
- Riding quality
- Traffic delays,
- Length of road,
- Passing through built up or Urban Area,
- Terrain,
- Facilities,

4.2 Competing / Alternate route

Project stretch has toll application history from last few years, and it can be assumed that project traffic is settled. However, for analysis point of view there can be two alternate routes at local level. One using Ajmer road to go from Kishangarh to Chittorgarh and other on east side via Shapur.

At regional level, there can be two alternates for Udaipur traffic after Kishangarh. One via project road (Kishangarh – Bhiwara- Chittorgarh- Udaipur)

Following maps show these routes in relation to project stretch at both local and regional level.

Figure 4-1: Alternate route at regional level

Figure 4-2: Alternate route at local level

It can be observed that project highway forms the one of the main spines of the corridor between Kishangarh / Jaipurand Chittorgarh. Traffic on project road is now settled and it can be assumed as dedicated traffic on project road for logistic obligations.

At regional level for Udaipur traffic alternate route is faster and traffic is already using this alternate.

With six laning now nearing completion, project stretch would become slightly more attractive due to improved level of service. In such case further diversion of traffic from project road is not envisaged.

Following table provides summary of analysis of alternate route/ roads discussed above.

Table 4-1 : Competing Roads Details

Sr. No	Route Details	Designation	Length (Km)	Avg. Speed (KMPH)	Time Taken (Min)	Observations
Regional Level						
1	Kishangarh – Ajmer-Udaipur	Alternate Route	299	58	5 Hr 8 Min	Alternate route has clear advantage for this pair of destination. Traffic Settled. No further diversion expected
	Kishangarh- Chittorgarh-Udaipur	Project Road	330	51	6 Hr 127 Min	
Local Level						
2	Kishangarh – Ajmer-Chittorgarh (West)	Alternate Route	278	50	5 Hr. 28 Min	Project Road has advantage. Alternate route running for years after toll on project road. Traffic Settled. No further diversion expected
	Kishangarh – Shahpur-Chittorgarh (East)	Alternate Route	283	51	5 Hr. 28 Min	
	Kishangarh – Bhilwara-Chittorgarh	Project Road	220	50	4 Hr. 29 Min	

Under these circumstances it is not envisaged that commercial or passenger traffic would switch to alternate roads from the project road. Further, it may be noted that since the project highway has already been commissioned and has a tolling history, the current traffic traversing the project corridor already factors in traffic diversion (if any) that may have taken place.

CHAPTER 5

GROWTH OF TRAFFIC ON PROJECT HIGHWAY

5.1 Introduction

Traffic growth is a function of the interplay of a number of contributory factors such as National economy, Government policy, socio-economic conditions of the people, and changes in land uses along the project corridor precincts etc. As these factors have a number of uncertainties associated with them, forecasts of traffic are dependent on the projectionsof other factors such as population, gross domestic product (GDP), vehicle ownership, per capita income (PCI), agricultural output, fuel consumption etc. Future pattern of change in these factors can be estimated with only a reasonable degree of accuracy and hence the resultant traffic forecast levels may not be precise.

Traffic growth forecast for project corridor Gulabpur- Chittorgarh section of NH-79has been done taking the above factors into consideration. "**IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**" is established best practice and has been used for traffic growth forecast.

5.2 Trend Analysis

One of the methods of estimation of future rate of growth is to assume the same rate of growth as in the past. Although such a method is more suitable to projects of short durations say 5-10 years, however for long term projections it would-be erroneous to assume that the past rate of growth will continue to prevail for a long time in future. Economic conditions, which are major influencing factors, are bound to change over a long period of time. Thus, it would be necessary to modify the past trends of growth suitably.

Elasticity model of growth projection is one of the most widely acceptable methods for traffic forecast. The same is recommended in **IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**.

In this method the past trend of vehicular data is paired with an economic indicator and a regression analysis is done to yield the economic model of growth. Growth of vehicle traffic varies for different type of vehicle. It is a proven fact that the growth pattern for passenger and goods vehicle is different. Traffic growth on any highway

typically depends on number of economic parameters. Most important and direct parameters are given as under

- Per Capita Income
- Net State Domestic Product (NSDP)
- Population

It can be observed that the ownership of a car is more closely related to affordability; hence per capita is the index which closely fits the growth of car traffic among other criteria. In a similar fashion, the following can be pairs of vehicle type and independent variable for elasticity modeling of growth.

- Car / Jeep – Par Capita Income
- Bus / Minibus – Population
- Goods Vehicle – NSDP

5.3 Estimation of Traffic Demand Elasticity

Elasticity of traffic demand is defined as the rate at which traffic intensity varies due to a change in the corresponding indicator selected. Hence, in order to estimate the elasticity of traffic demand, it is necessary to establish relationship between the growth in number of given category of vehicles with the relevant economic variable considered, such as NSDP, per capita income and population growth. Latest available data for vehicle registration, per capita income, NSDP and population is used in analysis.

As per IRC: 108-1996 the model for estimating elasticity index for the project corridor is of the following form and is given as below:

$$Log(P) = k \times Log(EI) + A$$

Where,

P = Number of Vehicles (Mode wise)

EI = Economic Indicator

A = Regression constant

k = Elasticity coefficient (Regression coefficient)

The elasticity for car and bus (passenger vehicles) is calculated based on the Population and Per Capita Domestic Product (PCDP) and the elasticity for trucks is calculated based on the Net State Domestic Product (NSDP).

The project corridor spreads across state of Rajasthan. Toll plazas at Lambia Kalan and Jojro ka Khera are in the state of Rajasthan. For elasticity calculations, working data from Rajasthan has been analyzed. Additionally, data of Gujarat is also analyzed as project corridor has close transportation link with Gujarat also.

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Rajasthan State.

Table 5-1 : Per Capita Income Vs Car Rajasthan

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	57192	591069	4.76	5.77		
2013	58441	659542	4.77	5.82	2%	
2014	61053	733916	4.79	5.87	4%	
2015	64496	814079	4.81	5.91	6%	
2016	68565	899307	4.84	5.95	6%	
2017	71394	988391	4.85	5.99	4%	4.55%

Regression analysis of same is given in figure below

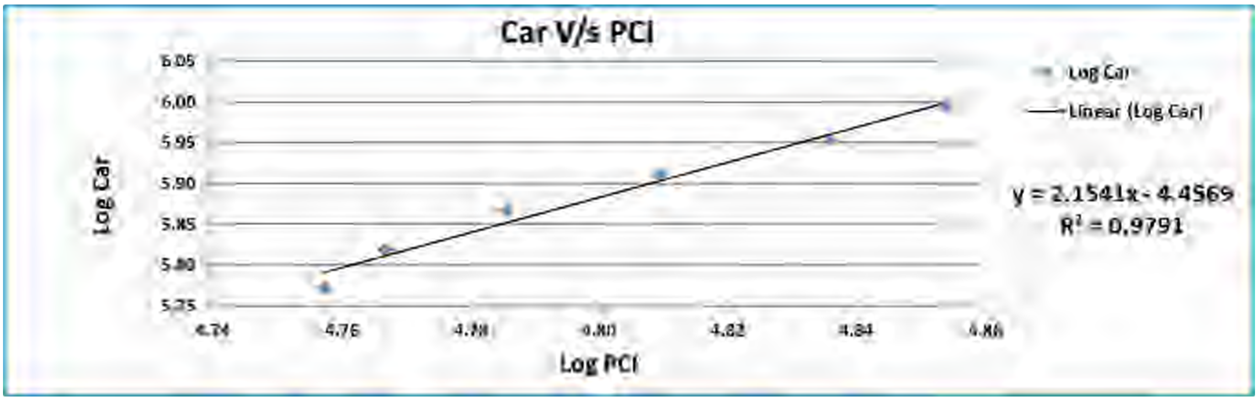


Figure 5-1: Regression and Elasticity PCI vs. Car – Extrapolation Rajasthan

Table 5-2 : Population Vs Bus Rajasthan

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	68548437	83345	7.84	4.92		
2013	69783885	88616	7.84	4.95	2%	
2014	71016445	93892	7.85	4.97	2%	
2015	72245688	97650	7.86	4.99	2%	
2016	73471198	102818	7.87	5.01	2%	
2017	74692571	108680	7.87	5.04	2%	1.73%

Regression analysis of same is given in figure below

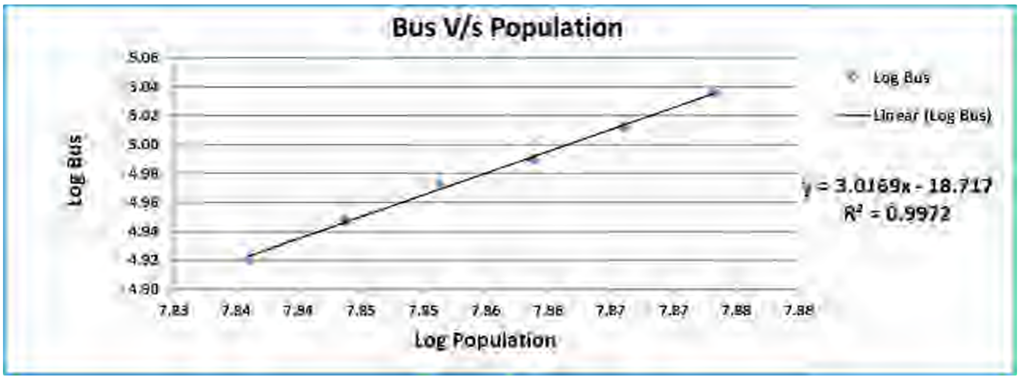


Figure 5-2: Regression and Elasticity Population vs. Bus – Extrapolation Rajasthan

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-3 : LCV Traffic Vs NSDP Rajasthan

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth
2012	395331	69509	5.60	4.84		
2013	409802	76396	5.61	4.88	4%	
2014	434292	33379	5.64	4.52	6%	
2015	465408	91787	5.67	4.96	7%	
2016	501922	99763	5.70	5.00	8%	6.16%

Following figure depict regression analysis and extrapolation.

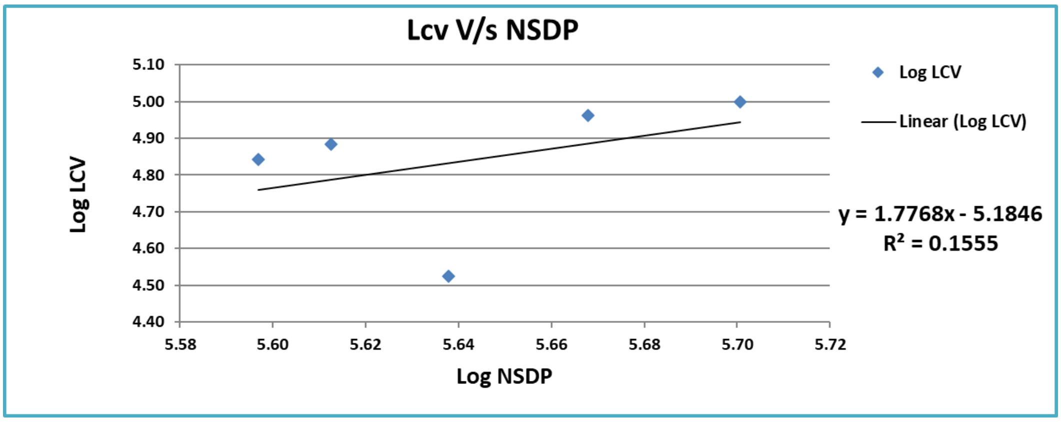


Figure 5-3: Regression and Elasticity NSDP vs. LCV Traffic - extrapolation Rajasthan

Following figure depict regression analysis and extrapolation.

Table 5-4 : Truck Traffic Vs NSDP Rajasthan

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth
2012	395331	362028	5.60	5.56		
2013	409802	401983	5.61	5.60	4%	
2014	434292	434379	5.64	5.64	6%	
2015	465408	472365	5.67	5.67	7%	
2016	501922	517604	5.70	5.71	8%	
2017	530172	561158	5.72	5.75	6%	6.06%

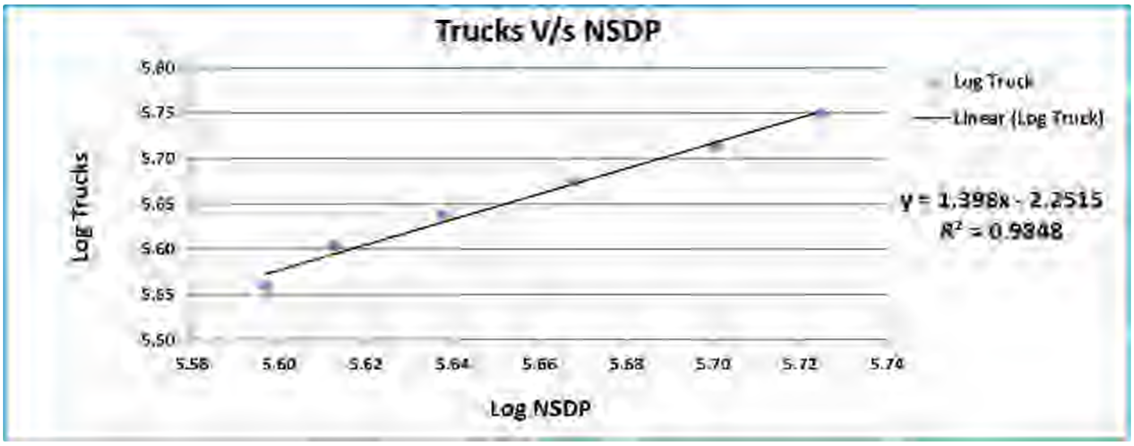


Figure 5-4: Regression and Elasticity NSDP vs. Truck Traffic - extrapolation Rajasthan

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below

Table 5-5 : Summary Regression Analysis Rajasthan

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average IV Growth (5yrs)	Growth Elastic Model	Remarks
Rajasthan	Car/Jeep	PCI	y = 2.1541x + -4.4569	R^2 = 0.9791	2.1541	4.55%	9.79%	Good Regression
	Bus	Population	y = 3.0169x - -18.7174	R^2 = 0.9972	3.0169	1.73%	5.22%	Good Regression
	LCV	NSDP	y = 1.7768x - -5.1846	R^2 = 0.1555	1.7768	6.16%	10.95%	Poor Regression
	Truck	NSDP	y = 1.398x - -2.2515	R^2 = 0.9848	1.3980	6.06%	8.46%	Good Regression

Table 5-6 : Per Capita Income Vs Car Gujarat

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	87481	1411898	4.94	6.15		
2013	96683	1602129	4.99	6.20	11%	
2014	102589	1771298	5.01	6.25	6%	
2015	111370	2008748	5.05	6.30	9%	
2016	120683	2260084	5.08	6.35	8%	
2017	129738	2527537	5.11	6.40	8%	8.21%

Regression analysis of same is given in figure below

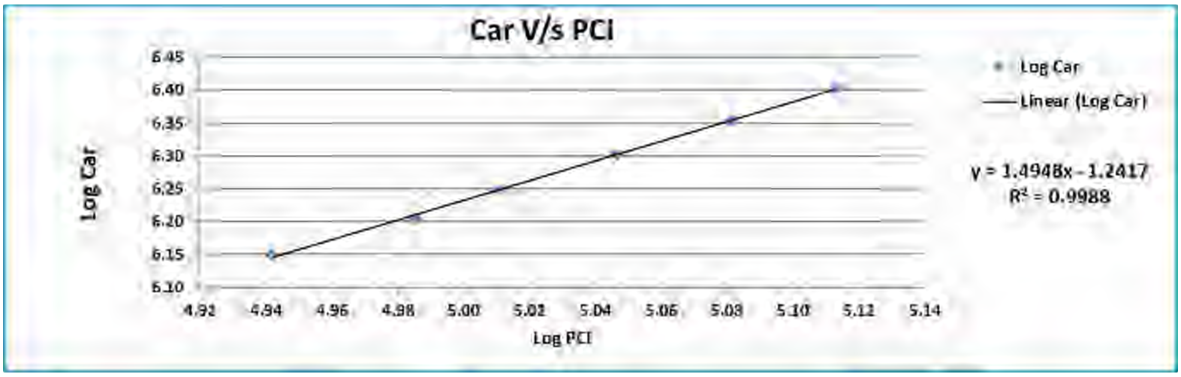


Figure 5-5: Regression and Elasticity PCI vs. Car – Extrapolation Gujarat

Table 5-7 : Population Vs Bus Gujarat

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	60439692	67546	7.78	4.83		
2013	61563037	70615	7.79	4.85	2%	
2014	62684375	72998	7.80	4.86	2%	
2015	63803304	76435	7.80	4.88	2%	

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2016	64919427	82734	7.81	4.92	2%	
2017	66032362	74855	7.82	4.87	2%	1.79%

Regression analysis of same is given in figure below

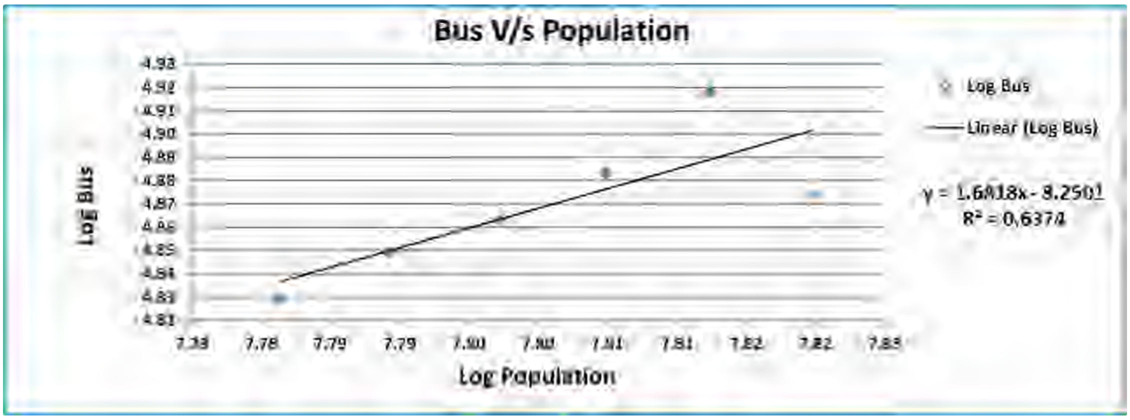


Figure 5-6: Regression and Elasticity Population vs. Bus – Extrapolation Gujarat

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-8 : LCV Traffic Vs NSDP Gujarat

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth
2012	532809	448958	5.73	5.65		
2013	596659	499277	5.78	5.70	12%	
2014	641489	542918	5.81	5.73	8%	
2015	705629	589984	5.85	5.77	10%	
2016	774775	633599	5.89	5.80	10%	9.82%

Following figure depict regression analysis and extrapolation.

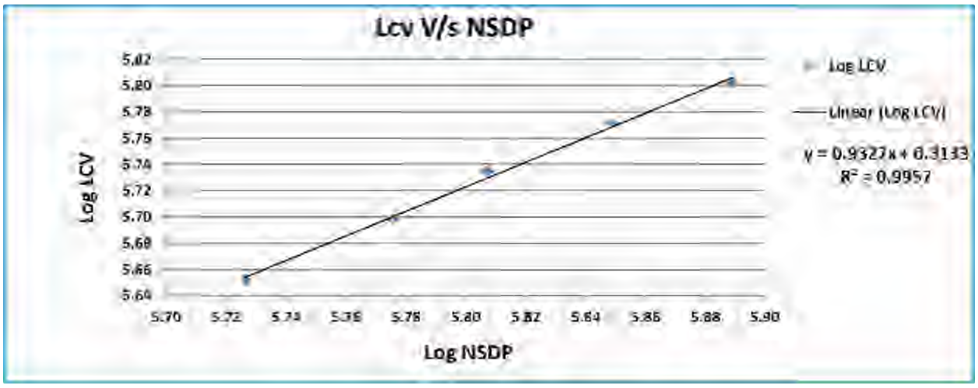


Figure 5-7: Regression and Elasticity NSDP vs. LCV Traffic - extrapolation Gujarat

Following figure depict regression analysis and extrapolation.

Table 5-9 : Truck Traffic Vs NSDP Gujarat

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth
2012	532809	301533	5.73	5.48		
2013	596659	319207	5.78	5.50	12%	
2014	641489	332185	5.81	5.52	8%	
2015	705629	352225	5.85	5.55	10%	
2016	774775	375265	5.89	5.57	10%	
2017	843930	396061	5.93	5.60	9%	9.64%

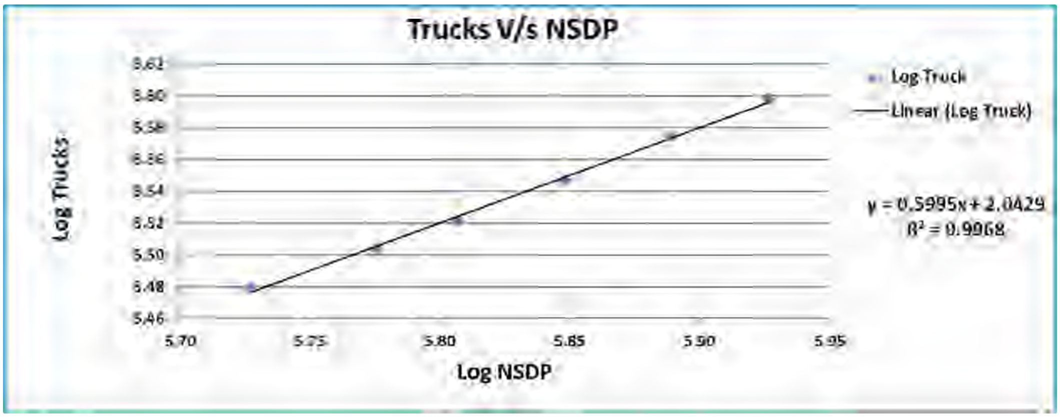


Figure 5-8: Regression and Elasticity NSDP vs. Truck Traffic - extrapolation Gujarat

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below.

Table 5-10 : Summary Regression Analysis Gujarat

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average IV Growth (5yrs)	Growth Elastic Model	Remarks
Gujarat	Car/Jeep	PCI	y = 1.4948x + -1.2417	R^2 = 0.9988	1.4948	8.21%	12.27%	Good Regression
	Bus	Population	y = 1.6818x - -8.2501	R^2 = 0.6374	1.6818	1.79%	3.00%	Fair Regression
	LCV	NSDP	y = 0.9327x - 0.3133	R^2 = 0.9957	0.9327	9.82%	9.16%	Good Regression
	Truck	NSDP	y = 0.5995x - 2.0429	R^2 = 0.9968	0.5995	9.64%	5.78%	Good Regression

Economical model for predicting growth is good tool, however other local, regional, national factors should also be considered before finalizing growth factors. Considering factors such as proposed developments and other influencing economic factors, moderated growth should be considered. These factors are discussed in subsequent sections.

5.4 Analysis of Historic Traffic Data

Historical traffic data forms useful information for any highway project. It provides useful information for establishing past trend of growth. Project stretch of Gulabpura to Chittorgarh is under tolling operation with current concessionaire and has two year of tolling history from 2018-19. As traffic data available with the project concessionaire is of year two years and that too affected by COVI-19, hence we do not have sufficient data points to be able to establish a reliable past trend of traffic growth. A minimum of about 5 -6 years' consistent traffic data is required for establishing a reliable past trend.

5.5 Other Factors Influencing Growth

There are many factors which have impact on traffic growth. As discussed previously these factors can be economic, social, educational, and industrial.

Potentiality of such factors for project highway is discussed as under.

ECONOMY

After witnessing a slowdown during 2011-12, the economy recovered in 2013-14, and a high growth rate of GDP was recorded in up to 2018-19. Pandemic of COVID-

19 impacted all economies of world including India. Following figure show trend of GDP growth in India.

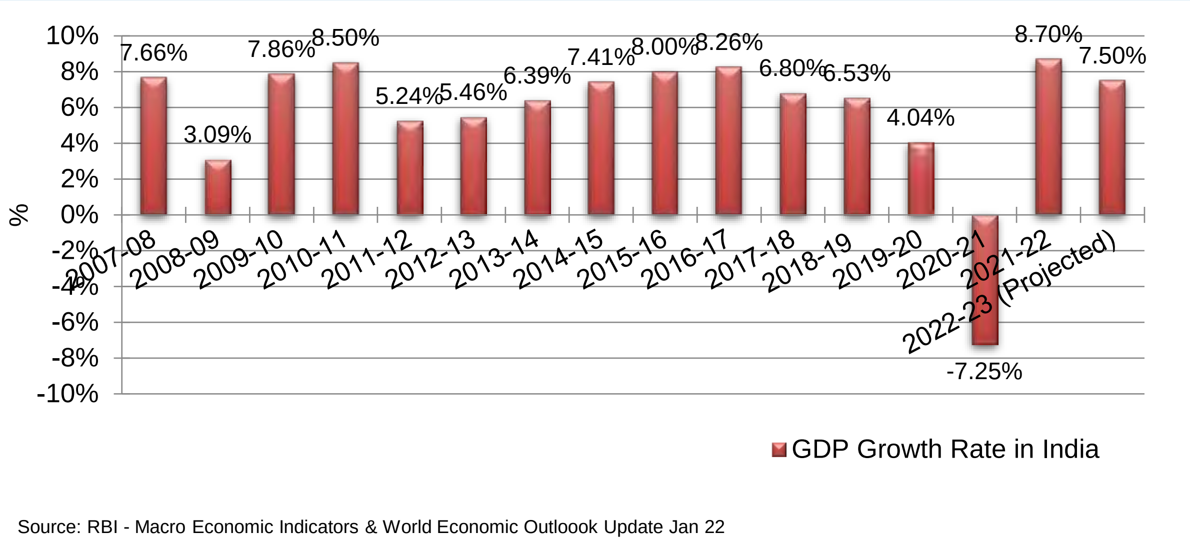


Figure 5-9 : Growth of GDP in India

FY 2017-18 recorded a growth of 6.7% which had slight impact of GST and demonetization. Indian economy appears on recovery path with estimated growth of 6.8% in FY 2018-19. Government took major policy decision including tax infrastructure reforming, banking sector improvement and ease of doing business.

Major economies of world collapsed due to pandemic COVID-19 including India. Indian economy is also registered negative growth in financial year 2020-21. After that Indian economy recovered handsomely and registered a growth of about 9% in Year 2021-22. This was partly due to low base of year 2020-21 as well.

Honorable Prime Minister has announced a major relief package of Rs. 20 lakh crores which is about 10% of GDP. This is aimed at turning this major crisis of COVID-19 into opportunity by providing major impetus to industrial production to the limit of becoming a self-reliant economy. With major thrust of this package being on **Make -In- India** it is expected that industry in India would grow at rapid pace and recover handsomely in post COVID-19 scenario. World Economic Outlook update also has predicted a growth rate of about 7.5 % in year 2022-23.

5.6 Developments along and around the Project Corridor & State

This Asset primarily serves traffic travelling between Delhi, Rajasthan, Gujarat and Maharashtra. It is observed that the vehicle distribution to be dominated by heavy vehicles. We further noticed several textile industries and marble/granite industries bordering the Asset. Udaipur serves as a big tourism hub as well as a consumption centre which also result in traffic feeding into the demand being generated.

In addition, Chittorgarh has 4 major cement plants located in Chanderiya and Nimbahera villages. There is a regular movement of Cement bulkers to and from these locations along asset. Chanderiya Lead-Zinc Smelter, is the one of the largest zinc-lead smelting complexes in the world, is also located in Chittorgarh. Bhilwara is home to textiles industry and only centre in the country producing insulation bricks. Mining is another major sector for large scale mining of sandstone, soapstone feldspar, quartz, mica China clay and granite. Also, Iron Ore, Led, and Zinc is mined and processed in Bhilwara

Rajasthan is rich in natural resources and benefits from its strategic geographic location in India. The state is pre-eminent in quarrying, mining in India and has been a leader in crude oil extraction over the past few years. Moreover, Rajasthan is also major tourism attractor in India. Considering the scenario, it may be assumed that the traffic growth on project highway would remain high and there are minimal risks in terms of growth.

5.6.1 Industrial Units along Project Corridor

Bhilwara district occupies and important place in the mineral map of Rajasthan. The main minerals are lead Zinc, Soap Stone, China Clay, Feldspar, Quartz, Mica, Asbestos and Garnet.

Besides being a major tourist attraction in India Chittorgarh has a very rich profile in industrial mineral extraction. Lime stone (Cement Grade), Red Occur, Silica sand, China Clay and Quartz are major minerals which are in abundance. There are large number of cement plants in area. Chanderiya Lead-Zinc Smelter is one of the largest zinc-lead smelting complexes in the world.

5.7 Recommended Growth Rates of Traffic

Based on the above analysis and after giving due consideration to the entire listed factors, the following overall growth rates are recommended for each category of vehicle as under. Rate of growth is moderated in light of overall regional trend. Growth of Multi-Axle is kept slightly higher as trend of technological advances in logistic industry favors multi-axle over 2/3 axle carriage. It is also expected that as the economy moves from developing to developed, rate of growth diminishes. Same growth rate is not sustainable for long. Traffic growth is suitably stepped down fro future years.

Growth rates are recommended for three scenarios for sensitivity analysis namely **Optimistic, Pessimistic** and **Most Likely** with a positive and negative variation 0.5% from Most Likely case for corridor in both states.

5.7.1 Recommended Growth Rates of Traffic for Project Stretch

Table 5-11 : Recommended Growth Rates Optimistic

Category / Year	2021-2022	2022-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
Car/Jeep/Van	9.51%	8.61%	8.31%	7.01%	6.58%	6.33%	6.09%
Bus	5.71%	4.93%	4.73%	3.77%	3.56%	3.41%	3.26%
LCV	5.19%	5.19%	4.89%	3.83%	3.34%	3.08%	2.83%
2- Axle	5.68%	5.68%	5.38%	4.55%	4.05%	3.78%	3.53%
3 – Axle	6.02%	6.02%	5.71%	4.55%	4.05%	3.78%	3.53%
4 to 6 Axle	6.71%	6.37%	6.03%	4.55%	4.05%	3.78%	3.53%
7 and Above Axle	6.71%	6.02%	5.71%	4.55%	4.05%	3.78%	3.53%

Table 5-12 : Recommended Growth Rates Pessimistic

Category / Year	2021-2022	2022-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
Car/Jeep/Van	9.01%	8.11%	7.81%	6.51%	6.08%	5.83%	5.59%
Bus	5.21%	4.43%	4.23%	3.27%	3.06%	2.91%	2.76%
LCV	4.69%	4.69%	4.39%	3.33%	2.84%	2.58%	2.33%
2- Axle	5.18%	5.18%	4.88%	4.05%	3.55%	3.28%	3.03%
3 – Axle	5.52%	5.52%	5.21%	4.05%	3.55%	3.28%	3.03%
4 to 6 Axle	6.21%	5.87%	5.53%	4.05%	3.55%	3.28%	3.03%
7 and Above Axle	6.21%	5.52%	5.21%	4.05%	3.55%	3.28%	3.03%

Table 5-13 : Recommended Growth Rates Most Likely

Category / Year	2021-2022	2022-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
Car/Jeep/Van	9.26%	8.36%	8.06%	6.76%	6.33%	6.08%	5.84%
Bus	5.46%	4.68%	4.48%	3.52%	3.31%	3.16%	3.01%
LCV	4.94%	4.94%	4.64%	3.58%	3.09%	2.83%	2.58%
2- Axle	5.43%	5.43%	5.13%	4.30%	3.80%	3.53%	3.28%
3 - Axle	5.77%	5.77%	5.46%	4.30%	3.80%	3.53%	3.28%
4 to 6 Axle	6.46%	6.12%	5.78%	4.30%	3.80%	3.53%	3.28%
7 and Above Axle	6.46%	5.77%	5.46%	4.30%	3.80%	3.53%	3.28%

Traffic and revenue has been worked out on the basis of above growths and same is presented in subsequent chapter of report.

5.8 COVID Impact

All All social and economic activities had been completely disrupted due worldwide pandemic of Corona Virus. This had affected traffic on project stretch as well. Traffic was severely affected form March-2020 due to lockdown and then in second wave and third waves.

Government has announced a mega economic stimulate and package of Rs. 20 Lakh Crore to bring the economy back on track and recover the losses. Traffic has shown impressive recovery post lockdown period and has recovered to normal level.

Taking recommended traffic growth and additional factors as discussed above into consideration traffic forecast for concession period is done and presented in next chapter

CHAPTER 6

TRAFFIC FORECAST

6.1 Traffic Projections

Growth rates recommended in previous section of report are used to arrive at traffic projections for future years. Toll plaza wise futuristic traffic projection is given in tables below.

These projections have been done for following three cases of growth up to concession period

1. Optimistic Scenario
2. Pessimistic Scenario
3. Most Likely Scenario

Table 6-1 : Total Tollable Traffic @ Toll Plaza 1- Lambia Kalan121.020 KM (Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU
2022-23	6040	764	436	2402	2004	4996	9	**16651**	**44235**
2023-24	6463	819	412	2571	2115	5282	11	**17673**	**46804**
2024-25	7084	843	477	2681	2248	5643	9	**18985**	**50001**
2025-26	7569	901	451	2861	2367	5950	11	**20110**	**52782**
2026-27	8270	925	518	2977	2509	6334	9	**21542**	**56213**
2027-28	8845	988	491	3175	2643	6681	11	**22834**	**59368**
2028-29	9659	1014	564	3306	2800	7111	9	**24463**	**63230**
2029-30	10339	1083	537	3524	2950	7503	11	**25947**	**66810**
2030-31	11148	1100	609	3643	3091	7873	9	**27473**	**70296**
2031-32	11804	1164	576	3850	3223	8194	11	**28822**	**73420**
2032-33	12722	1183	651	3980	3376	8597	9	**30518**	**77245**
2033-34	13478	1251	618	4204	3520	8950	11	**32032**	**80705**
2034-35	14523	1273	697	4349	3686	9389	9	**33926**	**84920**
2035-36	15335	1340	663	4571	3827	9730	11	**35477**	**88363**
2036-37	16453	1358	744	4707	3988	10157	9	**37416**	**92554**
2037-38	17381	1428	709	4945	4140	10527	11	**39141**	**96326**
2038-39	18640	1448	794	5094	4314	10987	9	**41286**	**100900**
2039-40	19702	1522	759	5350	4479	11389	11	**43212**	**105049**
2040-41	21072	1540	846	5500	4655	11855	9	**45477**	**109773**
2041-42	22234	1614	809	5760	4821	12261	11	**47510**	**114049**

Table 6-2 : Total Tollable Traffic @ Toll Plaza 2- Jojro ka Khera184.020 KM (Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU
2022-23	5557	700	404	2232	1939	5407	11	**16249**	**44712**
2023-24	6035	736	423	2359	2054	5750	11	**17368**	**47572**
2024-25	6555	774	444	2492	2176	6116	11	**18568**	**50624**
2025-26	7099	811	465	2626	2299	6484	11	**19795**	**53713**
2026-27	7690	850	486	2766	2431	6875	11	**21109**	**57001**
2027-28	8328	891	509	2914	2570	7290	11	**22513**	**60498**
2028-29	9019	934	534	3070	2717	7729	11	**24014**	**64213**
2029-30	9769	978	559	3235	2871	8195	11	**25618**	**68158**
2030-31	10454	1015	580	3382	3002	8568	11	**27012**	**71474**
2031-32	11187	1053	601	3536	3139	8957	11	**28484**	**74951**
2032-33	11971	1093	624	3696	3281	9364	11	**30040**	**78601**
2033-34	12809	1134	647	3864	3430	9790	11	**31685**	**82438**
2034-35	13705	1177	672	4040	3586	10235	11	**33426**	**86472**
2035-36	14605	1216	697	4202	3730	10649	11	**35110**	**90286**
2036-37	15565	1257	722	4371	3880	11080	11	**36886**	**94279**
2037-38	16589	1299	748	4548	4037	11529	11	**38761**	**98467**
2038-39	17680	1342	774	4731	4199	11995	11	**40732**	**102832**
2039-40	18843	1386	801	4922	4369	12480	11	**42812**	**107408**
2040-41	20037	1428	828	5107	4535	12951	11	**44897**	**111918**
2041-42	21305	1471	855	5300	4707	13441	11	**47090**	**116632**

Table 6-3 : Total Tollable Traffic @ Toll Plaza 1- Lambia Kalan121.020 KM (Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU
2022-23	6040	764	436	2402	2004	4996	9	**16651**	**44235**
2023-24	6435	815	411	2559	2106	5257	11	**17594**	**46592**
2024-25	7024	837	473	2655	2227	5591	9	**18816**	**49545**
2025-26	7468	889	446	2820	2335	5866	11	**19835**	**52051**
2026-27	8126	910	510	2920	2461	6219	9	**21155**	**55190**
2027-28	8647	965	482	3101	2582	6527	11	**22315**	**58011**
2028-29	9404	989	550	3213	2722	6917	9	**23804**	**61510**
2029-30	10018	1049	521	3409	2855	7262	11	**25125**	**64675**
2030-31	10756	1064	588	3505	2975	7586	9	**26483**	**67734**
2031-32	11334	1117	555	3689	3088	7856	11	**27650**	**70407**
2032-33	12163	1134	625	3794	3216	8205	9	**29146**	**73732**
2033-34	12824	1191	591	3991	3341	8501	11	**30450**	**76684**
2034-35	13755	1209	664	4107	3480	8877	9	**32101**	**80309**

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU
2035-36	14452	1264	627	4298	3597	9154	11	**33403**	**83157**
2036-37	15436	1277	702	4403	3728	9512	9	**35067**	**86695**
2037-38	16228	1335	664	4607	3856	9810	11	**36511**	**89806**
2038-39	17326	1350	742	4720	3994	10191	9	**38332**	**93619**
2039-40	18224	1410	703	4937	4132	10512	11	**39929**	**97009**
2040-41	19405	1423	783	5047	4269	10891	9	**41827**	**100887**
2041-42	20373	1483	742	5264	4407	11208	11	**43488**	**104322**

Table 6-4 : Total Tollable Traffic @Toll Plaza 2- Jojro ka Khera184.020 KM (Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU
2022-23	5557	700	404	2232	1939	5407	11	**16249**	**44712**
2023-24	6008	733	422	2348	2046	5724	11	**17292**	**47363**
2024-25	6495	767	440	2469	2159	6060	11	**18401**	**50169**
2025-26	7002	799	458	2589	2271	6395	11	**19525**	**52982**
2026-27	7548	833	477	2715	2388	6749	11	**20721**	**55958**
2027-28	8138	869	496	2847	2511	7123	11	**21995**	**59107**
2028-29	8773	907	516	2985	2643	7517	11	**23352**	**62442**
2029-30	9458	946	537	3130	2781	7933	11	**24796**	**65969**
2030-31	10072	977	554	3256	2893	8253	11	**26016**	**68835**
2031-32	10727	1009	572	3388	3009	8587	11	**27303**	**71839**
2032-33	11424	1041	591	3525	3130	8934	11	**28656**	**74976**
2033-34	12167	1075	610	3668	3256	9295	11	**30082**	**78259**
2034-35	12958	1111	629	3816	3389	9672	11	**31586**	**81700**
2035-36	13745	1142	648	3951	3508	10014	11	**33019**	**84892**
2036-37	14580	1174	667	4090	3631	10369	11	**34522**	**88215**
2037-38	15466	1206	687	4235	3760	10737	11	**36102**	**91687**
2038-39	16406	1240	707	4384	3894	11117	11	**37759**	**95297**
2039-40	17403	1275	727	4539	4032	11511	11	**39498**	**99059**
2040-41	18419	1307	747	4688	4165	11889	11	**41226**	**102730**
2041-42	19493	1340	767	4842	4302	12279	11	**43034**	**106541**

Traffic projections for Most Likely scenario are given as under

Table 6-5 : Total Tollable Traffic @ Toll Plaza 1- Lambia Kalan121.020 KM (Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU
2022-23	6040	764	436	2402	2004	4996	9	**16651**	**44235**
2023-24	6449	816	412	2566	2111	5269	11	**17634**	**46700**
2024-25	7054	839	475	2669	2238	5617	9	**18901**	**49776**
2025-26	7517	893	449	2842	2352	5908	11	**19972**	**52421**
2026-27	8195	916	514	2950	2486	6277	9	**21347**	**55706**
2027-28	8742	975	487	3139	2614	6604	11	**22572**	**58692**
2028-29	9527	1000	556	3260	2761	7015	9	**24128**	**62366**
2029-30	10173	1065	529	3467	2903	7383	11	**25531**	**65741**
2030-31	10946	1082	597	3574	3032	7730	9	**26970**	**69004**
2031-32	11563	1141	565	3769	3156	8026	11	**28231**	**71911**
2032-33	12435	1159	636	3887	3296	8401	9	**29823**	**75476**
2033-34	13143	1222	603	4098	3430	8725	11	**31232**	**78681**
2034-35	14128	1242	678	4227	3582	9132	9	**32998**	**82587**
2035-36	14883	1302	643	4433	3711	9441	11	**34424**	**85731**
2036-37	15930	1317	720	4554	3856	9832	9	**36218**	**89580**
2037-38	16790	1380	684	4774	3996	10166	11	**37801**	**93019**
2038-39	17964	1397	764	4905	4152	10585	9	**39776**	**97196**
2039-40	18943	1464	728	5141	4302	10946	11	**41535**	**100959**
2040-41	20214	1479	811	5270	4458	11367	9	**43608**	**105242**
2041-42	21279	1546	774	5508	4608	11727	11	**45453**	**109089**

Table 6-6 : Total Tollable Traffic @ Toll Plaza 2- Jojro ka Khera184.020 KM (Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU
2022-23	5557	700	404	2232	1939	5407	11	**16249**	**44712**
2023-24	6022	735	423	2353	2050	5738	11	**17332**	**47473**
2024-25	6526	771	442	2480	2167	6088	11	**18485**	**50395**
2025-26	7052	807	461	2607	2284	6439	11	**19661**	**53344**
2026-27	7620	844	481	2740	2407	6812	11	**20915**	**56474**
2027-28	8234	882	502	2880	2539	7206	11	**22254**	**59797**
2028-29	8898	923	525	3027	2677	7622	11	**23683**	**63318**
2029-30	9616	965	549	3182	2823	8064	11	**25210**	**67063**
2030-31	10265	1000	568	3318	2943	8410	11	**26515**	**70147**
2031-32	10959	1036	587	3461	3069	8771	11	**27894**	**73383**
2032-33	11699	1073	607	3609	3202	9149	11	**29350**	**76783**
2033-34	12490	1111	628	3764	3340	9542	11	**30886**	**80341**
2034-35	13333	1150	650	3925	3483	9952	11	**32504**	**84066**
2035-36	14176	1186	671	4073	3616	10330	11	**34063**	**87570**
2036-37	15072	1223	693	4228	3753	10722	11	**35702**	**91227**

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU
2037-38	16024	1260	716	4388	3895	11129	11	**37423**	**95041**
2038-39	17039	1298	741	4554	4043	11551	11	**39237**	**99029**
2039-40	18118	1338	766	4726	4196	11990	11	**41145**	**103194**
2040-41	19221	1375	791	4893	4344	12413	11	**43048**	**107276**
2041-42	20391	1413	816	5065	4497	12852	11	**45045**	**111528**

6.2 Modification in Concession Period

As per Article 29 of the concession agreement, if actual traffic on the project falls short or exceeds Target Traffic on project highway on defined date, concession period shall be modified subject to calculation stipulated therein. For Gulabpura-Chittorgarh project, the Target Date and Target Traffic are defined as under:

Target Date - 1stJune 2026

Target Traffic - 76316 in PCU

It was observed that as per traffic projections, average traffic volume falls short of target traffic in all scenarios. Probable extension of concession period is estimated according to article 29 of concession agreement which comes to about 3-4 years Traffic forecast and revenue projections are done for probable extended period accordingly.

Most Likely

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2026	76316	56072	-27%	40%	20%	20	4

Optimistic

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2026	76316	56596	-26%	39%	20%	20	4

Pessimistic

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2026	76316	55550	-27%	41%	20%	20	4

CHAPTER 7
FORECAST OF TOLL REVENUE

7.1 General

This chapter presents the tolling rate calculations, categories and toll revenue of the project.

7.2 Discount Categories

The fee schedule in the CA of Gulabpura-Chittorgarh section of NH-19 is based on the old toll policy. As per the Toll Notification (Schedule -G) the discounts and special provisions have been considered. In addition to discounts as per Fee Notification concessionaire has declared special category rates also. Salient features of toll rate structure are given as under

1. Monthly Pass: For frequent user's monthly pass would be issued for 50 trips in month at 2/3d rate. Additionally, concessionaire has announced special monthly passes for local commercial cars at Rs. 670.
2. Multiple Journeys (for Return Trip): Will be charged at 1.5 times single journey.
3. Single Journey: Full single journey toll would be charged to this category of vehicles who are infrequent travelers or whose frequency does not yield any discount from the above categories.
4. Local Discounts: There are several categories of local discounts.
   a) Local Car Jeep Van I - Rs. 275 per
   b) Local LCV - Rs. 1200 per trip
   c) Local Commercial Vehicles at 50% rate for single journey

Building of inflation and escalation of rate on the basis of WPI are done as per toll notification (Schedule G) as given under as extract from concession agreement.

The formula for determining the applicable rate of fee shall be as follows:-

$$\text{Applicable rate of fee} = \text{base rate} + \text{base rate} \times \left\{ \frac{\text{WPI A} - \text{WPI B}}{\text{WPI B}} \right\} \times 0.4$$

Factor of inflation / growth has been incorporated as per Schedule R. WPI numbers (2011-12 series) are available up to 2018-19. A moderate growth in Wholesale Price Index (WPI) has been assumed after that. The following graph provides historical rate of inflation (WPI) in India. Data has been sourced from the Office of Economic Advisor web site (www.eaindustry.nic.in) WPI for year 2017-18 and 2018-2019 is worked back by applying a correlation factor for 2004-05 series as 2017-18 and 2018-2019 data is available in 2011-12 series only. Ratio of WPI for year 2016-17 for both series is used for conversion of WPI in 2004-05 series

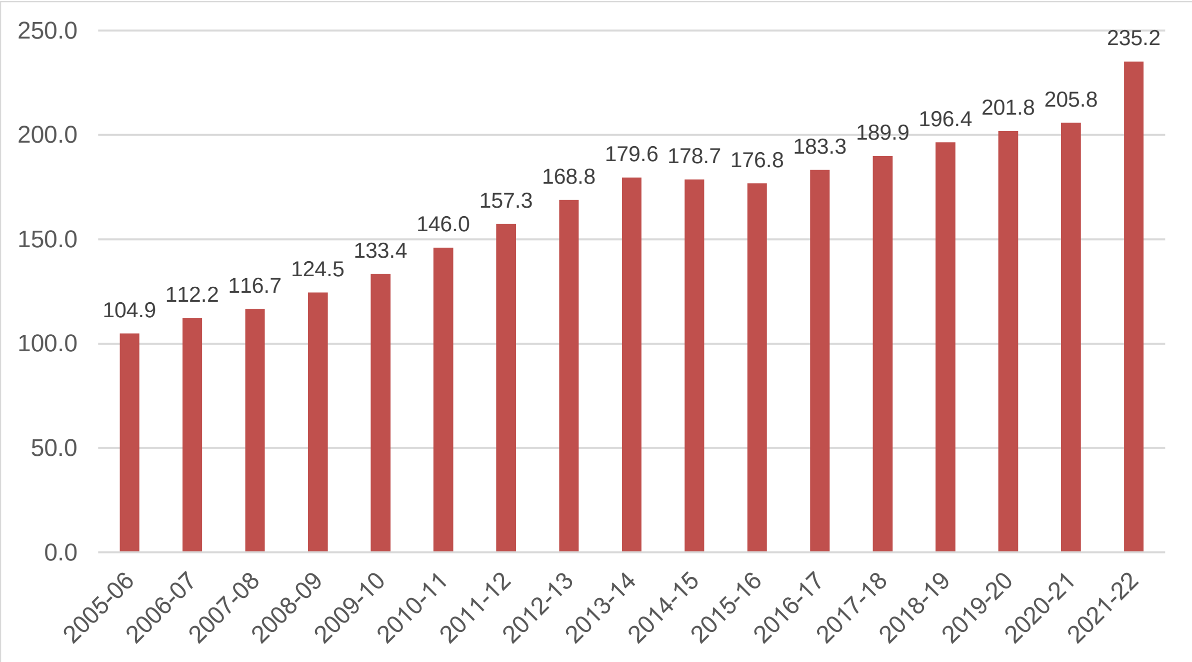


Figure 7-1 : Historical Rate of WPI Inflation in India

Average inflation in WPI in last few years is steadily growing. It grew in range of 4% - 5% in previous years. For future years initially it is takes 5% and Suitably Stepped down for future years.

7.3 Estimation of Toll Rates

As per the applicable MORTH notification and Schedule R of contract agreement, the following Base rate of fee for the categories mentioned in the table stands true in the National Highways Fee Rules applicable for contract.

Table 7-1 : Base Toll Rates June 2007-08

Type of Vehicle	Base Rate of Fee / Km (in Rs.)
Car, Jeep, Van or Light Motor Vehicle	0.65
Light Commercial Vehicle, Light Goods Vehicle or Mini Bus	1.05
Bus or Truck (Two Axles)	2.20
Three Axle Commercial Vehicles	2,40
Heavy Construction Machinery (HCM) or Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 axles)	3.45
Oversized Vehicles (7 or more Axles)	4.20

There is no bypass or structure to be factored in for rates calculations.

Toll rates are calculated as per guidelines provided in schedule R (rounded to nearest Rs.) for the concession period and are given below.

Thus, worked out rates for various categories of vehicle and discounts are given as under.

Table 7-2 : Toll Rates for Single Journey@ Km 121.020

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	90	150	310	310	340
2023-24	95	155	325	325	355
2024-25	100	165	340	340	375
2025-26	105	170	360	360	390
2026-27	110	180	375	375	410
2027-28	115	190	395	395	430
2028-29	120	200	415	415	450
2029-30	130	205	435	435	475
2030-31	135	215	455	455	495
2031-32	140	230	475	475	520
2032-33	150	240	500	500	545
2033-34	155	250	525	525	575
2034-35	165	265	550	550	600
2035-36	170	275	580	580	630

2036-37	180	290	605	605	660
2037-38	190	305	635	635	695
2038-39	195	320	665	665	730
2039-40	205	335	700	700	765
2040-41	215	350	735	735	800
2041-42	230	370	770	770	840

Table 7-3 : Toll Rates for Single Journey @ Km 184.020

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	95	155	320	320	350
2023-24	100	160	335	335	370
2024-25	105	170	355	355	385
2025-26	110	180	370	370	405
2026-27	115	185	390	390	425
2027-28	120	195	410	410	445
2028-29	125	205	430	430	470
2029-30	135	215	450	450	490
2030-31	140	225	470	470	515
2031-32	145	235	495	495	540
2032-33	155	250	520	520	565
2033-34	160	260	545	545	595
2034-35	170	275	570	570	625
2035-36	175	285	600	600	655
2036-37	185	300	630	630	685
2037-38	195	315	660	660	720
2038-39	205	330	690	690	755
2039-40	215	345	725	725	790
2040-41	225	365	760	760	830
2041-42	235	380	800	800	875

Table 7-4 : Toll Rates for Return Journey @ Km 121.02

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	135	220	465	465	505
2023-24	145	235	490	490	530
2024-25	150	245	510	510	560
2025-26	160	255	540	540	585
2026-27	165	270	565	565	615
2027-28	175	285	595	595	645
2028-29	185	295	620	620	680
2029-30	195	310	650	650	710
2030-31	200	325	685	685	745
2031-32	210	340	715	715	780
2032-33	220	360	750	750	820
2033-34	235	375	790	790	860
2034-35	245	395	825	825	900
2035-36	255	415	865	865	945
2036-37	270	435	910	910	990
2037-38	280	455	955	955	1040
2038-39	295	480	1000	1000	1090
2039-40	310	500	1050	1050	1145
2040-41	325	525	1105	1105	1205
2041-42	340	555	1160	1160	1265

Table 7-5 : Toll Rates for Return Journey @ Km 184.020

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	140	230	480	480	525
2023-24	150	240	505	505	550
2024-25	155	255	530	530	580
2025-26	165	265	560	560	610
2026-27	175	280	585	585	640
2027-28	180	295	615	615	670
2028-29	190	310	645	645	705
2029-30	200	320	675	675	735
2030-31	210	340	710	710	775
2031-32	220	355	745	745	810
2032-33	230	370	780	780	850
2033-34	240	390	815	815	890
2034-35	255	410	855	855	935
2035-36	265	430	900	900	980
2036-37	280	450	945	945	1030
2037-38	290	470	990	990	1080

2038-39	305	495	1040	1040	1130
2039-40	320	520	1090	1090	1190
2040-41	340	545	1145	1145	1250
2041-42	355	575	1200	1200	1310

Table 7-6 : Toll Rates for Monthly Pass Local @ Km 121.020

Year	Car	Mini Bus /LCV
2022-23	315	1400
2023-24	330	1470
2024-25	345	1545
2025-26	365	1620
2026-27	385	1700
2027-28	400	1775
2028-29	420	1855
2029-30	440	1940
2030-31	460	2025
2031-32	485	2115
2032-33	510	2210
2033-34	535	2310
2034-35	560	2415
2035-36	585	2525
2036-37	615	2640
2037-38	645	2760
2038-39	675	2885
2039-40	710	3015
2040-41	745	3150
2041-42	785	3290

Table 7-7 : Toll Rates for Monthly Pass Local @ Km 184.020

Year	Car	Mini Bus /LCV
2022-23	315	1135
2023-24	330	1165
2024-25	345	1225
2025-26	365	1285
2026-27	385	1350
2027-28	400	1410
2028-29	420	1475
2029-30	440	1540
2030-31	460	1610
2031-32	485	1680
2032-33	510	1755
2033-34	535	1835
2034-35	560	1920
2035-36	585	2005
2036-37	615	2095

2037-38	645	2190
2038-39	675	2290
2039-40	710	2395
2040-41	745	2505
2041-42	785	2620

Table 7-8 : Toll Rates for Monthly Pass @ Km 121.020

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2022-23	3045	4925	10315	10315	11250
2023-24	3200	5170	10835	10835	11820
2024-25	3365	5435	11385	11385	12420
2025-26	3535	5710	11965	11965	13050
2026-27	3715	6000	12575	12575	13715
2027-28	3895	6290	13180	13180	14375
2028-29	4080	6595	13815	13815	15070
2029-30	4280	6910	14480	14480	15795
2030-31	4485	7245	15180	15180	16560
2031-32	4700	7595	15915	15915	17365
2032-33	4930	7965	16690	16690	18205
2033-34	5170	8355	17500	17500	19095
2034-35	5425	8760	18360	18360	20025
2035-36	5690	9190	19255	19255	21010
2036-37	5970	9640	20205	20205	22040
2037-38	6265	10115	21200	21200	23125
2038-39	6570	10615	22245	22245	24265
2039-40	6900	11145	23345	23345	25470
2040-41	7240	11695	24505	24505	26735
2041-42	7600	12280	25725	25725	28065

Table 7-9 : Toll Rates for Monthly Pass @ Km 184.020

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2022-23	3160	5105	10695	10695	11670
2023-24	3320	5365	11235	11235	12260
2024-25	3490	5635	11805	11805	12880
2025-26	3665	5920	12405	12405	13535
2026-27	3855	6225	13040	13040	14225
2027-28	4040	6525	13665	13665	14910
2028-29	4230	6835	14325	14325	15625
2029-30	4435	7165	15015	15015	16380
2030-31	4650	7515	15740	15740	17175
2031-32	4875	7875	16505	16505	18005
2032-33	5115	8260	17305	17305	18880

2033-34	5365	8665	18150	18150	19800
2034-35	5625	9085	19035	19035	20770
2035-36	5900	9530	19970	19970	21785
2036-37	6190	10000	20950	20950	22855
2037-38	6495	10490	21985	21985	23980
2038-39	6815	11010	23070	23070	25165
2039-40	7155	11555	24210	24210	26410
2040-41	7510	12130	25415	25415	27725
2041-42	7880	12735	26680	26680	29105

7.4 Toll Revenue

As indicated earlier, toll revenue on the Project Road has been calculated in all three scenarios based on above rates and projected traffic. The estimates of toll revenue under ***Optimistic***, ***Pessimistic*** and ***Most Likely*** growth scenarios are presented in the following section.

7.5 Toll Revenue at all toll plazas under Scenarios

Toll Revenue estimates under most likely scenario at each of the toll plaza up to 2041- 42 (5 years from the end of original Concession Period) starting from the year 2022-23 are shown in tables below.

Table 7-10 : Toll Revenue Optimistic Scenario

(Rs. Crores)

Year	TP-1	TP2	Total
2022-23	164.16	172.01	**336.17**
2023-24	185.38	194.35	**379.73**
2024-25	206.40	216.14	**422.53**
2025-26	230.59	240.95	**471.54**
2026-27	255.71	268.59	**524.29**
2027-28	285.89	299.34	**585.23**
2028-29	317.04	332.12	**649.16**
2029-30	353.25	369.00	**722.25**
2030-31	387.73	405.40	**793.14**
2031-32	427.02	446.49	**873.51**
2032-33	468.64	490.35	**958.99**
2033-34	516.11	538.48	**1054.59**
2034-35	567.44	592.37	**1159.80**
2035-36	621.71	649.68	**1271.38**
2036-37	679.41	709.29	**1388.71**
2037-38	743.86	776.82	**1520.68**
2038-39	813.94	850.15	**1664.09**
2039-40	895.76	933.91	**1829.66**
2040-41	976.09	1017.73	**1993.81**
2041-42	1067.58	1112.92	**2180.50**

Table 7-11 : Toll Revenue Pessimistic Scenario

(Rs. Crores)

Year	TP-1	TP2	Total
2022-23	164.16	172.01	336.17
2023-24	184.46	193.47	377.93
2024-25	204.37	214.21	418.58
2025-26	227.22	237.74	464.96
2026-27	250.83	263.76	514.60
2027-28	279.09	292.58	571.67
2028-29	308.04	323.07	631.11
2029-30	341.58	357.31	698.89
2030-31	373.18	390.61	763.79
2031-32	409.07	428.17	837.24
2032-33	446.82	467.95	914.77
2033-34	489.75	511.46	1001.21
2034-35	535.82	560.00	1095.82
2035-36	584.17	611.26	1195.43
2036-37	635.27	664.11	1299.38
2037-38	692.14	723.73	1415.87
2038-39	753.68	788.33	1542.01
2039-40	825.34	861.91	1687.25
2040-41	895.06	934.86	1829.93
2041-42	974.21	1017.37	1991.57

Table 7-12 : Toll Revenue Most Likely Scenario

(Rs. Crores)

Year	TP-1	TP2	Total
2022-23	164.16	172.01	336.17
2023-24	184.86	193.92	378.78
2024-25	205.30	215.15	420.45
2025-26	228.80	239.35	468.15
2026-27	253.18	266.14	519.32
2027-28	282.31	295.87	578.18
2028-29	312.36	327.52	639.88
2029-30	347.15	363.11	710.26
2030-31	380.15	397.89	778.04
2031-32	417.67	437.10	854.77
2032-33	457.26	478.90	936.16
2033-34	502.32	524.73	1027.05
2034-35	550.94	575.85	1126.79
2035-36	602.11	630.12	1232.22
2036-37	656.33	686.28	1342.61
2037-38	716.83	749.81	1466.64
2038-39	782.45	818.71	1601.16
2039-40	859.01	897.39	1756.40
2040-41	933.80	975.62	1909.42
2041-42	1018.79	1064.40	2083.19

CHAPTER 8

CONCLUSION & RECOMMENDATIONS

8.1 Conclusion & Recommendations

Project stretch of Gulabpura to Chittrorgarh section of NH-79 in state of Rajasthan from km 90.000 to km 214.870 nearing completion of six laning. The road is in sound condition and serves healthy traffic volumes. Project corridor is a part of the busy and prominent national highway NH-79 which connects Kishangarh to Udaipur via Bhiwala and Chittorgarh. There are large number of townships, industrial corridors and other business establishment coming up along project corridor. As discussed, dominant portion of traffic is long route traffic, which is more sensitive towards the growth of national economy. As Indian economy is poised to grow at 7%+, the project corridor is expected to pick up the same trend in terms of traffic flow. All these developments have potential to give positive impact to traffic flow on project. The following can be considered as major outcomes of the study

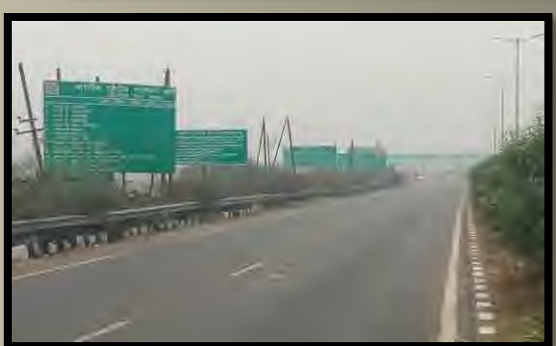
a) There is good amount of tollable traffic running on project

b) Project corridor has potential to witness traffic growth @ 6-8% annually in near future post COVID-19 due to various development in area and overall development of economy

c) Project corridor has committed traffic as long route traffic and does not run a risk of traffic leakage due to quality competing road

Based on above it can be considered a stable healthy project from traffic and revenue point of view.

HAPUR TO MORADABAD SECTION OF NH-9 IN THE STATE OF UTTAR PRADESH (KM 50.000 TO KM148.277)



TRAFFIC STUDY & REVENUE PROJECTION REPORT (FINAL)

JANUARY 2023

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GMD CONSULTANTS NAVI MUMBAI

CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

AADT	-	Annual Average Daily Traffic
BOT	-	Build Operate Transfer
CAGR	-	Compound Annual Growth Rate
CTV	-	Classified traffic volume
DBFOT	-	Design, Build, Finance, Operate & Transfer
EME	-	Earth Moving Equipment
GDP	-	Gross Domestic Product
GSDP	-	Gross State Domestic Product
HCM	-	Heavy Construction Machinery
HCV	-	Heavy Commercial Vehicle
HTMS	-	Highway Traffic Management System
IRC	-	Indian Road Congress
IRR	-	Internal Rate of Return
LCV	-	Light Commercial Vehicle
LHS	-	Left Hand Side
LGV	-	Light Goods Vehicle
MAV	-	Multi Axle Vehicle
MORTH	-	Ministry of Road Transport and Highways
NH	-	National Highway
PCC	-	Plain Cement Concrete
CR	-	Coarse Rubble
NHAI	-	National Highway Authority of India
NHDP	-	National Highways Development Project
NSDP	-	Net State Domestic Product
O&M	-	Operation & Maintenance
PCDP	-	Per Capita Domestic Product
PCI	-	Per Capita Income
PCU	-	Passenger Car Unit
PSC	-	Pre-stressed Concrete
RCC	-	Reinforced cement concrete
RHS	-	Right Hand Side
SH	-	State Highway
TP	-	Toll Plaza
WPI	-	Wholesale Price Index
SIR	-	Special Investment Region
c.	-	Circa
ROB	-	Railway Over Bridge
MDR	-	Major District Road
ODR	-	Other District Road
CA	-	Concession Agreement
RMT	-	Running Meter

CHAPTER 1

INTRODUCTION

1.1 Background

The Government of India through National Highway Authority of India (NHAI) embarked upon a program to enhance the traffic capacity and safety for efficient transportation of goods as well as passenger traffic on National Highway Sections under NHDP Phase V. Under Phase V NHAI has planned to convert 6,500 km of existing 4-lane National Highways into 6-lane National Highway. Sections envisaged under 6-laning comprise the Golden Quadrilateral section (5,700 km) and some other sections which are 800 km in length.

The project under consideration, Six Laning of **Hapur Bypass** to **Moradabad** section of NH-9 from km 50.000 to km 148.277is one such road project NHAI intended to implement on a BOT basis in the DBFOT format. *M/s IRB Hapur Moradabad Tollway Ltd*. (Concessionaire) has been awarded the Project for a concession period of 22 years starting from 28th May 2019. The Project is under capacity augmentation to six lane. Tolling operation under current concession started in May 2019.

Project stretch from Hapur to Moradabad is part of new NH-9 which starts from Fazilka in Punjab and terminates in Uttarakhand at Pithoragarh. Previously this section was part of old NH-24 which is still popularly known and Delhi – Lucknow road. New NH-9 takes off towards Pithoragarh from Rampur. A number of sections along project road from Hapur to Moradabad have witnessed urban development along highway. Places like Pilakhua, Babugarh, Brijghat, Gajrola and Joya are fast upcoming urban centers. Close proximity to Delhi and this being main connectivity of region to NCR is main region for this ribbon development along highway. Following figure shows the project road alignment.

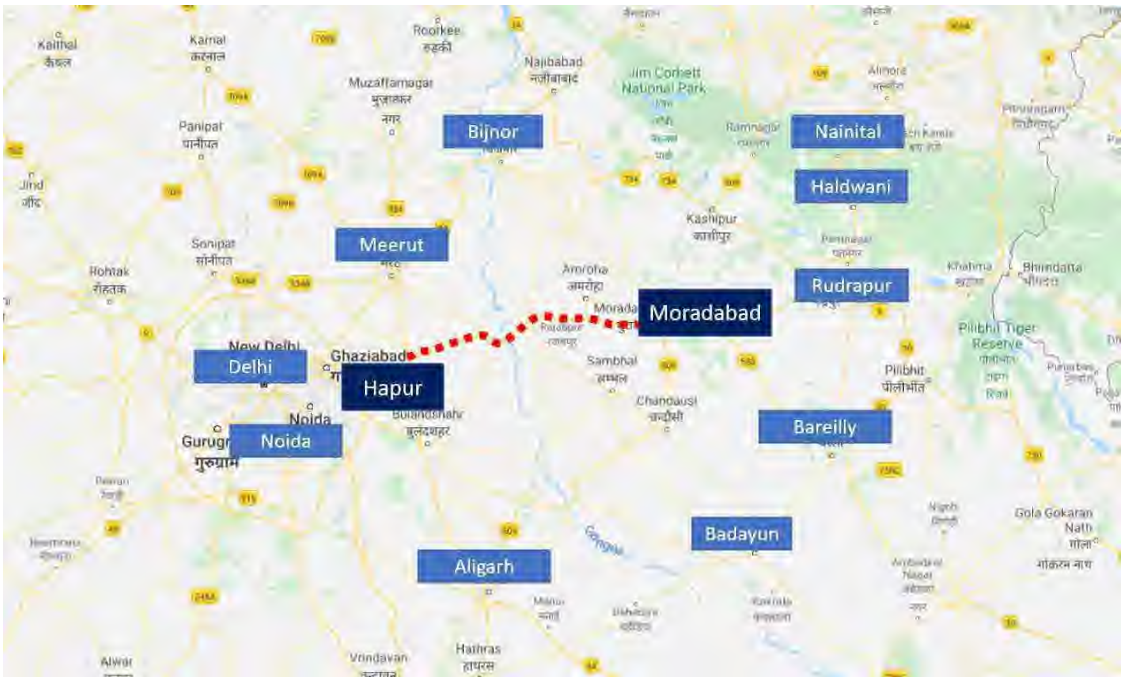


Figure 1-1: Alignment of Project Stretch

1.2 Objective of the Study

M/s IRB INFRASTRUCTURE TRUST has engaged *GMD Consultants* to assess the future traffic and toll potential of project along with related operation & maintenance expenditure involved.

This report named as **"Traffic Study &*Toll Revenue Projection Report*"** mainly focuses on traffic and revenue aspects of the project. Other parameters like competing road, area developments etc. have been considered from a traffic development point of view.

1.2.1 Scope of Services

The broad scope of work covered in the assignment is as follows

a) Analysis of Traffic Growth

b) Toll Rate Growth

c) Revenue Forecasting

The Concessionaire has provided basic traffic data and other project details on the basis of which the above analysis has been carried out.

CHAPTER 2

PROJECT DETAILS

2.1 Project Corridor

The project road is the section of the former NH-24 which has now been re-designated as NH-9 connecting Fazilka in Punjab to Pithoragarh in Uttarakhand. On the way it connects several important cities in five states in North India (from west towards east): Malout, Sirsa, Hisar, Rohtak, Bahadurgarh, Delhi, Ghaziabad, Hapur, Moradabad, Rampur, Rudrapur, Sitarganj, Khatima, Pithoragarh. The total length of the highway is 811 Km. After renumbering of all national highways by National Highway Authority of India in2010, the current NH 9 was formed by merging five differently numbered national highways in 2010, including Old NH 10 (Fazilka-Delhi section), Old NH 24 (Delhi-Rampur section), Old NH 87 (Rampur-Rudrapur section), Old NH 74 (Rudrapur-Sitarganj-Khatima section) and Old NH 125 (Tanakpur-Pithoragarh section)

2.2 Project Stretch Description

The Project section starts from Hapur Bypass (Km50.000) and ends in Moradabad (Km148.277). The total design length of project road section is about 100 Kms. The existing road is four lane divided carriageway, which is proposed to be six laned.The road passes through the districts of Hapur, Amrohaand Moradabad; all in Uttar Pradesh.

Project road alignment passes through the small towns/built-up areas of Pakwara, Joya and Babugarh. Simbhaoli, one of the largest integrated sugar refinery complexes is right on the project road

Hapur – Moradabad section of NH-9 was previously known as Delhi road locally. This forms main connectivity of areas like Moradabad, Rampur, Bareilly and important destination in Uttarakhand like Rudrapur, Kashipur, Ranikhet, Pithoragarh etc to national capital of Delhi.

There are two operative toll plazas at project stretch. First is at Garh at Km 90.661 and second at Joya at Km 123.875. Following figure show project alignment and toll plaza locations.

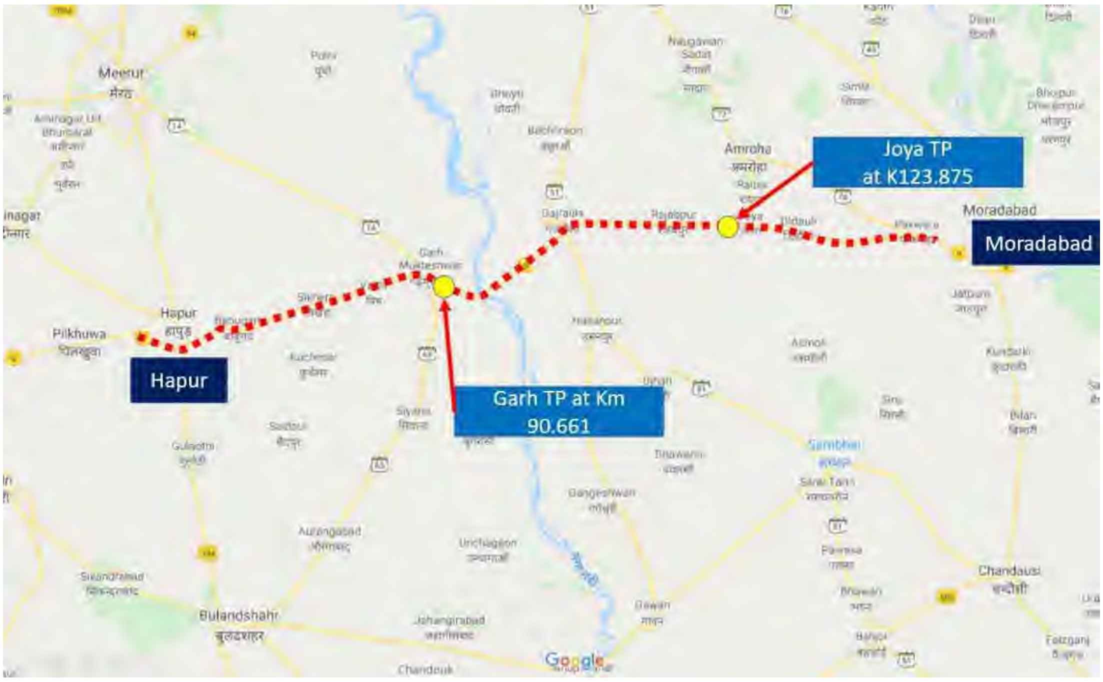


Figure 2-2: Project Alignment with Toll Plaza

2.3 Project Corridor Illustration

Six laning of project stretch is in progress and would be competed soon. Following photographs illustrate project section along the corridor.

Figure 2-3: Photographs showing Project Corridor

CHAPTER 3

TRAFFIC SURVEYS AND ANALYSIS

3.1 Traffic Surveys

The Consultants have collected the required information for project corridor to understand the general traffic and travel characteristics on the corridor.

The following traffic data has been collected from client for project.

- Classified traffic volume counts at toll plaza locations on Hapur- Moradabad section of NH-9 for period from May 2019 to March 2020, 2020-21, 2021-2022 and Six- Monthly Traffic Data from April 2022 to September 2022.
- Local Component of traffic
- Component of Return Journey
- Component of Monthly Pass Journey

The main objective of the traffic data analysis is to:

- Determine the existing traffic movement characteristics of the project
- Establish base year traffic
- Identification of travel patterns and modal split of project traffic
- Deriving growth factors for traffic forecasting
- Estimation of corridor traffic including traffic diversion if any
- Preparation of revenue model and projection of revenue as per toll policy for various scenarios

ic details have been collected.

Table 3-1below lists provides details of locations from where traffic details have been collected.

Table 3-1 : Traffic Data Details

SR. NO	LOCATION	CTV	Single Journey Traffic	Daily Return Journey	Monthly Pass	Local Pass

1	Km 90.661 Toll Plaza at Garh	AADT for Period from 2019 to 2020, 2020 to 2021, 2021 to 2022 and Six Monthly Data from April 22 to September 22	For Period from 2019 to 2020, 2020 to 2021, 2021 to 2022 and Six Monthly Data from April 22 to September 22	For Period from 2019 to 2020, 2020 to 2021, 2021 to 2022 and Six Monthly Data from April 22 to September 22	For Period from 2019 to 2020, 2020 to 2021, 2021 to 2022 and Six Monthly Data from April 22 to September 22	For Period from 2019 to 2020, 2020 to 2021, 2021 to 2022 and Six Monthly Data from April 22 to September 22
2	Km 123.875 Toll Plaza at Zoro ka Khera	AADT for Period from 2019 to 2020, 2020 to 2021, 2021 to 2022 and Six Monthly Data from April 22 to September 22	For Period from 2019 to 2020, 2020 to 2021, 2021 to 2022 and Six Monthly Data from April 22 to September 22	For Period from 2019 to 2020, 2020 to 2021, 2021 to 2022 and Six Monthly Data from April 22 to September 22	For Period from 2019 to 2020, 2020 to 2021, 2021 to 2022 and Six Monthly Data from April 22 to September 22	For Period from 2019 to 2020, 2020 to 2021, 2021 to 2022 and Six Monthly Data from April 22 to September 22

3.5 Classified Traffic Volume

The objective of conducting a Classified Traffic Volume Count is to understand the traffic flow pattern including modal split on a roadway. The Classified Traffic Volume Count survey has been provided by the concessionaire of project highway from actual traffic data gathered at toll plaza locations based on monthly data shared with NHAI.

The vehicles can broadly be classified into fast moving / motorized and slow moving / non-motorized vehicles, which can be further classified into specific categories of vehicles. The groupings of vehicles are further segregated to capture the tollable vehicle categories specifically and toll exempted vehicles are counted separately. The detailed vehicle classification system as per IRC: 64-1990 is given in table below

Table 3-2 : Vehicle Classification System

Vehicle Type	
Auto Rickshaw	
Passenger Car	Car, Jeep, Taxi & Van (Old / new technology)
Bus	Mini Bus
	Standard Bus
Truck	Light Goods Vehicle (LCV)
	2 – Axle Truck
	3 Axle Truck (HCV)
	Multi Axle Truck (4-6 Axle)
	Oversized Vehicles (7 or more axles)
Other Vehicles	Agriculture Tractor, Tractor & Trailer

Source - IRC: 64 – 1990

However, since project highway is currently under toll operation, the data collected is corresponding to category of tollable vehicles. Following are the type of vehicles as per concession agreement.

- Car / Jeep / van
- Min Bus /LCV
- Bus
- Truck
- 3-Axle
- Multi Axle

3.6 Traffic Characteristic

Toll revenue of project highway does not solely depend on traffic volume. There are certain characteristics of traffic which have substantial potential to affect toll collection. Component of local traffic, component of passenger and commercial traffic, portion of return journey traffic, % of monthly pass traffic are some of such characteristics of traffic. These will be discussed in subsequent sections of report.

3.6.1 Traffic Data

Project concessionaire has provided Traffic data for base year 2019-20,2020-21, 2021-22 and from April 2022 to September 2022 as under for both toll plazas–

Table 3-3 : Traffic Data at Garh Toll Plaza at Km 90.661

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)- 2019-20	Annual Average Daily Traffic (Nos.)- 2020-21	Annual Average Daily Traffic (Nos.)- 2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	14878	15865	21889	24446
2	Mini Bus/LCV	3704	3119	1995	1767
3	Bus	2033	1573	1862	2049
4	Truck	1289	1354	1674	1886
5	3-Axle	1318	1105	1112	1027
6	Multi Axle	1753	1635	1745	1784
7	Oversized Vehicle	2	6	6	6
	Total	**24977**	**24657**	**30283**	**32963**

Table 3-4 : Traffic Data at Zoya Toll Plaza at Km 123.875

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)- 2019-20	Annual Average Daily Traffic (Nos.)- 2020-21	Annual Average Daily Traffic (Nos.)- 2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	10298	10526	13695	16025
2	Mini Bus/LCV	2595	2259	1335	1201
3	Bus	1062	1303	1485	1670
4	Truck	1532	1040	1184	1418
5	3-Axle	1128	1064	1081	960
6	Multi Axle	1365	1370	1458	1518
7	Oversize Vehicle	2	8	8	5
	Total	**17982**	**17570**	**20246**	**22797**

Pandemic of COVID-19 (Corona Virus) had impacted entire world. Taking precaution, government of India announced a complete lockdown in last of March 2020 and traffic on highways was stopped which was eased out progressively later. There after India was hit by Covid-19 second and third wave in February 21 to July -21 and December 21 to March-22. Recovering traffic pattern was somewhat again disturbed du to second and third wave of Covid-19. Traffic numbers of for period from April-2020 to March 2021 were not representative of traffic pattern at project corridor due to pandemic lockdown impact. However, for integrity of data same shown above. Traffic has almost recovered from Covid -19 impact as of now.

Since the traffic data available for this update is for only six months, from April 2022 to September 2022, a seasonality factor for balance half year has been applied to average traffic of current six months to arrive at Annual Average Daily Traffic for future projections and revenue calculations.

This data was then bifurcated to various components like through local, monthly, return journey etc category. Same is discussed in detail in following section.

3.7 Data Analysis

3.7.1 Analysis of Traffic Volume Count

Understanding the character of existing traffic forms the basis of the traffic forecast. The various vehicle types having different sizes and characteristics can be converted into a single unit called Passenger Car Unit (PCU). Passenger Car equivalents for various vehicles are adopted based on recommendations of Indian Road Congress prescribed in "IRC-64-1990: Guidelines for Capacity of Roads in Rural areas". The adopted passenger car unit values (PCU) are presented in ***Table* 3-5.**

Table 3-5 : PCU Factors Adopted for Study

Vehicle Type	PCUs
Car	1.0
Mini Bus	1.5
Standard Bus	3.0
LCV/LGV	1.5
2 Axle Truck	3.0
3 – 6 Axle Truck	4.5
MAV	4.5
Auto Rickshaw	1.0
Van/Tempo	1.0
Agriculture Tractor with Trailer	4.5
Agriculture Tractor without Trailer	1.5

Source: IRC: 64-1990

Traffic volume at each toll plaza was converted to PCU and same is presented as under

Table 3-6 : Traffic in PCU at Project Stretch Base Year 2022-23

Toll Plaza Location (Km)	Year	Traffic No	PCU	PCU Index
Garh Km 90.661	2019-2020	24977	42251	1.69
	2020-2021	24657	40024	1.62
	2021-2022	30283	46705	1.54
	2022-2023	32963	50032	1.52
Joya Km 123.875	2019-2020	17982	31508	1.75
	2020-2021	17570	30337	1.73
	2021-2022	20246	33545	1.66
	2022-2023	22797	36823	1.62

It can be observed from above that project traffic has PCU index in range of 1.5 to 1.7 which is an indicator of high proportion of Passenger traffic in traffic mix in project corridor. Following figure illustrates variation of PCU index at four toll plaza locations.

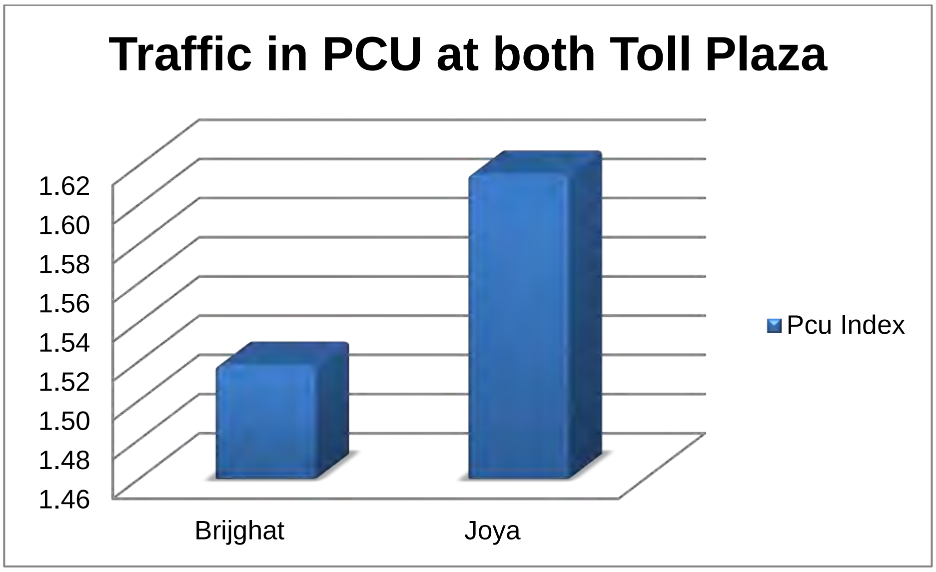


Figure 3-1: Comparison of PCU Index

It can be observed that PCU index is consistent at both toll plaza locations.

3.7.2 Components of Traffic

As discussed previously, components of traffic volume play an important role in determining project revenue. A larger component of commercial traffic with higher axle configuration adds to project revenue positively. Similarly, a larger component of local traffic affects the project revenue potential negatively.

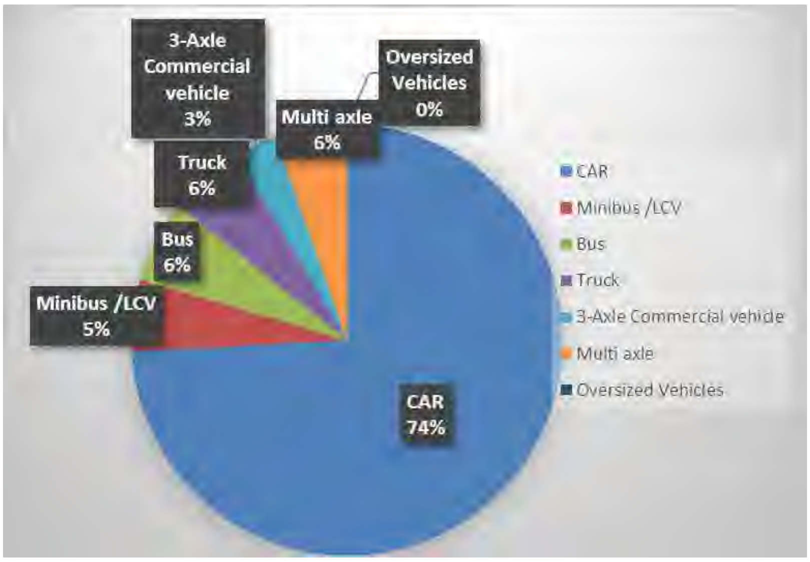


Figure 3-2 : Model Split of Tollable Vehicle @TP-1

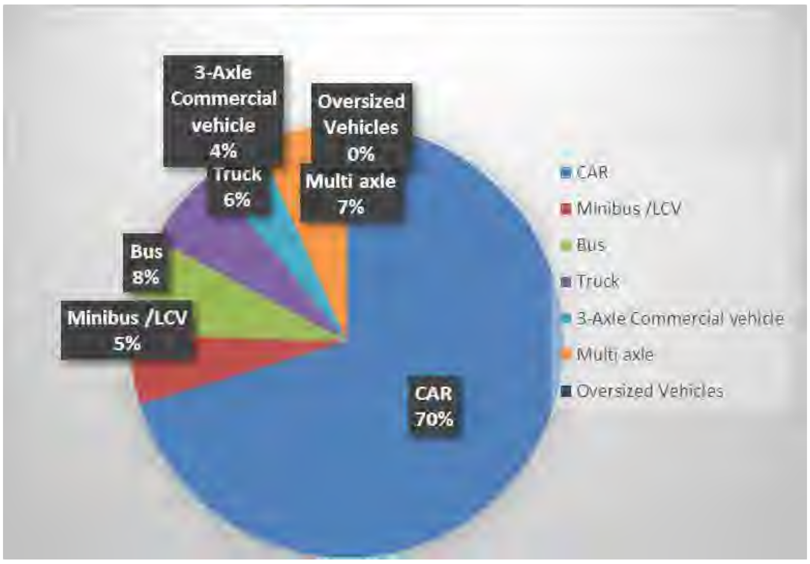


Figure 3-3 : Model Split of Tollable Vehicle @TP-2

It is observed that car traffic forms about 70%- 75% of total traffic at toll plaza locations while multi axle commercial vehicles are about 9% -10% of total traffic. Truck / Bus and LCV share about 12%-14% and 5% of traffic volume respectively.

Another important bifurcation of traffic is components of traffic with respect various type of toll ticketing like

1. Single Journey
2. Multi Journey
3. Monthly Pass (Local and General)

The following table provides numbers of vehicles falling in each of above category on base year 2022-23

Table 3-7 : Journey Type Bifurcation of Traffic at GarhTP-1KM 90.661

Sr. No	Type	Traffic Volume (Nos.)2022-23
1	Single Journey	15063
2	Return Journey	17880
3	Local Commercial Single Journey	2
4	Monthly Pass Local	19
5	Monthly Pass	0

Most dominant part of the above is the single journey type followed by return journey at project stretch. Monthly pass commuters are a very low fraction of the total traffic on the project corridor.

The single journey component in total traffic numbers is a high as 46%. Return journey component is 54%. The number of monthly pass local and Local Commercial Journey is 0% and 0% at Brijghat.

Following tables give the detail of journey distribution at Joya toll plaza at Km 123.875.

Table 3-8 : Journey Type Bifurcation of Traffic at Zoro ka Khera TPKM 121.020

Sr. No	Type	Traffic Volume (Nos.)2022-23
1	Single Journey	12142
2	Return Journey	10647
3	Local Commercial Single Journey	2
4	Monthly Pass Local	5
5	Monthly Pass	2

It is observed that the project corridor demonstrates a similar pattern of single journey dominated mix of traffic across the entire stretch which is typical of major national highways.

3.8 Secondary Data Collection

There are several other factors which have a substantial impact on traffic pattern and growth on any project corridor. Following are some of such important factors

- Industrial development around project corridor and its catchment
- Educational infrastructure along project corridor
- Demographic pattern
- Urban area development
- Tourism potential
- Upcoming major infrastructural or Industrial projects
- Special Industry in project corridor
- Overall trends of economic growth local as well as national / regional

Hence in addition to traffic details on project site, secondary data was also collected from various other sources. Typical secondary data includes the following:

1. Vehicle registration data of regional and national level.
2. Economic Data
   a) GDP
   b) NSDP
   c) Population Growth
   d) Per Capita Income growth

e) Industrial Growth

f) Special Industry Potential

g) Regional and National development vision / plan

h) Any other relevant data

3. Competing road network

We have collected and utilized such underlying data in the study to estimate the growth and risk factors for traffic along the project corridor.

CHAPTER 4

INFLUENCE ZONE TRANSPORT NETWORK ANALYSIS

4.1 Introduction

Highway corridors behave like integrated circuit network and more often than not every road is connected to various networks having different origin and destinations. Traffic running on these networks behave like fluid and flow on network on alignment of least friction.

Following Factors can be considered as major contributors to friction on transportation network

- Travel Speed / Travel Time
- Geometric deficiencies like blind horizontal curves and steep vertical gradients etc,
- Configuration of road
- Riding quality
- Traffic delays,
- Length of road,
- Passing through built up or Urban Area,
- Terrain,
- Facilities,

4.2 Competing / Alternate route

Project stretch has toll application history from last few years, and it can be assumed that project traffic is settled. However, for analysis point of view there can be few alternate routes at local level. Garh toll plaza is very near to major river Ganga over which major bridge about 1 km in length is constructed. Due to this there is no locals alternative route to toll plaza at Garh. There can be one alternative route which can bypass toll plaza at Joya. From Atrasi one can take left and bypass Toll Plaza at Joya and join back to NH-9 at Moradabad. This route quite long and passes through congested areas of Amroha. Further the road alignment of these district road is very poor with little chance of improvement.

Following maps show these routes in relation to project stretch at local level.

Figure 4-1: Alternate route at regional level

At regional level if we take Hisar and Rudrapur two origin destination representing Delhi/ Haryana and Uttarakhand region, there can be one alternate via Bulandshahar – Sambhal Road. One can take Bulaandshahar road after getting down from Peripheral Expressway at after Ghaziabad. This road bypasses NH-9 between Ghaziabad and Moradabad. This route is also quite long as compared to NH-9 and also road between Bulandshahar – Sambhal and Moradabad is poor and mostly of two lane specifications. Hence in such case it has very little potential of any further traffic diversion from project road.

Figure 4-2: Alternate route at local level

It can be observed that project highway forms the one of the main spine of the corridor between Delhi / Ghaziabad/ Hapurand Moradabad / Rudrapur/ Haldwani. Traffic on project road is now settled and it can be assumed as dedicated traffic on project road for logistic obligations.

With six laning now nearing completion, project stretch would become slightly more attractive due to improved level of service. In such case any diversion of traffic from project road is not envisaged.

Following table provide summary of analysis of alternate route/ roads discussed above.

Table 4-1 : Competing Roads Details

Sr. No	Route Details	Designation	Length (Km)	Avg. Speed (KMPH)	Time Taken (Min)	Observations
Regional Level						
1	Hisar-Delhi- Bulandshahar- Sambhal- Moradabad - Rudrapur	Alternate Route	462	53	8Hr 43 Min	Alternate route is longer and has poor geometrics and specifications. Traffic diversion not envisaged
	Hisar-Delhi- Hapur- Gajrola- Moradabad - Rudrapur	Project Road	427	57	7 Hr 27 Min	
Local Level						
2	Atrasi- Amroha- Pakbara- Moradabad (bypassing Joya Toll)	Alternate Route	36	51	1 Hr.	Alternate route is unlikely to attract project traffic due to very poor geometrics and high congestion
	Atrasi- Joya- Palkbara- Moradabad	Project Road	220	50	28 Min	

Under these circumstances it is not envisaged that commercial or passenger traffic would switch to alternate roads from the project road. Further, it may be noted that since the project highway has already been commissioned and has a tolling history, the current traffic traversing the project corridor already factors in traffic diversion (if any) that may have taken place.

CHAPTER 5

GROWTH OF TRAFFIC ON PROJECT HIGHWAY

5.1 Introduction

Traffic growth is a function of the interplay of a number of contributory factors such as National economy, Government policy, socio-economic conditions of the people, and changes in land uses along the project corridor precincts etc. As these factors have a number of uncertainties associated with them, forecasts of traffic are dependent on the projectionsof other factors such as population, gross domestic product (GDP), vehicle ownership, per capita income (PCI), agricultural output, fuel consumption etc. Future pattern of change in these factors can be estimated with only a reasonable degree of accuracy and hence the resultant traffic forecast levels may not be precise.

Traffic growth forecast for project corridor Hapur–Moradabad section of NH-9has been done taking the above factors into consideration. "**IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**" is established best practice and has been used for traffic growth forecast.

5.2 Trend Analysis

One of the methods of estimation of future rate of growth is to assume the same rate of growth as in the past. Although such a method is more suitable to projects of short durations say 5-10 years, however for long term projections it would-be erroneous to assume that the past rate of growth will continue to prevail for a long time in future. Economic conditions, which are major influencing factors, are bound to change over a long period of time. Thus, it would be necessary to modify the past trends of growth suitably.

Elasticity model of growth projection is one of the most widely acceptable methods for traffic forecast. The same is recommended in **IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**.

In this method the past trend of vehicular data is paired with an economic indicator and a regression analysis is done to yield the economic model of growth. Growth of vehicle traffic varies for different type of vehicle. It is a proven fact that the growth pattern for passenger and goods vehicle is different. Traffic growth on any highway

typically depends on number of economic parameters. Most important and direct parameters are given as under

- Per Capita Income
- Net State Domestic Product (NSDP)
- Population

It can be observed that the ownership of a car is more closely related to affordability; hence per capita is the index which closely fits the growth of car traffic among other criteria. In a similar fashion, the following can be pairs of vehicle type and independent variable for elasticity modeling of growth.

- Car / Jeep – Par Capita Income
- Bus / Minibus – Population
- Goods Vehicle – NSDP

5.3 Estimation of Traffic Demand Elasticity

Elasticity of traffic demand is defined as the rate at which traffic intensity varies due to a change in the corresponding indicator selected. Hence, In order to estimate the elasticity of traffic demand, it is necessary to establish relationship between the growth in number of given category of vehicles with the relevant economic variable considered, such as NSDP, per capita income and population growth.Latest available data for vehicle registration, per capita income, NSDP and population is used in analysis.

As per IRC: 108-1996 the model for estimating elasticity index for the project corridor is of the following form and is given as below:

$$Log\ (P) = k \times Log\ (EI) + A$$

Where,

P = Number of Vehicles (Mode wise)

EI = Economic Indicator

A = Regression constant

k = Elasticity coefficient (Regression coefficient)

The elasticity for car and bus (passenger vehicles) is calculated based on the Population and Per Capita Domestic Product (PCDP) and the elasticity for trucks is calculated based on the Net State Domestic Product (NSDP).

The project corridor spreads across state of Rajasthan. Toll plazas at Garh and Joya are in the state of Uttar Pradesh. For elasticity calculations, working data from Uttar Pradesh, Delhi and Haryana has been analyzed since Delhi and Haryana have substantial impact on project traffic.

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Maharashtra State.

Table 5-1 : Per Capita Income Vs Car Uttar Pradesh

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	32002	1108100	4.51	6.04		
2013	32908	1205374	4.52	6.08	3%	
2014	34044	1423020	4.53	6.15	3%	
2015	34583	1572217	4.54	6.20	2%	
2016	36973	1746117	4.57	6.24	7%	
2017	40641	2027972	4.61	6.31	10%	4.94%

Regression analysis of same is given in figure below

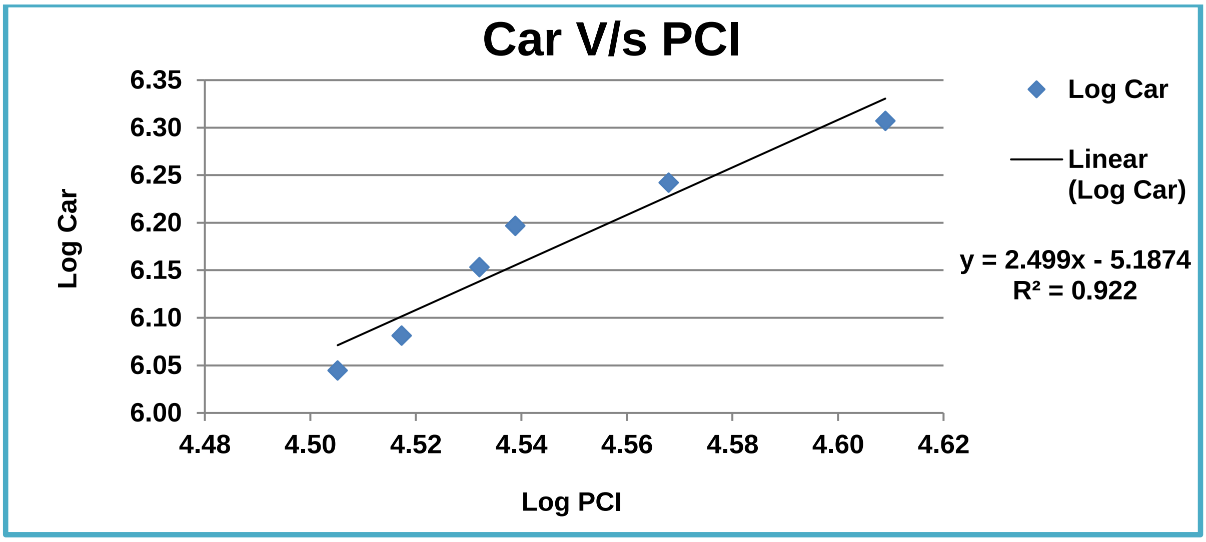


Figure 5-1: Regression and Elasticity PCI vs. Car–Extrapolation Uttar Pradesh

Table 5-2 : Population Vs Bus Uttar Pradesh

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	199812341	57901	8.30	4.76		
2013	203382046	64147	8.31	4.81	2%	
2014	206942855	74389	8.32	4.87	2%	
2015	210493544	80460	8.32	4.91	2%	
2016	214032922	89127	8.33	4.95	2%	
2017	217559836	112020	8.34	5.05	2%	1.72%

Regression analysis of same is given in figure below

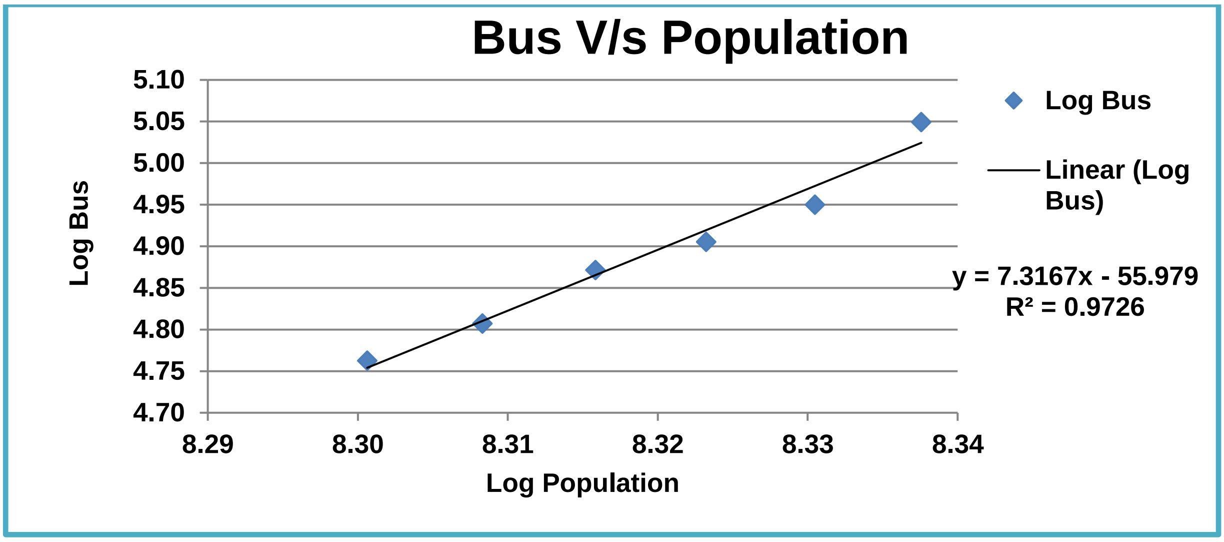


Figure 5-2: Regression and Elasticity Population vs. Bus – Extrapolation Uttar Pradesh

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-3 : LCV Traffic Vs NSDP Uttar Pradesh

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth (5 Year)
2012	645132	176164	5.81	5.25		
2013	673552	213657	5.83	5.33	4%	
2014	707469	265025	5.85	5.42	5%	
2015	729686	294022	5.86	5.47	3%	
2016	792049	316815	5.90	5.50	9%	5.28%

Following figure depict regression analysis and extrapolation.

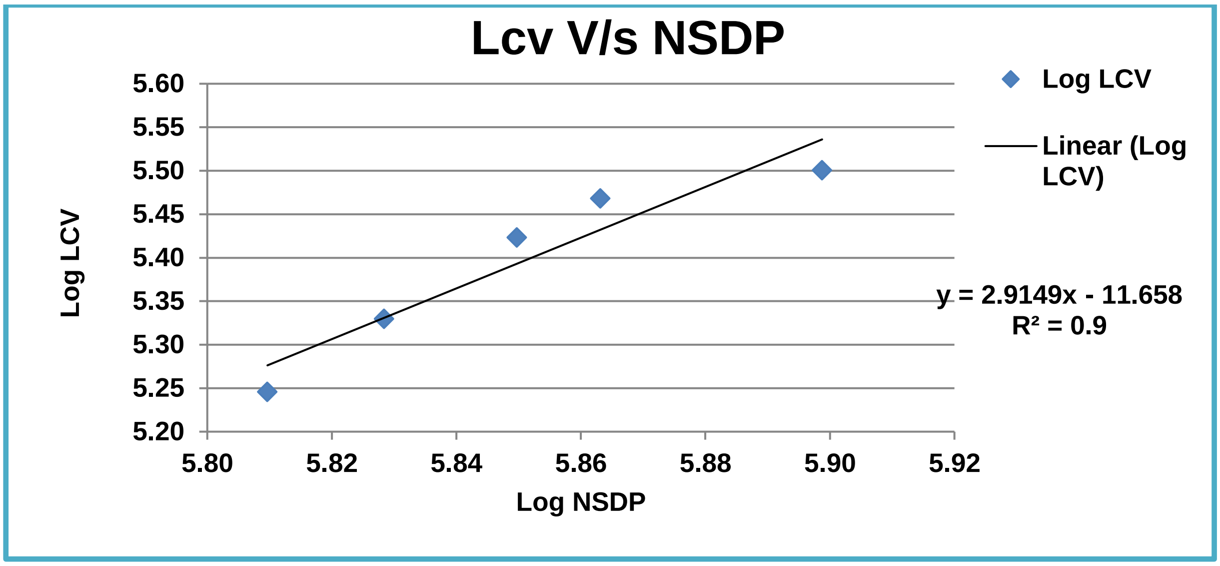


Figure 5-3: Regression and Elasticity NSDP vs. LCV Traffic – extrapolation Uttar Pradesh

Table 5-4: Trucks Traffic Vs NSDP Uttar Pradesh

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	645132	162813	5.81	5.21		
2013	673552	186404	5.83	5.27	4%	
2014	707469	202761	5.85	5.31	5%	
2015	729686	217609	5.86	5.34	3%	

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2016	792049	245688	5.90	5.39	9%	
2017	883962	265167	5.95	5.42	12%	6.55%

Following figure depict regression analysis and extrapolation.

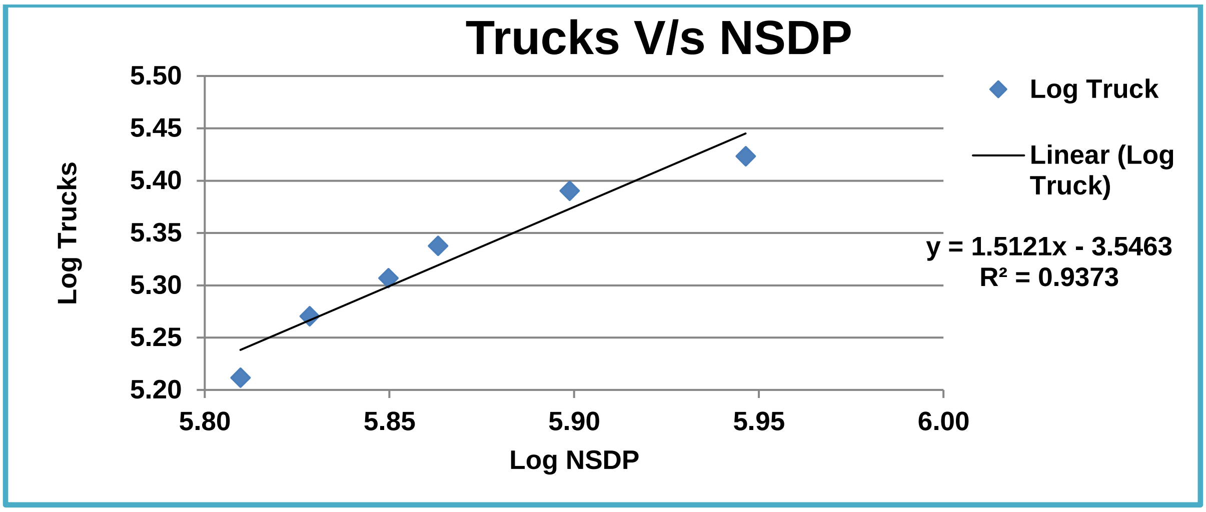


Figure 5-4: Regression and Elasticity NSDP vs. Truck Traffic – extrapolation Uttar Pradesh

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below.

Table 5-4 : Summary Regression Analysis Uttar Pradesh

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average Growth	Growth Elastic Model
Uttar Pradesh	Car/Jeep	PCI	y = 2.499x + -5.1874	R^2 = 0.922	2.4990	4.94%	12.34%
	Bus	Population	y = 7.3167x - -55.9791	R^2 = 0.9726	7.3167	1.72%	12.56%
	LCV	NSDP	y = 2.9149x - -11.6585	R^2 = 0.9	2.9149	5.28%	15.40%
	Truck	NSDP	y = 1.5121x - -3.5463	R^2 = 0.9373	1.5121	6.55%	9.90%

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Delhi State.

Table 5-5 : Per Capita Income Vs Car Delhi

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	185361	2172069	5.27	6.34		
2013	193175	2416974	5.29	6.38	4%	
2014	202216	2568380	5.31	6.41	5%	
2015	215726	2730071	5.33	6.44	7%	
2016	235737	2986579	5.37	6.48	9%	
2017	247255	3061817	5.39	6.49	5%	5.95%

Regression analysis of same is given in figure below

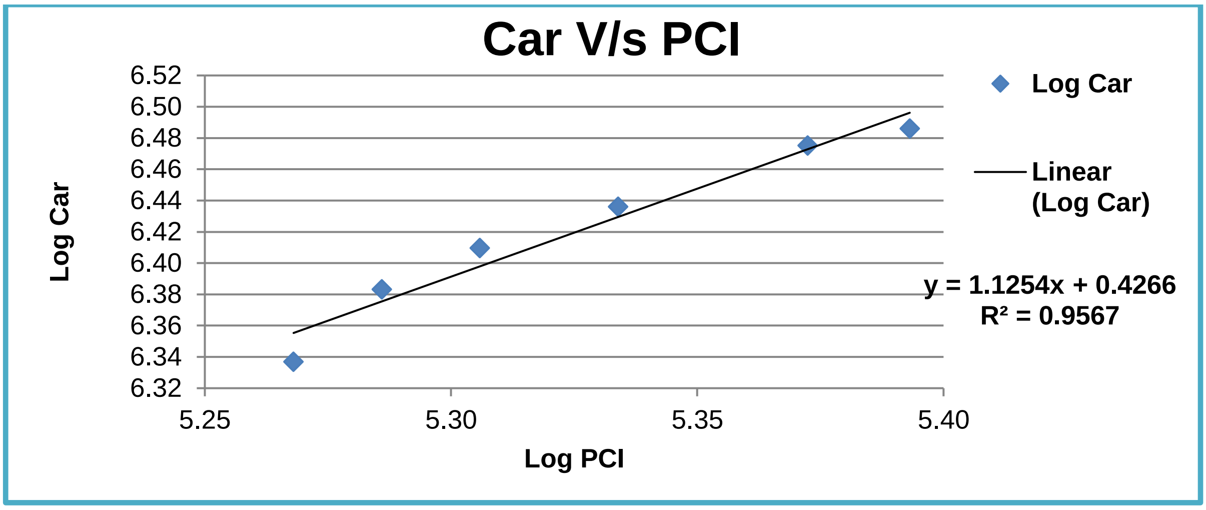


Figure 5-5: Regression and Elasticity PCI vs. Car–Extrapolation Delhi

Table 5-6 : Population Vs Bus Delhi

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	16787941	109790	7.22	5.04		
2013	17071599	19917	7.23	4.30	2%	
2014	17354281	19595	7.24	4.29	2%	
2015	17635897	19700	7.25	4.29	2%	
2016	17916359	43723	7.25	4.64	2%	
2017	18195583	41686	7.26	4.62	2%	1.62%

Regression analysis of same is given in figure below

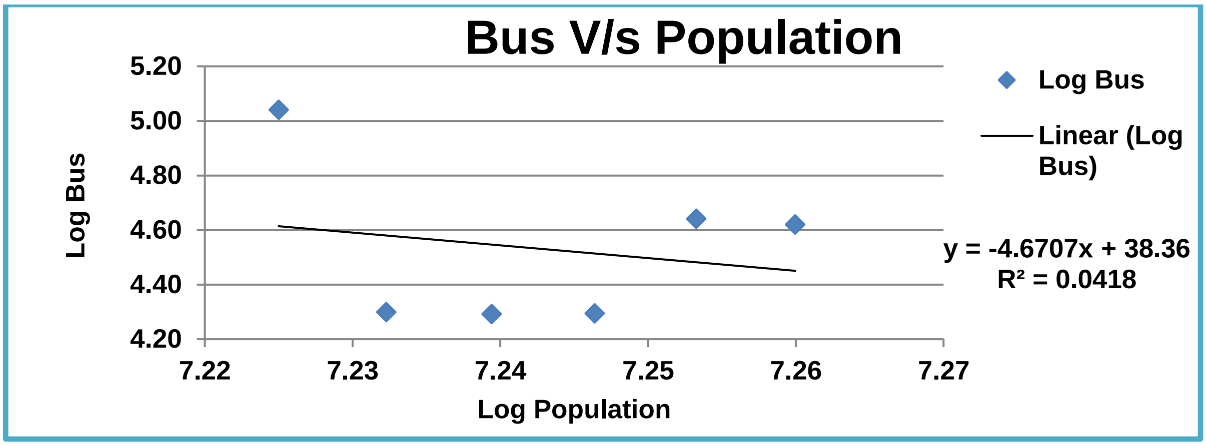


Figure 5-6: Regression and Elasticity Population vs. Bus – Extrapolation Delhi

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-7 : LCV Traffic Vs NSDP Delhi

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth (5 Year)
2012	314650	124547	5.50	5.10		
2013	334193	126539	5.52	5.10	6%	
2014	356528	136110	5.55	5.13	7%	
2015	387639	145903	5.59	5.16	9%	
2016	431730	183486	5.64	5.26	11%	
2017	461476	221068	5.66	5.34	7%	7.98%

Following figure depict regression analysis and extrapolation.

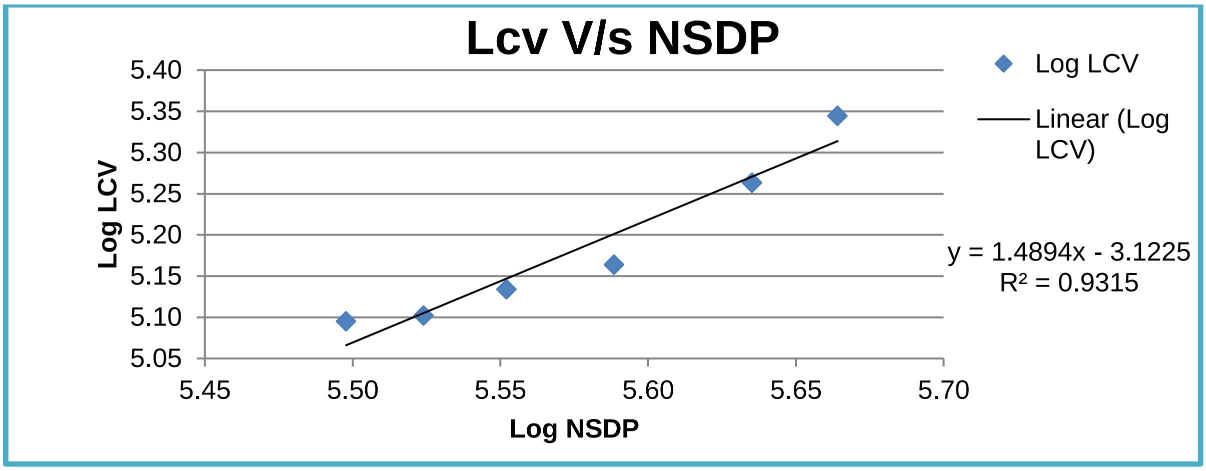


Figure 5-7: Regression and Elasticity NSDP vs. LCV Traffic – extrapolation Delhi

Table 5-4: Trucks Traffic Vs NSDP Delhi

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	314650	4792	5.50	3.68		
2013	334193	5176	5.52	3.71	6%	
2014	356528	6093	5.55	3.78	7%	
2015	387639	7503	5.59	3.88	9%	
2016	431730	8703	5.64	3.94	11%	
2017	461476	10440	5.66	4.02	7%	7.98%

Following figure depict regression analysis and extrapolation.

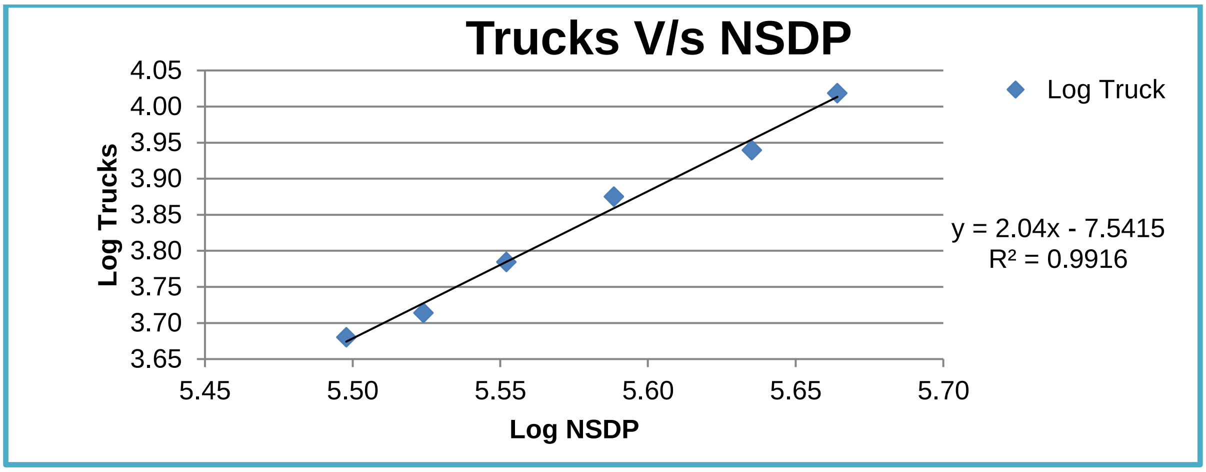


Figure 5-8: Regression and Elasticity NSDP vs. Truck Traffic – extrapolation Delhi

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below

Table 5-8 : Summary Regression Analysis Delhi

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average Growth	Growth Elastic Model
Delhi	Car/Jeep	PCI	y = 1.1254x + 0.4266	R^2 = 0.9567	1.1254	5.95%	6.69%
	Bus	Population	y = -4.6707x - 38.36	R^2 = 0.0418	-4.6707	1.62%	-7.58%
	LCV	NSDP	y = 1.4894x - -3.1225	R^2 = 0.9315	1.4894	7.98%	11.88%
	Truck	NSDP	y = 2.04x - - 7.5415	R^2 = 0.9916	2.0400	7.98%	16.27%

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Haryana State.

Table 5-9 : Per Capita Income Vs Car Haryana

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	106085	1134514	5.03	6.05		
2013	111780	1293065	5.05	6.11	5%	
2014	119791	1454182	5.08	6.16	7%	
2015	125032	1609544	5.10	6.21	4%	
2016	137818	1764448	5.14	6.25	10%	
2017	150241	1879587	5.18	6.27	9%	7.23%

Regression analysis of same is given in figure below

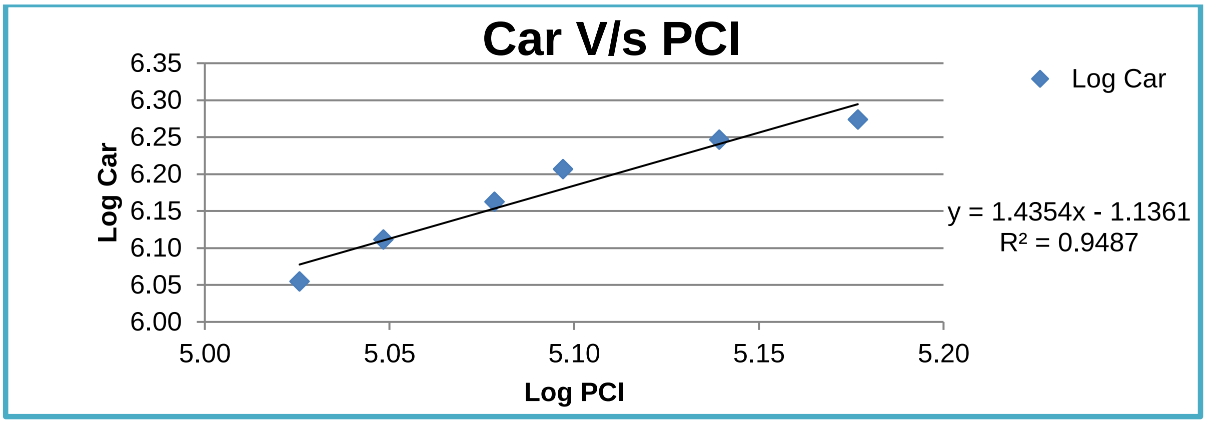


Figure 5-9: Regression and Elasticity PCI vs. Car–Extrapolation Harya

Table 5-10 : Population Vs Bus Haryana

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	25351462	39153	7.40	4.59		
2013	25751257	43456	7.41	4.64	2%	
2014	26149236	46558	7.42	4.67	2%	
2015	26545282	52640	7.42	4.72	2%	
2016	26939286	55781	7.43	4.75	1%	
2017	27331141	60129	7.44	4.78	1%	1.52%

Regression analysis of same is given in figure below

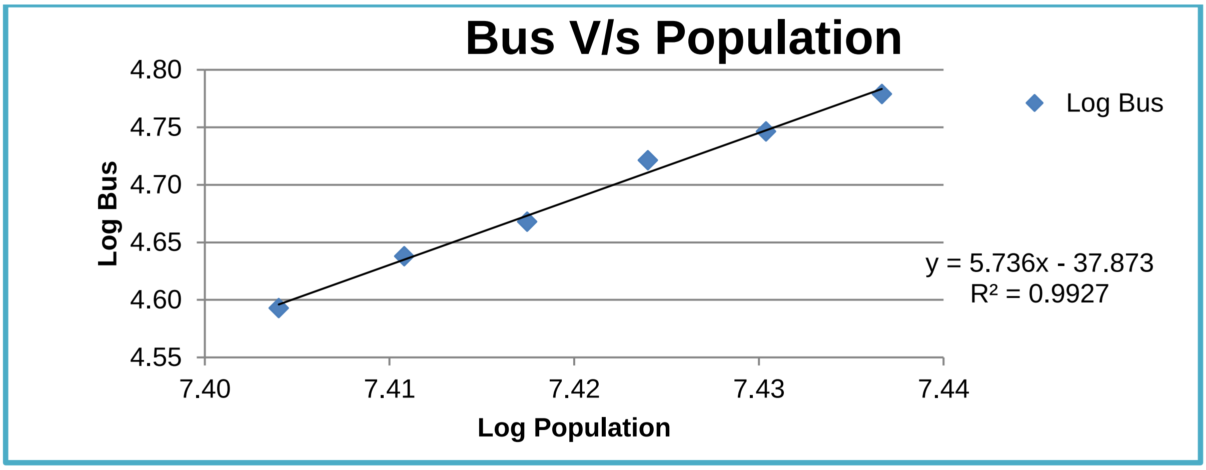


Figure 5-10: Regression and Elasticity Population vs. Bus – Extrapolation Haryana

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-11 : LCV Traffic Vs NSDP Haryana

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth (5 Year)
2012	271152	124897	5.43	5.10		
2013	289756	137511	5.46	5.14	7%	

2014	314931	152069	5.50	5.18	9%	
2015	333359	167901	5.52	5.23	6%	
2016	372659	182776	5.57	5.26	12%	8.30%

Following figure depict regression analysis and extrapolation.

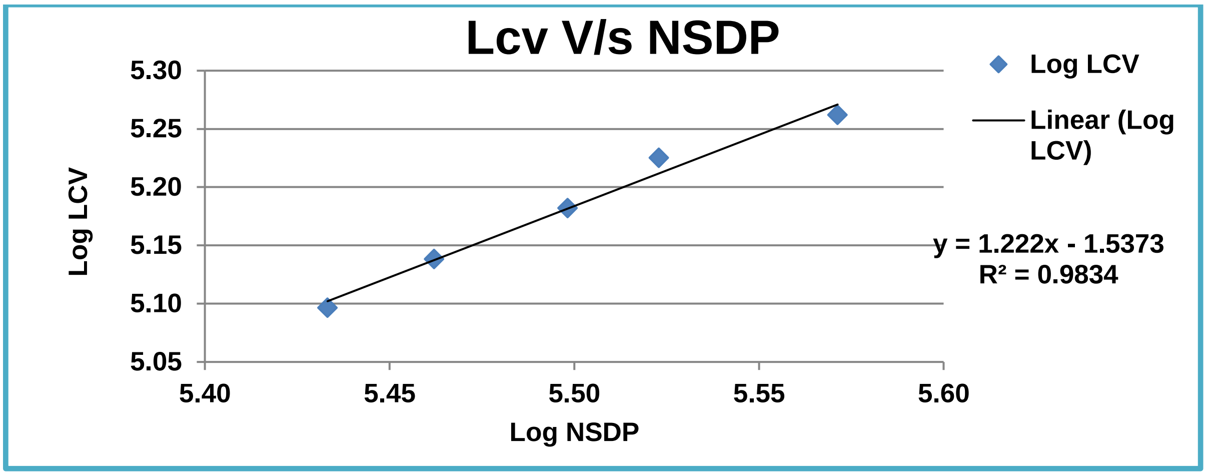


Figure 5-11: Regression and Elasticity NSDP vs. LCV Traffic – extrapolation Haryana

Table 5-4 : Trucks Traffic Vs NSDP Haryana

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	271152	292735	5.43	5.47		
2013	289756	307509	5.46	5.49	7%	
2014	314931	327882	5.50	5.52	9%	
2015	333359	348732	5.52	5.54	6%	
2016	372659	367730	5.57	5.57	12%	
2017	412006	390321	5.61	5.59	11%	8.75%

Following figure depict regression analysis and extrapolation.

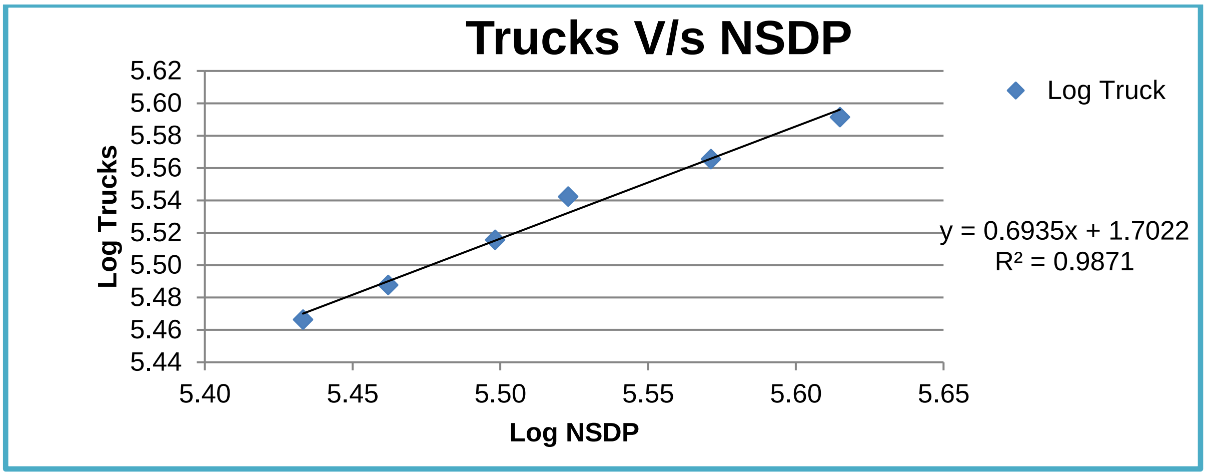


Figure 5-12: Regression and Elasticity NSDP vs. Truck Traffic – extrapolation Haryana

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below

Table 5-12 : Summary Regression Analysis Haryana

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average Growth	Growth Elastic Model
Haryana	Car/Jeep	PCI	y = 1.4354x - -1.1361	R^2 = 0.9487	1.4354	7.23%	10.38%
	Bus	Population	y = 5.736x - -37.8732	R^2 = 0.9927	5.7360	1.52%	8.69%
	LCV	NSDP	y = 1.222x - -1.5373	R^2 = 0.9834	1.2220	8.30%	10.14%
	Truck	NSDP	y = 0.6935x - 1.7022	R^2 = 0.9871	0.6935	8.75%	6.07%

Economical model for predicting growth is good tool, however other local, regional, national factors should also be considered before finalizing growth factors. Considering factors such as proposed developments and other influencing economic factors, moderated growth should be considered. These factors are discussed in subsequent sections.

5.4 Analysis of Historic Traffic Data

Historical traffic data forms useful information for any highway project. It provides useful information for establishing past trend of growth. Project stretch of Hapur to Moradabad is under tolling operation with current concessionaire and has less than a year of tolling history from May 2019. Traffic data for last two years is affected by COVID-19 impact. Hence sufficient data points are not available to be able to establish a reliable past trend of traffic growth. A minimum of about 5 -6 years' traffic data is required for establishing a reliable past trend.

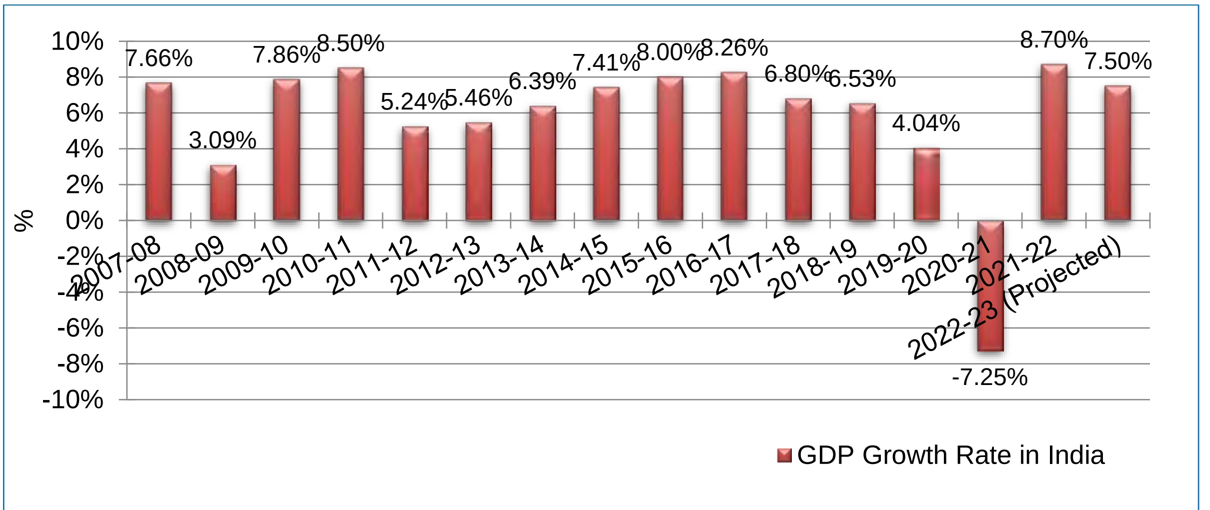
5.5 Other Factors Influencing Growth

There are many factors which have impact on traffic growth. As discussed previously these factors can be economical, social, educational, and industrial.

Potentiality of such factors for project highway is discussed as under.

ECONOMY

After witnessing a slowdown during 2011-12, the economy recovered in 2013-14, and a high growth rate of GDP was recorded in up to 2018-19. Pandemic of COVID-19 impacted all economies of world including India. Following figure show trend of GDP growth in India.



Source: RBI - Macro Economic Indicators & World Economic Outloook Update Jan 22

Figure 0-13 : Growth of GDP in India

FY 2017-18 recorded a growth of 6.7% which had slight impact of GST and demonetization. Indian economy appears on recovery path with estimated growth of

6.8% in FY 2018-19. Government took major policy decision including tax infrastructure reforming, banking sector improvement and ease of doing business.

Major economies of world collapsed due to pandemic COVID-19 including India. Indian economy is also registered negative growth in financial year 2020-21. After that Indian economy recovered handsomely and registered a growth of about 9% in Year 2021-22. This was partly due to low base of year 2020-21 as well.

Honorable Prime Minister has announced a major relief package of Rs. 20 lakh crores which is about 10% of GDP. This is aimed at turning this major crisis of COVID-19 into opportunity by providing major impetus to industrial production to the limit of becoming a self-reliant economy. With major thrust of this package being on **Make -In- India** it is expected that industry in India would grow at rapid pace and recover handsomely in post COVID-19 scenario. World Economic Outlook update also has predicted a growth rate of about 7.5 % in year 2022-23.

5.6 Developments along and around the Project Corridor & State

Though growth of Uttar Pradesh has been consistently below the national average economic growth, it is the largest state in terms of population and consumption driven demand for goods and services will remain significantly high. The rate of growth of NSDP also seems to be catching up with the national average over the years. Other regions in the influence area states namely Delhi, Haryana and Uttarakhand are all growing significantly faster than the national average. Considering the scenario, it may be assumed that the traffic growth on project highway would remain high and there are minimal risks in terms of growth.

The corridor passes through heavily cultivated Gangetic plains and also connects the fertile Doaba regions of the Uttarakhand plains. Simbaoli, one of the largest and modern sugar refinery complexes falls right on the project corridor. Sugar refineries like this link agriculture, distillery, clean fuel technologies, green energy generation including cogeneration etc. which is a positive influence on this agriculturally right region. Other parts of the capital region of Delhi are also experiencing rapid urbanization fueled by industrialization and growth. Thus induced traffic from these developments around the project corridor and due to the improved facility will be a positive contributing factor to the traffic growth on the project corridor

5.6.1 Industrial Units along Project Corridor

This project section of the NH-24 (newNH-9) crosses three districts of Uttar Pradesh (Hapur, Amroha and Moradabad). There are about 1000 significant industrial units in these districts out of which there are 40 large Scale and 11 Medium Scale industries. The major industrial base is dependent on agriculture and timber in the surrounding region. Being a sugarcane growing region, there are a number of sugar mills in the project catchment. Simbhawli Sugarmill is one of the largest integrated refinery producing gsugar, ethanol and other related products. Following map shows some of major industrial establishments along and in influence area of project stretch.

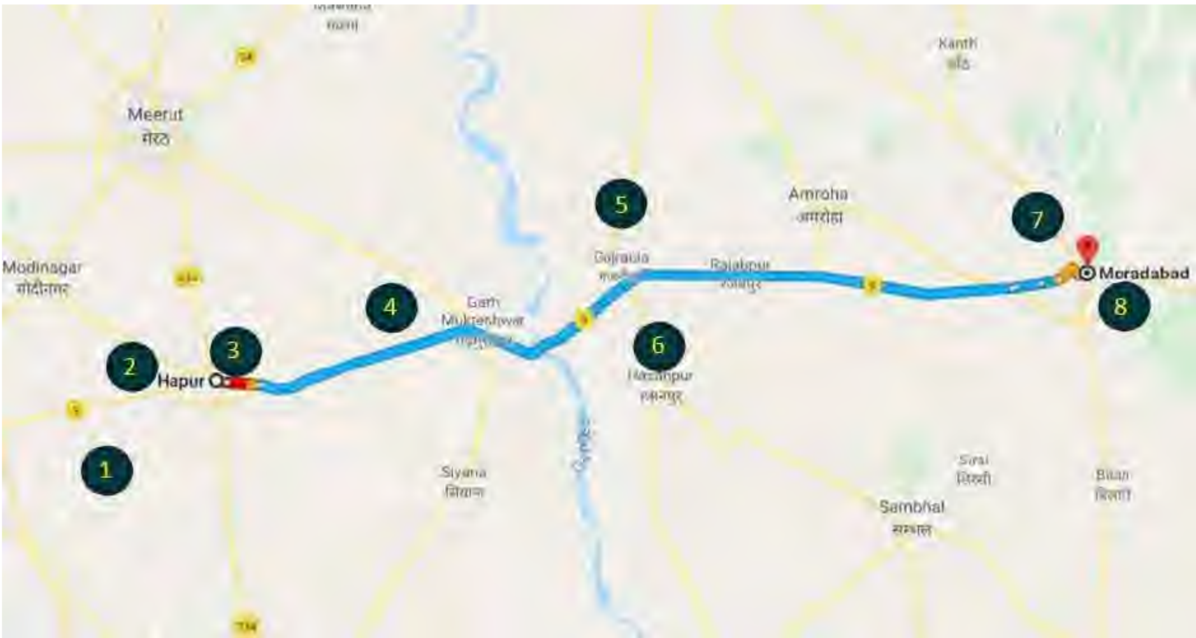


Figure 0-14 : Industrial Units along project corridor

Industries shown in above map are listed as below.

1. **Dhaolana** (Chetak enterprises, Spooner Industries Pvt. Ltd., Astech build product India Pvt. ltd.,
2. **Jindal Nagar, Hapur** (Marino Industries Jindal Nagar Hapur)– Large Scale Industry of Laminated Furnitures.
3. Medium Scale Industries in **Shakti Nagar, Hapur**
4. Sugar Mills (**Simbhawali** Sugar mills)
5. **GajraulaIndustrialArea1&2**(Paper & Sugar Mills, Food Products, Organic food Products)
6. Trivani Engineering & Industries Ltd.,**Hasanpur** (Engineering Goods)
7. **Agwanpur** (Industries of Milk Powder, Ghee, Acrylic Fibre, Crystal Sugar, Craft Paper)
8. **Dalpatpur** (Moradabad Dugdh Utpadan Sahakari Sangh– Milk & Milk Products)

Rapid expansion of NCR and NOIDA has triggered growth along project corridor as well. Large number of residential projects can be seen coming up along project road near Hapur, Gajraula and Moradabad. In fact there is a new city "New Moradabad" has come up near Pakbara on Delhi road.

5.7 Recommended Growth Rates of Traffic

Based on the above analysis and after giving due consideration to the entire listed factors, the following overall growth rates are recommended for each category of vehicle as under. Rate of growth is moderated in light of overall regional trend. Growth of Multi-Axle is kept slightly higher as trend of technological advances in logistic industry favors multi-axle over 2/3 axle carriage. It is also expected that as the economy moves from developing to developed, rate of growth diminishes. Same growth rate is not sustainable for long It is established practice to stepdown future growth rates at suitable interval of years.

Growth rates are recommended for three scenarios for sensitivity analysis namely **Optimistic, Pessimistic** and **Most Likely** with a positive and negative variation 0.5% from Most Likely case for corridor in both states.

5.7.1 Recommended Growth Rates of Traffic for Project Stretch

Table 5-13 : Recommended Growth Rates Optimistic

Category / Year	2021-2022	2022-2023	2023-2026	2026-2031	2031-2036	2036-2041	2041-2046
Car/Jeep/Van	10.04%	7.18%	6.23%	6.01%	5.78%	4.36%	4.17%
LCV	5.47%	3.81%	3.26%	3.06%	2.47%	1.76%	1.57%
BUS	5.64%	3.84%	3.33%	3.20%	3.44%	2.73%	2.62%
2- Axle	5.80%	4.47%	3.81%	3.61%	3.17%	1.76%	1.57%
3 - Axle	6.13%	4.47%	3.81%	3.61%	3.17%	1.76%	1.57%
4 to6 Axle	7.12%	4.81%	4.14%	3.92%	3.43%	1.89%	1.68%
7 and Above Axle	7.12%	4.81%	4.14%	3.92%	3.43%	1.89%	1.68%

Table 5-14 : Recommended Growth Rates Pessimistic

Category / Year	2021-2022	2022-2023	2023-2026	2026-2031	2031-2036	2036-2041	2041-2046
Car/Jeep/Van	9.54%	6.68%	5.73%	5.51%	5.28%	3.86%	3.67%
LCV	4.97%	3.31%	2.76%	2.56%	1.97%	1.26%	1.07%
BUS	5.14%	3.34%	2.83%	2.70%	2.94%	2.23%	2.12%
2- Axle	5.30%	3.97%	3.31%	3.11%	2.67%	1.26%	1.07%
3 - Axle	5.63%	3.97%	3.31%	3.11%	2.67%	1.26%	1.07%
4 to6 Axle	6.62%	4.31%	3.64%	3.42%	2.93%	1.39%	1.18%
7 and Above Axle	6.62%	4.31%	3.64%	3.42%	2.93%	1.39%	1.18%

Table 5-15 : Recommended Growth Rates Most Likely

Category / Year	2021-2022	2022-2023	2023-2026	2026-2031	2031-2036	2036-2041	2041-2046
Car/Jeep/Van	9.79%	6.93%	5.98%	5.76%	5.53%	4.11%	3.92%
LCV	5.22%	3.56%	3.01%	2.81%	2.22%	1.51%	1.32%
BUS	5.39%	3.59%	3.08%	2.95%	3.19%	2.48%	2.37%
2- Axle	5.55%	4.22%	3.56%	3.36%	2.92%	1.51%	1.32%
3 - Axle	5.88%	4.22%	3.56%	3.36%	2.92%	1.51%	1.32%
4 to6 Axle	6.87%	4.56%	3.89%	3.67%	3.18%	1.64%	1.43%
7 and Above Axle	6.87%	4.56%	3.89%	3.67%	3.18%	1.64%	1.43%

Traffic and revenue have been worked out on the basis of above growths and same is presented in subsequent chapter of report.

5.8 COVID-19 Impact

All social and economic activities had been completely disrupted due worldwide pandemic of Corona Virus. This had affected traffic on project stretch as well. Traffic was severely affected form March-2020 due to lockdown and then in second wave and third waves.

Government has announced a mega economic stimulate and package of Rs. 20 Lakh Crore to bring the economy back on track and recover the losses. Traffic has shown impressive recovery post lockdown period and has recovered to normal level.

Taking recommended traffic growth and factors as discussed above into consideration traffic forecast for concession period is done and presented in next chapter.

CHAPTER 6

TRAFFIC FORECAST

6.1 Traffic Projections

Growth rates recommended in previous section of report are used to arrive at traffic projections for future years. Toll plaza wise futuristic traffic projection is given in tables below.

These projections have been done for following three cases of growth up to concession period

1. Optimistic Scenario
2. Pessimistic Scenario
3. Most Likely Scenario

Table 6-1 : Total Tollable Traffic @ Toll Plaza 1- Garh @90.661 KM (Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	24446	1767	2049	1886	1027	1784	4	**32963**	**50032**
2023-24	25967	1825	2117	1958	1066	1859	4	**34796**	**52511**
2024-25	27583	1885	2187	2033	1107	1936	4	**36735**	**55122**
2025-26	29242	1943	2257	2106	1147	2012	4	**38711**	**57759**
2026-27	31001	2003	2330	2182	1188	2091	4	**40799**	**60533**
2027-28	32865	2065	2405	2260	1230	2173	4	**43002**	**63444**
2028-29	34841	2128	2482	2341	1275	2258	4	**45329**	**66506**
2029-30	36936	2193	2562	2426	1321	2347	4	**47789**	**69732**
2030-31	39071	2247	2651	2503	1363	2428	4	**50267**	**72937**
2031-32	41329	2303	2742	2583	1406	2511	4	**52878**	**76294**
2032-33	43718	2360	2836	2665	1451	2597	4	**55631**	**79819**
2033-34	46245	2418	2934	2750	1497	2686	4	**58534**	**83520**
2034-35	48917	2478	3035	2837	1544	2779	4	**61594**	**87406**
2035-36	51052	2522	3118	2887	1571	2831	4	**63985**	**90321**
2036-37	53280	2566	3203	2938	1599	2884	4	**66474**	**93345**
2037-38	55605	2611	3291	2989	1627	2939	4	**69066**	**96486**
2038-39	58032	2657	3381	3042	1655	2995	4	**71766**	**99747**
2039-40	60564	2704	3473	3096	1684	3051	4	**74576**	**103127**
2040-41	63091	2746	3564	3145	1711	3103	4	**77364**	**106452**
2041-42	65724	2789	3657	3194	1738	3155	4	**80261**	**109890**
2042-43	68466	2833	3753	3245	1765	3208	4	**83274**	**113459**
2043-44	71323	2878	3852	3296	1793	3262	4	**86408**	**117160**
2044-45	74299	2923	3953	3348	1821	3317	4	**89665**	**120994**
2045-46	77260	2963	4052	3394	1847	3366	4	**92886**	**124749**

Table 6-2 : Total Tollable Traffic @ Toll Plaza 2- Joya @123.875 KM (Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	16025	1201	1670	1418	960	1518	5	**22797**	**36823**
2023-24	17023	1240	1726	1473	996	1581	6	**24045**	**38610**
2024-25	18082	1280	1784	1529	1034	1647	6	**25362**	**40482**
2025-26	19169	1319	1841	1584	1071	1712	6	**26702**	**42367**
2026-27	20321	1359	1900	1641	1109	1779	6	**28115**	**44342**
2027-28	21543	1400	1961	1700	1149	1849	6	**29608**	**46421**
2028-29	22838	1443	2023	1761	1190	1921	6	**31182**	**48596**
2029-30	24211	1488	2088	1825	1233	1996	6	**32847**	**50890**
2030-31	25610	1524	2160	1883	1273	2065	6	**34521**	**53164**
2031-32	27090	1562	2234	1942	1314	2136	6	**36284**	**55542**
2032-33	28655	1600	2311	2004	1356	2210	6	**38142**	**58040**
2033-34	30311	1640	2391	2068	1399	2286	6	**40101**	**60659**
2034-35	32063	1681	2473	2133	1444	2365	6	**42165**	**63404**
2035-36	33462	1710	2540	2170	1470	2409	6	**43767**	**65435**
2036-37	34922	1740	2609	2209	1496	2454	6	**45436**	**67544**
2037-38	36445	1771	2681	2248	1523	2501	6	**47175**	**69739**
2038-39	38035	1802	2754	2287	1550	2548	6	**48982**	**72004**
2039-40	39695	1834	2829	2327	1577	2596	6	**50864**	**74354**
2040-41	41351	1863	2903	2364	1601	2640	6	**52728**	**76657**
2041-42	43076	1892	2979	2401	1627	2684	6	**54665**	**79040**
2042-43	44873	1922	3058	2438	1653	2729	6	**56679**	**81511**
2043-44	46745	1952	3138	2477	1679	2774	6	**58771**	**84065**
2044-45	48695	1983	3220	2516	1706	2821	6	**60947**	**86717**
2045-46	50635	2010	3301	2550	1729	2862	6	**63093**	**89296**

Table 6-3 : Total Tollable Traffic @ Toll Plaza 1- Garh @ 90.661 KM (Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	24446	1767	2049	1886	1027	1784	4	**32963**	**50032**
2023-24	25846	1816	2107	1949	1061	1849	4	**34632**	**52260**
2024-25	27326	1867	2166	2013	1096	1916	4	**36388**	**54592**
2025-26	28832	1914	2224	2076	1130	1981	4	**38161**	**56926**
2026-27	30421	1963	2284	2140	1165	2049	4	**40026**	**59371**
2027-28	32098	2014	2345	2206	1201	2119	4	**41987**	**61929**
2028-29	33868	2065	2409	2274	1238	2191	4	**44049**	**64606**
2029-30	35735	2118	2474	2345	1276	2266	4	**46218**	**67412**
2030-31	37621	2160	2547	2408	1310	2333	4	**48383**	**70173**
2031-32	39607	2202	2622	2472	1345	2401	4	**50653**	**73050**
2032-33	41698	2246	2699	2538	1381	2472	4	**53038**	**76063**
2033-34	43900	2290	2779	2606	1418	2544	4	**55541**	**79210**
2034-35	46219	2335	2861	2676	1456	2619	4	**58170**	**82504**
2035-36	48005	2364	2925	2710	1474	2656	4	**60138**	**84848**
2036-37	49859	2393	2990	2744	1493	2693	4	**62176**	**87266**

2037-38	51785	2424	3057	2778	1512	2730	4	**64290**	**89765**
2038-39	53786	2455	3125	2813	1531	2768	4	**66482**	**92350**
2039-40	55864	2486	3194	2849	1550	2806	4	**68753**	**95017**
2040-41	57915	2513	3262	2880	1567	2839	4	**70980**	**97605**
2041-42	60042	2540	3331	2911	1584	2873	4	**73285**	**100277**
2042-43	62247	2567	3402	2942	1601	2907	4	**75670**	**103032**
2043-44	64534	2594	3474	2974	1618	2941	4	**78139**	**105876**
2044-45	66905	2622	3548	3006	1636	2975	4	**80696**	**108814**
2045-46	69237	2645	3620	3033	1650	3004	4	**83193**	**111650**

Table 6-4 : Total Tollable Traffic @ Toll Plaza 2- Joya @123.875 KM

(Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	16025	1201	1670	1418	960	1518	5	**22797**	**36823**
2023-24	16943	1233	1717	1465	992	1573	6	**23929**	**38420**
2024-25	17912	1267	1766	1513	1025	1630	6	**25119**	**40087**
2025-26	18900	1299	1813	1560	1057	1686	6	**26321**	**41753**
2026-27	19942	1332	1862	1608	1090	1743	6	**27583**	**43491**
2027-28	21041	1366	1912	1658	1123	1803	6	**28909**	**45310**
2028-29	22201	1401	1964	1709	1158	1865	6	**30304**	**47215**
2029-30	23425	1437	2017	1762	1194	1929	6	**31770**	**49207**
2030-31	24661	1466	2076	1809	1226	1986	6	**33230**	**51157**
2031-32	25963	1495	2137	1857	1259	2044	6	**34761**	**53190**
2032-33	27334	1524	2199	1907	1292	2104	6	**36366**	**55309**
2033-34	28777	1554	2264	1958	1327	2166	6	**38052**	**57529**
2034-35	30296	1585	2331	2011	1363	2229	6	**39821**	**59846**
2035-36	31467	1605	2383	2036	1380	2260	6	**41137**	**61469**
2036-37	32682	1625	2436	2062	1398	2291	6	**42500**	**63144**
2037-38	33944	1645	2490	2088	1416	2323	6	**43912**	**64874**
2038-39	35256	1666	2545	2114	1434	2355	6	**45376**	**66659**
2039-40	36618	1687	2602	2141	1452	2387	6	**46893**	**68502**
2040-41	37962	1705	2657	2164	1467	2415	6	**48376**	**70278**
2041-42	39356	1723	2714	2187	1482	2443	6	**49911**	**72110**
2042-43	40801	1741	2772	2210	1497	2472	6	**51499**	**74001**
2043-44	42299	1759	2831	2233	1514	2502	6	**53144**	**75958**
2044-45	43853	1778	2891	2257	1531	2532	6	**54848**	**77978**
2045-46	45382	1794	2949	2277	1545	2557	6	**56510**	**79920**

Traffic projections for Most Likely scenario are given as under

Table 6-5 : Total Tollable Traffic @ Toll Plaza 1- Garh @ 90.661 KM (Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	24446	1767	2049	1886	1027	1784	4	**32963**	**50032**
2023-24	25907	1820	2112	1954	1064	1853	4	**34714**	**52384**
2024-25	27455	1875	2177	2024	1102	1925	4	**36562**	**54857**
2025-26	29037	1928	2241	2092	1139	1996	4	**38437**	**57345**
2026-27	30710	1982	2307	2162	1177	2070	4	**40412**	**59954**
2027-28	32480	2038	2375	2235	1217	2146	4	**42495**	**62693**
2028-29	34352	2095	2445	2310	1258	2225	4	**44689**	**65564**
2029-30	36332	2153	2517	2388	1300	2307	4	**47001**	**68576**
2030-31	38340	2201	2598	2458	1338	2381	4	**49320**	**71556**
2031-32	40459	2250	2681	2529	1378	2457	4	**51758**	**74673**
2032-33	42697	2299	2766	2602	1418	2535	4	**54321**	**77929**
2033-34	45059	2350	2855	2678	1459	2616	4	**57021**	**81350**
2034-35	47551	2402	2946	2756	1501	2699	4	**59859**	**84927**
2035-36	49507	2438	3019	2798	1524	2743	4	**62033**	**87549**
2036-37	51543	2475	3094	2840	1547	2788	4	**64291**	**90263**
2037-38	53662	2513	3171	2883	1570	2833	4	**66636**	**93070**
2038-39	55870	2551	3249	2927	1594	2879	4	**69074**	**95980**
2039-40	58169	2589	3330	2971	1618	2927	4	**71608**	**98999**
2040-41	60452	2623	3409	3010	1640	2969	4	**74107**	**101942**
2041-42	62823	2658	3490	3049	1662	3011	4	**76697**	**104981**
2042-43	65287	2693	3573	3090	1684	3054	4	**79385**	**108129**
2043-44	67848	2729	3658	3131	1706	3098	4	**82174**	**111386**
2044-45	70510	2765	3744	3172	1729	3143	4	**85067**	**114754**
2045-46	73144	2796	3828	3208	1748	3181	4	**87909**	**118023**

Table 6-6 : Total Tollable Traffic @ Toll Plaza 2- Joya @123.875 KM

(Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	16025	1201	1670	1418	960	1518	5	**22797**	**36823**
2023-24	16983	1236	1722	1468	995	1577	6	**23987**	**38516**
2024-25	17998	1273	1775	1521	1031	1638	6	**25242**	**40287**
2025-26	19035	1309	1827	1572	1066	1698	6	**26513**	**42062**
2026-27	20132	1345	1881	1625	1102	1760	6	**27851**	**43921**
2027-28	21292	1383	1936	1680	1139	1825	6	**29261**	**45871**
2028-29	22519	1422	1993	1736	1177	1892	6	**30745**	**47911**
2029-30	23816	1462	2052	1794	1217	1962	6	**32309**	**50054**
2030-31	25132	1494	2118	1847	1253	2024	6	**33874**	**52162**
2031-32	26522	1527	2185	1901	1290	2089	6	**35520**	**54368**
2032-33	27988	1561	2254	1957	1327	2155	6	**37248**	**56668**
2033-34	29536	1595	2326	2014	1365	2224	6	**39066**	**59079**
2034-35	31169	1631	2400	2073	1405	2295	6	**40979**	**61604**
2035-36	32451	1656	2460	2104	1427	2333	6	**42437**	**63434**
2036-37	33786	1681	2521	2135	1449	2371	6	**43949**	**65319**
2037-38	35176	1706	2583	2168	1471	2410	6	**45520**	**67273**

2038-39	36623	1731	2648	2201	1493	2449	6	**47151**	**69293**
2039-40	38129	1758	2714	2234	1516	2489	6	**48846**	**71386**
2040-41	39624	1781	2779	2264	1536	2524	6	**50514**	**73418**
2041-42	41178	1804	2845	2294	1556	2560	6	**52243**	**75516**
2042-43	42793	1828	2912	2325	1577	2596	6	**54037**	**77686**
2043-44	44472	1852	2981	2356	1598	2633	6	**55898**	**79931**
2044-45	46216	1877	3052	2387	1620	2671	6	**57829**	**82255**
2045-46	47943	1898	3121	2414	1638	2703	6	**59723**	**84500**

6.2 Modification in Concession Period

As per Article 29 of the concession agreement, if actual traffic on the project falls short or exceeds Target Traffic on project highway on defined date, concession period shall be modified subject to calculation stipulated therein. For Hapur-Moradabad project, the Target Date and Target Traffic are defined as under:

Target Date - 1stApril 2028

Target Traffic - 67413 in PCU

It was observed that as per traffic projections, average traffic volume is in excess of target traffic in all scenarios. Probable extension of concession period is estimated according to article 29 of concession agreement which comes to about 2 years. Traffic forecast and revenue projections has been kept up to concession period in report till actual finalization of modification.

Most Likely

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2028	67413	56778	-16%	24%	20%	22	4.4

Optimistic

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2028	67413	57598	-15%	22%	20%	22	4.4

Pessimistic

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2028	67413	55946	-17%	26%	20%	22	4.4

CHAPTER 7
FORECAST OF TOLL REVENUE

7.1 General

This chapter presents the tolling rate calculations, categories and toll revenue of the project.

7.2 Discount Categories

The fee schedule in the CA of Hapur-Moradabad section of NH-9 is based on the old toll policy. As per the Toll Notification (Schedule -G) the discounts and special provisions have been considered. In addition to discounts as per Fee Notification concessionaire has declared special category rates also. Salient features of toll rate structure are given as under

1. Monthly Pass: For frequent users monthly pass would be issued for 50 trips in month at 2/3d rate.
2. Multiple Journeys (for Return Trip): Will be charged at 1.5 times single journey.
3. Single Journey: Full single journey toll would be charged to this category of vehicles who are infrequent travelers or whose frequency does not yield any discount from the above categories.
4. Local Discounts: There are several categories of local discounts.
    a) Local Car Jeep Van I - Rs. 265 per month
    b) Local Commercial Vehicles at 50% rate for single journey

Building of inflation and escalation of rate on the basis of WPI are done as per toll notification (Schedule G) as given under as extract from concession agreement.

The formula for determining the applicable rate of fee shall be as follows:-

$$\text{Applicable rate of fee} = \text{base rate} + \text{base rate} \times \left\{ \frac{\text{WPI A} - \text{WPI B}}{\text{WPI B}} \right\} \times 0.4$$

Factor of inflation / growth has been incorporated as per Schedule R. WPI numbers (2011-12 series) are available up to 2018-19. A moderate growth in Wholesale Price Index (WPI) has been assumed after that. The following graph provides historical rate of inflation (WPI) in India. Data has been sourced from the Office of Economic Advisor web site (www.eaindustry.nic.in) WPI for year 2017-18 and 2018-2019 is worked back by applying a correlation factor for 2004-05 series as 2017-18 and 2018-2019 data is available in 2011-12 series only. Ratio of WPI for year 2016-17 for both series is used for conversion of WPI in 2004-05 series

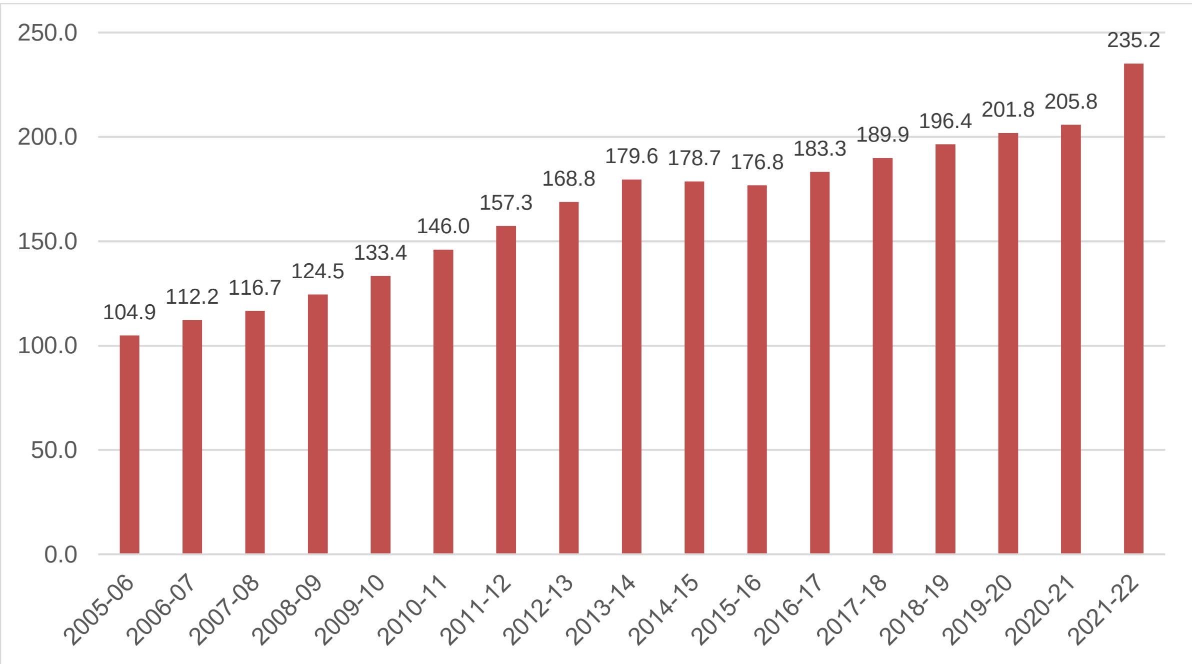


Figure 0-1 : Historical Rate of WPI Inflation in India

Average inflation in WPI in last few years is steadily growing. It grew in range of 4% - 5% in previous years. For future years initially it is takes 5% and Suitably Stepped down for future years.

7.3 Estimation of Toll Rates

As per the applicable MORTH notification and Schedule R of contract agreement, the following Base rate of fee for the categories mentioned in the table stands true in the National Highways Fee Rules applicable for contract.

Table 7-1 : Base Toll Rates June 2007-08

Type of Vehicle	Base Rate of Fee / Km (in Rs.)
Car, Jeep, Van or Light Motor Vehicle	0.65
Light Commercial Vehicle, Light Goods Vehicle or Mini Bus	1.05
Bus or Truck (Two Axles)	2.20
Three Axle Commercial Vehicles	2,40
Heavy Construction Machinery (HCM) or Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 axles)	3.45
Oversized Vehicles (7 or more Axles)	4.20

There is no bypass or structure to be factored in for rates calculations.

Toll rates are calculated as per guidelines provided in schedule R (rounded to nearest Rs.) for the concession period and are given below.

Thus worked out rates for various categories of vehicle and discounts are given as under.

Table 7-2 : Toll Rates for Single Journey@ Km 90.661

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	55	90	195	195	210
2022-23	95	150	315	315	345
2023-24	115	185	385	385	420
2024-25	120	190	400	400	440
2025-26	125	200	425	425	460
2026-27	130	210	445	445	485
2027-28	140	220	465	465	510
2028-29	145	235	490	490	535
2029-30	150	245	510	510	560
2030-31	160	255	535	535	585

2031-32	165	270	565	565	615
2032-33	175	280	590	590	645
2033-34	185	295	620	620	675
2034-35	190	310	650	650	710
2035-36	200	325	680	680	745
2036-37	210	340	715	715	780
2037-38	220	360	750	750	815
2038-39	230	375	785	785	860
2039-40	245	395	825	825	900
2040-41	255	415	865	865	945
2041-42	270	435	910	910	990
2042-43	280	455	955	955	1040
2043-44	295	480	1005	1005	1095
2044-45	310	505	1055	1055	1150
2045-46	325	530	1105	1105	1205
2046-47	345	555	1160	1160	1265

Table 7 3 : Toll Rates for Single Journey @ Km 123.875

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	40	65	130	130	145
2022-23	65	105	220	220	240
2023-24	70	110	230	230	250
2024-25	70	115	240	240	265
2025-26	75	120	255	255	280
2026-27	80	130	270	270	290
2027-28	85	135	280	280	305
2028-29	85	140	295	295	320
2029-30	90	145	310	310	335
2030-31	95	155	325	325	350
2031-32	100	160	340	340	370
2032-33	105	170	355	355	385
2033-34	110	180	370	370	405
2034-35	115	185	390	390	425
2035-36	120	195	410	410	445
2036-37	125	205	430	430	470
2037-38	135	215	450	450	490
2038-39	140	225	475	475	515
2039-40	145	235	495	495	540
2040-41	155	250	520	520	570
2041-42	160	260	550	550	595
2042-43	170	275	575	575	630
2043-44	180	290	610	610	665
2044-45	190	305	640	640	700
2045-46	200	325	675	675	735
2046-47	210	340	715	715	780

Table 7-3 : Toll Rates for Return Journey @ Km 90.661

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	85	140	290	290	315
2022-23	140	225	470	470	515
2023-24	170	275	575	575	625
2024-25	180	290	605	605	660
2025-26	185	305	635	635	690
2026-27	195	320	665	665	725
2027-28	205	335	700	700	760
2028-29	215	350	730	730	800
2029-30	225	365	770	770	840
2030-31	240	385	805	805	880
2031-32	250	405	845	845	920
2032-33	260	420	885	885	965
2033-34	275	445	930	930	1010
2034-35	290	465	975	975	1060
2035-36	300	485	1020	1020	1115
2036-37	315	510	1070	1070	1170
2037-38	330	535	1125	1125	1225
2038-39	350	565	1180	1180	1285
2039-40	365	590	1240	1240	1350
2040-41	385	620	1300	1300	1420
2041-42	405	650	1365	1365	1490
2042-43	425	685	1430	1430	1560
2043-44	445	720	1505	1505	1640
2044-45	465	755	1580	1580	1725
2045-46	490	790	1660	1660	1810
2046-47	515	830	1740	1740	1900

Table 7-4 : Toll Rates for Return Journey @ Km 123.875

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	60	95	195	195	215
2022-23	95	155	330	330	360
2023-24	100	165	345	345	375
2024-25	105	175	365	365	395
2025-26	115	180	380	380	415
2026-27	120	190	400	400	440
2027-28	125	200	420	420	460
2028-29	130	210	440	440	480
2029-30	135	220	460	460	505
2030-31	145	230	485	485	530
2031-32	150	240	510	510	555

2032-33	155	255	535	535	580
2033-34	165	265	560	560	610
2034-35	175	280	585	585	640
2035-36	180	295	615	615	670
2036-37	190	310	645	645	705
2037-38	200	325	675	675	740
2038-39	210	340	710	710	775
2039-40	220	355	745	745	815
2040-41	230	375	780	780	855
2041-42	245	390	820	820	895
2042-43	255	415	865	865	945
2043-44	270	435	910	910	995
2044-45	285	460	960	960	1050
2045-46	300	485	1015	1015	1105
2046-47	315	510	1070	1070	1165

Table 7-5 : Toll Rates for Monthly Pass Local @ Km 90.661

Year	Car	Mini Bus /LCV
2022-23	265	265
2022-23	315	315
2023-24	330	330
2024-25	345	345
2025-26	365	365
2026-27	385	385
2027-28	400	400
2028-29	420	420
2029-30	440	440
2030-31	460	460
2031-32	485	485
2032-33	510	510
2033-34	535	535
2034-35	560	560
2035-36	585	585
2036-37	615	615
2037-38	645	645
2038-39	675	675
2039-40	710	710
2040-41	745	745
2041-42	785	785
2042-43	825	825
2043-44	865	865
2044-45	905	905
2045-46	955	955
2046-47	1000	1000

Table 7-7 : Toll Rates for Monthly Pass Local @ Km 123.87

Year	Car	Mini Bus /LCV
2022-23	265	265
2022-23	265	265
2023-24	330	330
2024-25	345	345
2025-26	365	365
2026-27	385	385
2027-28	400	400
2028-29	420	420
2029-30	440	440
2030-31	460	460
2031-32	485	485
2032-33	510	510
2033-34	535	535
2034-35	560	560
2035-36	585	585
2036-37	615	615
2037-38	645	645
2038-39	675	675
2039-40	710	710
2040-41	745	745
2041-42	785	785
2042-43	825	825
2043-44	870	870
2044-45	915	915
2045-46	965	965
2046-47	1020	1020

Table 7-8 : Toll Rates for Monthly Pass @ Km 90.661

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2022-23	1905	3080	6450	6450	7035
2022-23	3100	5010	10495	10495	11450
2023-24	3770	6095	12765	12765	13925
2024-25	3965	6400	13415	13415	14635
2025-26	4165	6730	14095	14095	15380
2026-27	4375	7070	14815	14815	16165
2027-28	4590	7410	15530	15530	16940
2028-29	4810	7770	16275	16275	17755
2029-30	5040	8145	17060	17060	18610
2030-31	5285	8535	17885	17885	19510
2031-32	5540	8950	18755	18755	20460
2032-33	5810	9385	19665	19665	21450
2033-34	6095	9845	20625	20625	22500
2034-35	6390	10325	21630	21630	23595

2035-36	6705	10830	22690	22690	24755
2036-37	7035	11360	23805	23805	25970
2037-38	7380	11920	24980	24980	27250
2038-39	7745	12510	26210	26210	28595
2039-40	8130	13130	27510	27510	30010
2040-41	8530	13780	28875	28875	31500
2041-42	8955	14470	30315	30315	33070
2042-43	9405	15190	31825	31825	34720
2043-44	9875	15950	33420	33420	36460
2044-45	10370	16750	35095	35095	38285
2045-46	10890	17595	36860	36860	40215
2046-47	11440	18480	38720	38720	42240

Table 7-9 : Toll Rates for Monthly Pass @ Km 123.875

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2022-23	1295	2090	4380	4380	4780
2022-23	2160	3490	7315	7315	7980
2023-24	2270	3670	7685	7685	8385
2024-25	2385	3855	8075	8075	8810
2025-26	2505	4050	8485	8485	9260
2026-27	2635	4255	8920	8920	9730
2027-28	2760	4460	9350	9350	10200
2028-29	2895	4675	9800	9800	10690
2029-30	3035	4900	10270	10270	11205
2030-31	3180	5140	10770	10770	11745
2031-32	3335	5390	11290	11290	12315
2032-33	3500	5650	11840	11840	12915
2033-34	3670	5925	12415	12415	13545
2034-35	3850	6215	13025	13025	14205
2035-36	4035	6520	13660	13660	14905
2036-37	4235	6840	14330	14330	15635
2037-38	4445	7175	15040	15040	16405
2038-39	4660	7530	15780	15780	17215
2039-40	4895	7905	16560	16560	18070
2040-41	5135	8295	17385	17385	18965
2041-42	5390	8710	18250	18250	19910
2042-43	5680	9180	19235	19235	20980
2043-44	5990	9675	20270	20270	22115
2044-45	6315	10200	21370	21370	23315
2045-46	6660	10755	22535	22535	24585
2046-47	7020	11345	23765	23765	25925

7.4 Toll Revenue

As indicated earlier, toll revenue on the Project Road has been calculated in all three scenarios based on above rates and projected traffic. The estimates of toll revenue under ***Optimistic***, ***Pessimistic*** and ***Most Likely*** growth scenarios are presented in the following section.

7.5 Toll Revenue at all toll plazas under Scenarios

Toll Revenue estimates under most likely scenario at each of the toll plaza up to 2041-42 starting from the year 2020-21 are shown in tables below.

Table 7-10 : Toll Revenue Optimistic Scenario

(Rs. Crores)

Year	TP-1	TP2	Total
2022-23	143.85	75.34	**219.20**
2023-24	205.52	93.12	**298.65**
2024-25	225.48	101.18	**326.66**
2025-26	246.64	112.49	**359.13**
2026-27	270.49	124.06	**394.56**
2027-28	300.11	136.60	**436.71**
2028-29	327.75	147.34	**475.09**
2029-30	358.70	161.87	**520.56**
2030-31	395.78	178.13	**573.91**
2031-32	432.83	195.26	**628.09**
2032-33	473.18	212.55	**685.73**
2033-34	521.17	233.40	**754.57**
2034-35	569.26	255.99	**825.25**
2035-36	615.68	276.29	**891.97**
2036-37	665.55	297.83	**963.37**
2037-38	720.57	324.62	**1045.18**
2038-39	782.34	350.48	**1132.82**
2039-40	852.35	378.78	**1231.13**
2040-41	919.03	410.52	**1329.54**
2041-42	997.65	443.02	**1440.67**
2042-43	1075.92	480.75	**1556.67**
2043-44	1169.59	525.02	**1694.62**
2044-45	1262.10	568.81	**1830.92**
2045-46	1365.51	616.64	**1982.15**

Table 7-11 : Toll Revenue Pessimistic Scenario

(Rs. Crores)

Year	TP-1	TP2	Total
2022-23	143.85	75.34	**219.20**
2023-24	204.53	92.68	**297.21**
2024-25	223.35	100.25	**323.60**
2025-26	243.17	110.91	**354.09**
2026-27	265.38	121.74	**387.13**
2027-28	293.01	133.42	**426.44**
2028-29	318.49	143.23	**461.73**
2029-30	346.92	156.57	**503.49**
2030-31	380.95	171.48	**552.42**
2031-32	414.60	187.09	**601.69**
2032-33	451.10	202.66	**653.76**
2033-34	494.51	221.47	**715.97**
2034-35	537.59	241.70	**779.29**
2035-36	578.65	259.65	**838.30**
2036-37	622.52	278.55	**901.07**
2037-38	670.67	302.17	**972.84**
2038-39	724.62	324.72	**1049.34**
2039-40	785.63	349.28	**1134.91**
2040-41	842.87	376.68	**1219.54**
2041-42	910.50	404.49	**1314.99**
2042-43	977.19	436.74	**1413.93**
2043-44	1057.19	474.63	**1531.83**
2044-45	1135.41	511.71	**1647.12**
2045-46	1222.43	552.12	**1774.55**

Table 7-12 : Toll Revenue Most Likely Scenario

(Rs. Crores)

Year	TP-1	TP2	Total
2022-23	143.85	75.34	**219.20**
2023-24	204.99	92.89	**297.88**
2024-25	224.43	100.69	**325.12**
2025-26	244.89	111.68	**356.58**
2026-27	267.92	122.86	**390.78**
2027-28	296.55	134.94	**431.50**
2028-29	323.07	145.24	**468.31**
2029-30	352.76	159.14	**511.90**
2030-31	388.26	174.71	**562.97**
2031-32	423.62	191.05	**614.68**

2032-33	461.94	207.47	**669.41**
2033-34	507.60	227.25	**734.84**
2034-35	553.14	248.60	**801.74**
2035-36	596.82	267.68	**864.49**
2036-37	643.61	287.80	**931.41**
2037-38	695.10	312.90	**1008.00**
2038-39	752.88	337.01	**1089.89**
2039-40	818.36	363.36	**1181.72**
2040-41	880.22	392.82	**1273.04**
2041-42	953.26	422.84	**1376.10**
2042-43	1025.55	457.68	**1483.22**
2043-44	1112.08	498.58	**1610.66**
2044-45	1197.14	538.89	**1736.03**
2045-46	1291.96	582.80	**1874.76**

CHAPTER 8

CONCLUSION & RECOMMENDATIONS

8.1 Conclusion & Recommendations

Project stretch of Hapur to Moradabad section of NH-9 in state of Uttar Pradesh from km 50.000 to km 148.277is currently four lane and would be augmented to six lane in current concession. The road is in sound condition and serves healthy traffic volumes. Project corridor is a part of the busy and prominent national highway NH-9which is main link for traffic from Punjab, Haryana, Delhi to Moradabad, Rampur and eastern part of Uttarakhand. There are large number of townships, industrial corridors and other business establishment coming up along project corridor. As Indian economy is poised to grow at 7%+ post COVID-19, the project corridor is expected to pick up the same trend in terms of traffic flow. All these developments have potential to give positive impact to traffic flow on project. The following can be considered as major outcomes of the study

a) There is good amount of tollable traffic running on project

b) Project corridor has potential to witness traffic growth @ 6-8% annually Post COVID-19 in near future due to various development in area and overall development of economy

c) Project corridor has committed traffic as long route traffic and does not run a risk of traffic leakage due to quality competing road

Based on above it can be considered a stable healthy project from traffic and revenue point of view.

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IRB INFRASTRUCTURE TRUST

GOA/KARNATAKA BORDER TO KUNDARPUR (KM 93.300 TO KM 283.300) SECTION OF NH-17 IN THE STATE OF GOA & KARNATAKA

TRAFFIC O&M COST PROJECTION REPORT (FINAL)

JANUARY 2023

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GOA/KARNATAKA BORDER TO KUNDARPUR

(KM 93.300 TO KM 283.300)

SECTION OF NH-17 IN THE STATE OF

GOA & KARNATAKA

TRAFFIC STUDY & REVENUE PROJECTION REPORT (FINAL)

JANUARY 2023

GMD CONSULTANTS
NAVI MUMBAI

Contents

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

AADT - Annual Average Daily Traffic

BOT - Build Operate Transfer

CAGR - Compound Annual Growth Rate

CTV - Classified traffic volume

DBFOT - Design, Build, Finance, Operate & Transfer

EME - Earth Moving Equipment

GDP - Gross Domestic Product

GSDP - Gross State Domestic Product

HCM - Heavy Construction Machinery

HCV - Heavy Commercial Vehicle

HTMS - Highway Traffic Management System

IRC - Indian Road Congress

IRR - Internal Rate of Return

LCV - Light Commercial Vehicle

LHS - Left Hand Side

LGV - Light Goods Vehicle

MAV - Multi Axle Vehicle

MORTH - Ministry of Road Transport and Highways

NH - National Highway

PCC - Plain Cement Concrete

CR - Coarse Rubble

NHAI - National Highway Authority of India

NHDP - National Highways Development Project

NSDP - Net State Domestic Product

O&M - Operation & Maintenance

PCDP - Per Capita Domestic Product

PCI - Per Capita Income

PCU - Passenger Car Unit

PSC - Pre-stressed Concrete

RCC - Reinforced cement concrete

RHS - Right Hand Side

SH - State Highway

TP - Toll Plaza

WPI - Wholesale Price Index

SIR - Special Investment Region

c. - Circa

ROB - Railway Over Bridge

MDR - Major District Road

ODR - Other District Road

CA - Concession Agreement

RMT - Running Meter

CHAPTER 1

INTRODUCTION

1.1 Background

The Government of India through National Highway Authority of India (NHAI) embarked upon a program to enhance the traffic capacity and safety for efficient transportation of goods as well as passenger traffic on National Highway Sections under various phases of NHDP. Under Phase IV NHAI has planned to convert existing 2-lane National Highways into 4-lane National Highway.

The project under consideration, Four Laning of **Goa / Karnataka Border** to **Kundapur** section of NH-17 from km 93.300 to km 283.300 is one such road project NHAI intended to implement on a BOT basis in the DBFOT format. *M/s IRB Westcoast Tollway Ltd*. (Concessionaire) has been awarded the Project for a concession period of 28 years starting from appointed date of 3rd March 2014. The Project is under capacity augmentation to six lanes. Tolling operation under current concession has commenced in February 2020 after partial COD on 31th January 2020.Further to it additional length of 161.050 Km has been completed and put to commercial operation in February 2022. Rest of length is expected to complete by Financial Year 2024.

Project road from Goa/ Karnataka Border (Near Karwar) to Kundapur is about 190 km section of Mumbai - Goa highway (NH-17) from Km 93.700 to Km 283.300. NH-17 is most important transportation corridor along west cost of India. It starts at Panvel, at the junction of National Highway 4 (NH 4), and ends at Kanyakumari. NH-17 mainly traverses through the west coast of India, sometimes touching the shores of the Arabian Sea. The NH 17 touches the Arabian Sea at Maravanthe in Karnataka, Thalassery, Alappuzha and Kollam in Kerala. It passes through the Indian states of Maharashtra, Goa, Karnataka, Kerala and Tamil Nadu

Following figure shows the project road alignment.

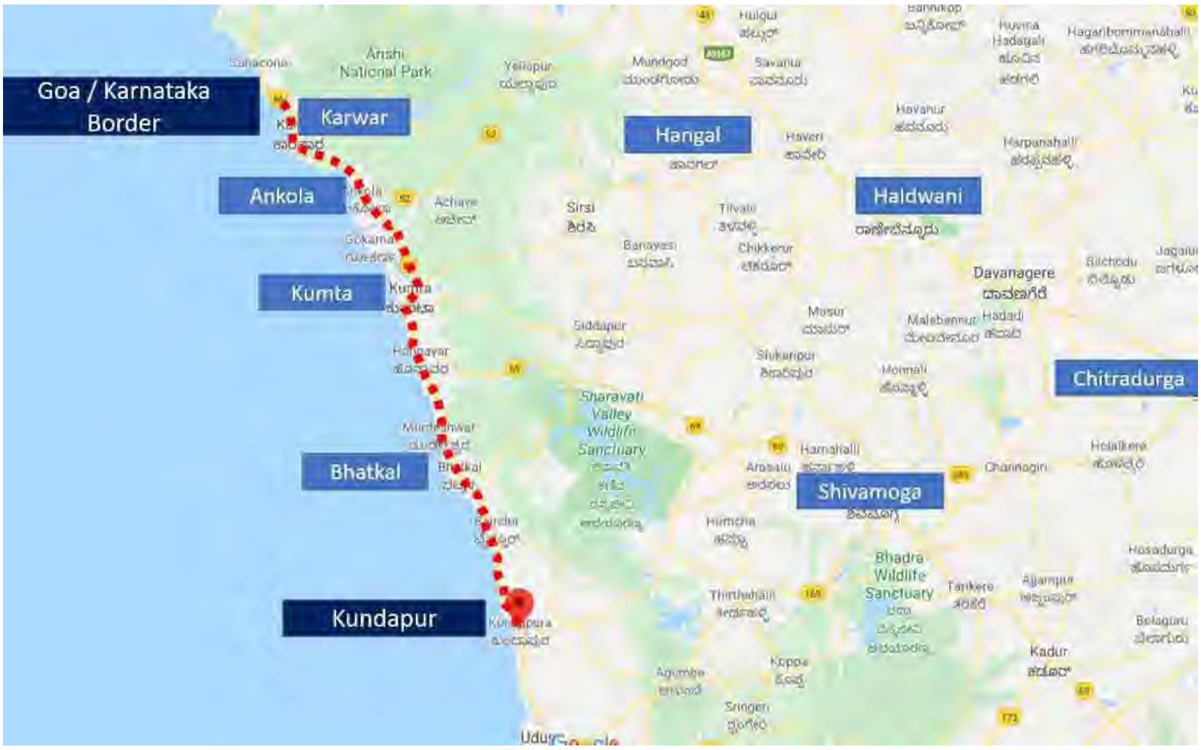


Figure 1-1 : Alignment of Project Stretch

1.2 Objective of the Study

M/s IRB INFRASTRUCTURE TRUST has engaged *GMD Consultants* to assess the future traffic and toll potential of project along with related operation & maintenance expenditure involved.

This report named as **"Traffic Study &** ***Toll Revenue Projection Report"*** mainly focuses on traffic and revenue aspects of the project. Other parameters like competing road, area developments etc. have been considered from a traffic development point of view.

1.2.1 Scope of Services

The broad scope of work covered in the assignment is as follows

a) Analysis of Traffic Growth

b) Toll Rate Growth

c) Revenue Forecasting

The Concessionaire has provided basic traffic data and other project details on the basis of which the above analysis has been carried out.

CHAPTER 2

PROJECT DETAILS

2.1 Project Corridor

Project of Four Laning of Goa / Karnataka Border – Kundapur section of NH-17 from Km 93.700 to Km 283.300 is Phase-IV project of NHAI on PPP basis under DBFOT pattern. Ankola, Bhatkal, Kumta and Karwar are the main urban centers on project Corridor. For most of the length project road runs parallel to western coast.

It can be observed that project road forms a main connectivity between Mumbai and southern parts on west coast like Goa, Kanoor, Kocchi, Thiruanantpuram and finally Kanyakumai. Thus transportation requirement in terms of passenger and goods are largely dependent on this spinal road

2.2 Project Stretch Description

project road section of NH-17 (now NH-66) passes through the important places like Karwar, Bhatkal, Ankola. This is the main connectivity between Mumbai and-Goa and Kerala. The Project Road passes through the districts of Karnataka and Goa.

National Highway 66, commonly referred to as NH 66 (Erstwhile NH-17 and a part of NH-47),is a busy National Highway that runs roughly north–south along the western coast of India, parallel to the Western Ghats. It connects Panvel (a city south of Mumbai) to Kanyakumari, passing through the states of Maharashtra, Goa, Karnataka, Kerala and Tamil Nadu

Following are the major centers of areas which have impact on project road in terms of traffic.

Goa: is a state in India within the coastal region known as the Konkan, in Western India. It is bounded by Maharashtra to the north and Karnataka to the east and south, with the Arabian Sea forming its Western coast. It is India's smallest state by area and the fourth smallest by population. Goa has the highest GDP per capita among all Indian states,[3] that is two and a half times that of the country. It was ranked the 'best placed State' by the "Eleventh Finance

Commission" for its infrastructure and ranked on top for the 'best quality of life' in India by the National Commission on Population based on the 12 Indicators

Kumta: is a town and a taluk in the Uttara Kannada district of Karnataka, India. Kumta is about 142 km south of Margao and 58 km north of Bhatkal. It is situated 72.7 km from Karwar, the district headquarters. It is one of the important stations along the Konkan Railway line running between Mumbai and Mangalore.

Bhatkal: is a port town in the Uttara Kannada District of the South Indian state of Karnataka. The town of Bhatkal lies on National Highway 66, which runs between Mumbai and Kochi, and has one of the major railway stations along the Konkan Railway line, which runs between Mumbai and Mangaluru

As project highway runs along the west coast for most parts of its alignment, there are only radial roads connecting to project highway which work as feeder network to project road.

Four laning of project highway is higher priority of both central & concerned state governments. Currently highway has bottlenecks at many places which are being improved on priority. Due to poor condition of NH-17 and higher number of accidents some part of traffic uses Mumbai -Pune Expressway and then take Bangalore Highway (NH-48) to go to Goa and parts of Karnataka and Kerala. This traffic is expected to come back on project highway

There are three operative toll plazas at project stretch. at km 119.00, km 184.00 and km 243.00 respectively. Following figure show project alignment and toll plaza locations.

Figure 2-1 : Project Alignment with Toll Plaza

2.3 Project Corridor Illustration

Six laning of project stretch is complete. Following photographs illustrate project section along the corridor.

Figure 2-2 : Photographs showing Project Corridor

CHAPTER 3

TRAFFIC SURVEYS AND ANALYSIS

3.1 Traffic Surveys

The Consultants have collected the required information for project corridor to understand the general traffic and travel characteristics on the corridor.

The following traffic data has been collected from client for project.

- Classified traffic volume counts at toll plaza locations on Goa Karnataka Border to Kundapur section of NH17 for period for February 2020 to March 2020, 2020-21, 2021-22 and Six-Monthly traffic data from April 2022 to September 2022.
- Local Component of traffic
- Component of Return Journey
- Component of Monthly Pass Journey

The main objective of the traffic data analysis is to:

- Determine the existing traffic movement characteristics of the project
- Establish base year traffic
- Identification of travel patterns and modal split of project traffic
- Deriving growth factors for traffic forecasting
- Estimation of corridor traffic including traffic diversion if any
- Preparation of revenue model and projection of revenue as per toll policy for various scenarios

Table 3-1 below lists provides details of locations from where traffic details have been collected.

Table 3-1 : Traffic Data Details

SR. NO	LOCATION	CTV	Single Journey Traffic	Daily Return Journey	Monthly Pass	Local Pass
1	Km 119 Toll Plaza	AADT for Period from February 2020 to March 2020, 2020-21, 2021-2022 & Six Monthly Data from April 22 to September 22	For Period from February 2020 to March 2020, 2020-21, 2021-2022 & Six Monthly Data from April 22 to September 22	For Period from February 2020 to March 2020, 2020-21, 2021-2022 & Six Monthly Data from April 22 to September 22	For Period from February 2020 to March 2020, 2020-21, 2021-2022 & Six Monthly Data from April 22 to September 22	For Period from February 2020 to March 2020, 2020-21, 2021-2022 & Six Monthly Data from April 22 to September 22
2	Km 184 Toll Plaza	AADT for Period from February 2020 to March 2020, 2020-21, 2021-2022 & Six Monthly Data from April 22 to September 22	For Period from February 2020 to March 2020, 2020-21, 2021-2022 & Six Monthly Data from April 22 to September	For Period from February 2020 to March 2020, 2020-21, 2021-2022 & Six Monthly Data from April 22 to	For Period from February 2020 to March 2020, 2020-21, 2021-2022 & Six Monthly Data from April 22 to September	For Period from February 2020 to March 2020, 2020-21, 2021-2022 & Six Monthly Data from April 22 to September 22

			22	September 22	22	
3	Km 243 Toll Plaza	AADT for Period from February 2020 to March 2020, 2020-21, 2021-2022 & Six Monthly Data from April 22 to September 22	For Period from February 2020 to March 2020, 2020-21, 2021-2022 & Six Monthly Data from April 22 to September 22	For Period from February 2020 to March 2020, 2020-21, 2021-2022 & Six Monthly Data from April 22 to September 22	For Period from February 2020 to March 2020, 2020-21, 2021-2022 & Six Monthly Data from April 22 to September 22	For Period from February 2020 to March 2020, 2020-21, 2021-2022 & Six Monthly Data from April 22 to September 22

Classified Traffic Volume

The objective of conducting a Classified Traffic Volume Count is to understand the traffic flow pattern including modal split on a roadway. The Classified Traffic Volume Count survey has been provided by the concessionaire of project highway from actual traffic data gathered at toll plaza locations based on monthly data shared with NHAI.

The vehicles can broadly be classified into fast moving / motorized and slow moving / non-motorized vehicles, which can be further classified into specific categories of vehicles. The groupings of vehicles are further segregated to capture the tollable vehicle categories specifically and toll exempted vehicles are counted separately. The detailed vehicle classification system as per IRC: 64-1990 is given in table below.

Table 3-2 : Vehicle Classification System

Vehicle Type	
Auto Rickshaw	
Passenger Car	Car, Jeep, Taxi & Van (Old / new technology)
Bus	Mini Bus
	Standard Bus
Truck	Light Goods Vehicle (LCV)
	2 – Axle Truck
	3 Axle Truck (HCV)
	Multi Axle Truck (4-6 Axle)
	Oversized Vehicles (7 or more axles)
Other Vehicles	Agriculture Tractor, Tractor & Trailer

Source - IRC: 64 – 1990

However, since project highway is currently under toll operation, the data collected is corresponding to category of tollable vehicles. Following are the type of vehicles as per concession agreement.

- Car / Jeep / van
- Mini Bus /LCV
- Bus
- Truck
- 3 Axle commercial vehicle
- Multi Axle

2.6 Traffic Characteristic

Toll revenue of project highway does not solely depend on traffic volume. There are certain characteristics of traffic which have substantial potential to affect toll collection. Component of local traffic, component of passenger and commercial traffic, portion of return journey traffic, % of monthly pass traffic are some of such characteristics of traffic. These will be discussed in subsequent sections of report.

2.6.1 Traffic Data

Project concessionaire has provided Traffic data for base year 2019-20, 2020-21, 2021-22 and from April 2022 to September 2022 as under for both toll plazas–

Table 3-3 : Traffic Data at Belekeri Toll Plaza at Km 119.00

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)- February 20 to March 20	Annual Average Daily Traffic (Nos.)- 2020-21	Annual Average Daily Traffic (Nos.)- 2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	1485	1639	1974	3002
2	Minibus/LCV	380	360	150	138
3	Bus	308	101	159	254
4	Truck	177	256	240	252
5	3 Axle	162	130	155	196
6	Multi Axle	339	329	519	626
7	Oversized Vehicles	8	7	5	4
Total		**2859**	**2821**	**3202**	**4471**

Table 3-4 : Traffic Data at Holegadde Toll Plaza at Km 184.00

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)- February 20 to March 20	Annual Average Daily Traffic (Nos.)- 2020-21	Annual Average Daily Traffic (Nos.)- 2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	2587	2759	3240	4941
2	Minibus/LCV	830	582	266	296
3	Bus	455	293	343	551
4	Truck	662	676	693	830

5	3 Axle	312	272	277	302
6	Multi Axle	888	815	869	1135
7	Oversized Vehicles	2	5	6	5
Total		**5736**	**5401**	**5693**	**8061**

Table 3-5 : Traffic Data at Shirur Toll Plaza at Km 243.00

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)- February 20 to March 20	Annual Average Daily Traffic (Nos.)- 2020-21	Annual Average Daily Traffic (Nos.)- 2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	2600	2953	3644	5776
2	Minibus/LCV	756	602	318	396
3	Bus	463	295	334	526
4	Truck	700	684	814	898
5	3 Axle	305	273	315	320
6	Multi Axle	853	805	873	1121
7	Oversized Vehicles	2	7	6	4
Total		**5679**	**5619**	**6304**	**9039**

Pandemic of COVID-19 (Corona Virus) had impacted entire world. Taking precaution, government of India announced a complete lockdown in last of March 2020 and traffic on highways was stopped which was eased out progressively later. There after India was hit by Covid-19 second and third wave in February 21 to July -21 and December 21 to March-22. Recovering traffic pattern was somewhat again disturbed du to second and third wave of Covid-19. Traffic numbers of for period from April-2020 to March 2021 were not representative of traffic pattern at project corridor due to pandemic lockdown impact. However, for integrity of data same shown above. Traffic has almost recovered from Covid -19 impact as of now.

Since the traffic data available for this update is for only six months, from April 2022 to September 2022, a seasonality factor for balance half year has been applied to average traffic of current six months to arrive at Annual Average Daily Traffic for future projections and revenue calculations.

This data was then bifurcated to various components like through local, monthly, return journey etc category. Same is discussed in detail in following section.

2.7 Data Analysis

2.7.1 Analysis of Traffic Volume Count

Understanding the character of existing traffic forms the basis of the traffic forecast. The various vehicle types having different sizes and characteristics can be converted into a single unit called Passenger Car Unit (PCU). Passenger Car equivalents for various vehicles are adopted based on recommendations of Indian Road Congress prescribed in “IRC-64-1990: Guidelines for Capacity of Roads in Rural areas”. The adopted passenger car unit values (PCU) are presented in ***Table 3-6.***

Table 3-6 : PCU Factors Adopted for Study

Vehicle Type	PCUs
Car	1.0
Mini Bus	1.5
Standard Bus	3.0
LCV/LGV	1.5
2 Axle Truck	3.0
3 – 6 Axle Truck	4.5
MAV	4.5
Auto Rickshaw	1.0
Van/Tempo	1.0
Agriculture Tractor with Trailer	4.5
Agriculture Tractor without Trailer	1.5

Source: IRC: 64-1990

Traffic volume at each toll plaza was converted to PCU and same is presented as under

Table 3-7 : Traffic in PCU at Project Stretch Base Year 2022-23

Year	Toll Plaza Location (Km)	Traffic No	PCU	PCU Index
2019-20	Belekeri at Km 119.00	2859	5557	1.94
	Holegadde at Km 184.00	5736	12124	2.11
	Shirur at Km 243.00	5679	11986	2.11
2020-21	Belekeri at Km 119.00	2821	5150	1.83
	Holegadde at Km 184.00	5401	11043	2.04
	Shirur at Km 243.00	5619	11266	2.00
2021-22	Belekeri at Km 119.00	3202	6219	1.94
	Holegadde at Km 184.00	5693	11512	2.02
	Shirur at Km 243.00	6304	12465	1.98
2022-23	Belekeri at Km 119.00	4471	8147	1.82
	Holegadde at Km 184.00	8061	15567	1.93
	Shirur at Km 243.00	9039	16660	1.84

It can be observed from above that project traffic has PCU index from 1.8 to 2.0 which is an indicator of good proportion of commercial traffic in traffic mix in project corridor. Following figure illustrates variation of PCU index at three toll plaza locations.

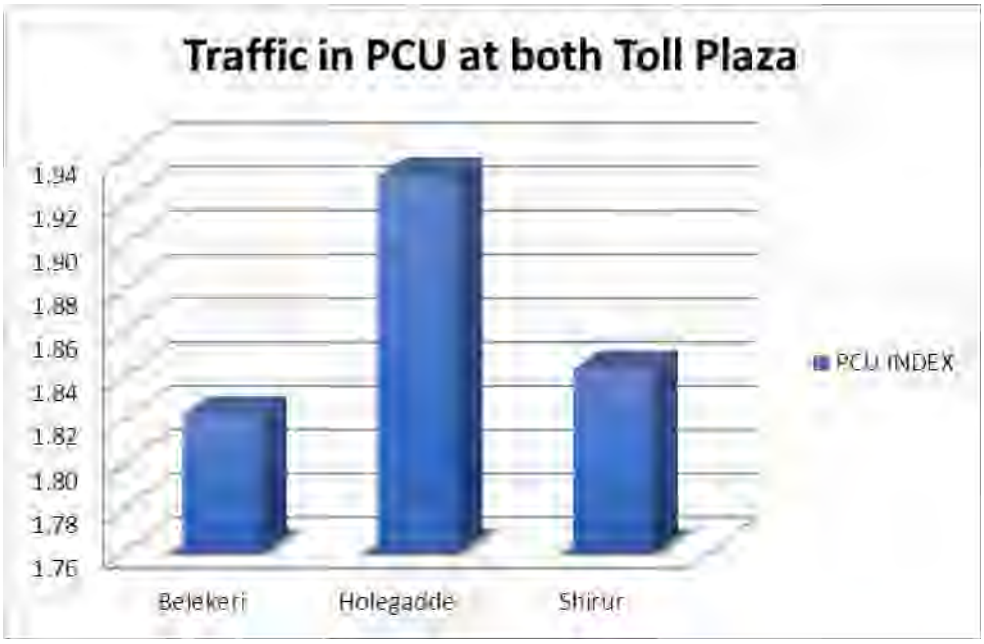
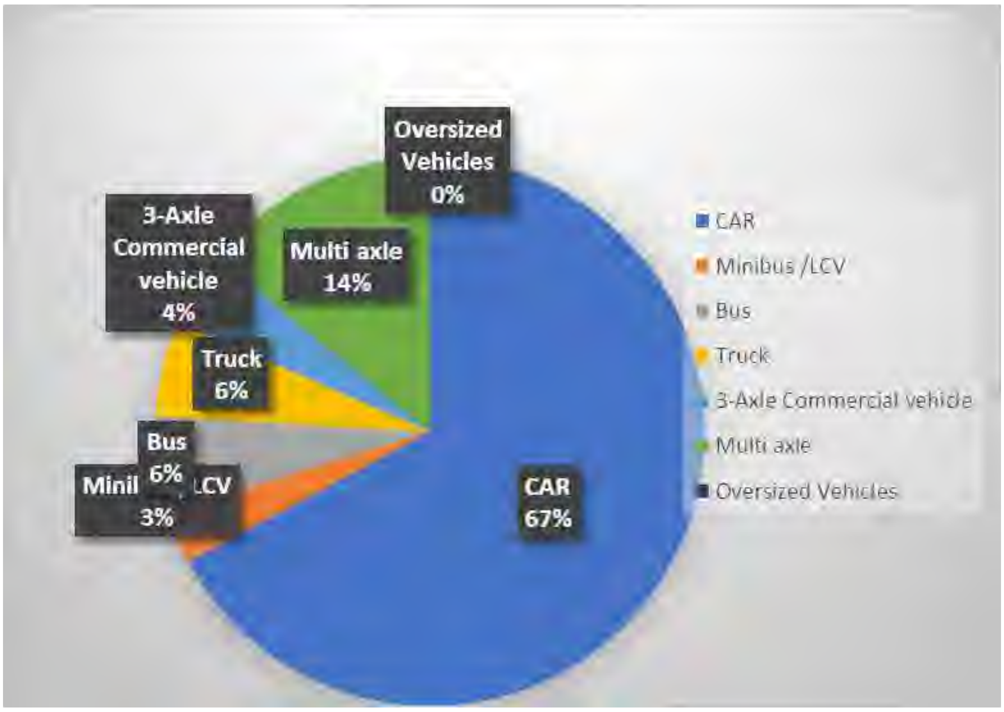


Figure 3-1 : Comparison of PCU Index

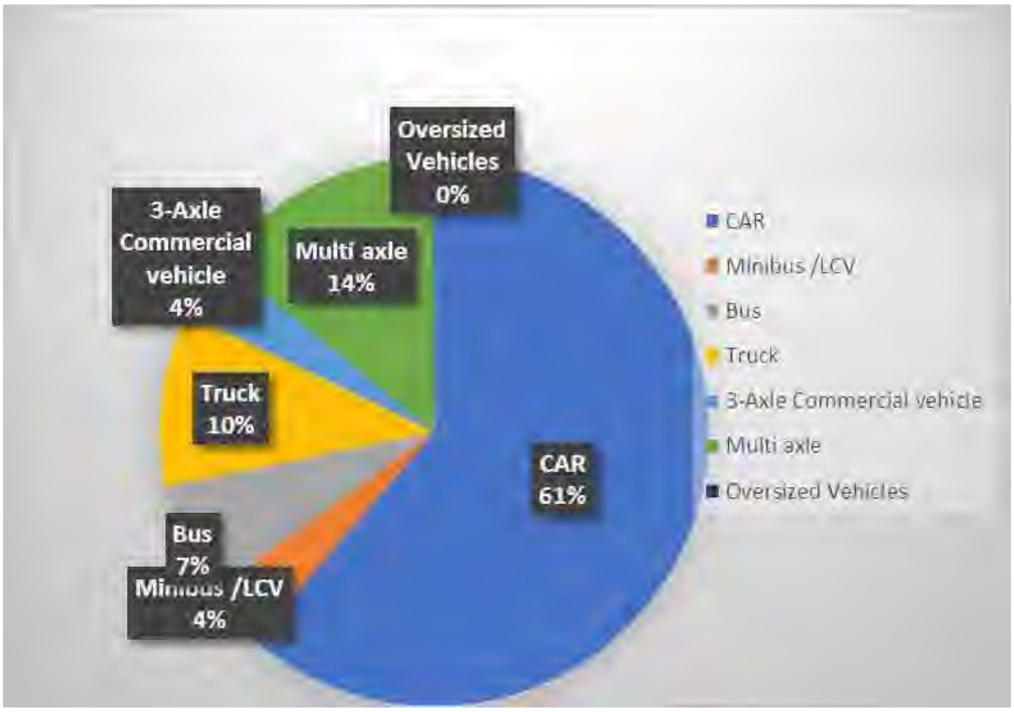
It can be observed that PCU index is consistent at all four three plaza locations.

2.7.2 Components of Traffic

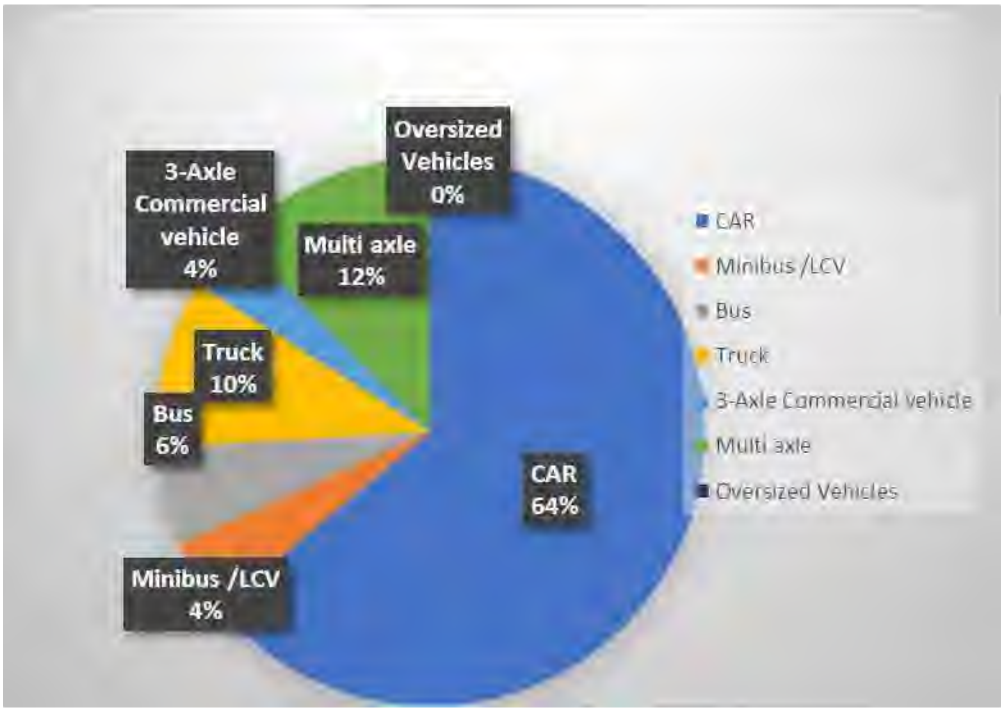
As discussed previously, components of traffic volume play an important role in determining project revenue. A larger component of commercial traffic with higher axle configuration adds to project revenue positively. Similarly, a larger component of local traffic affects the project revenue potential negatively.



Model Split of Tollable Vehicle @ KM 119.000



Model Split of Tollable Vehicle @ KM 184.000



Model Split of Tollable Vehicle @ KM 243.000

It is observed that car traffic forms about 67% of total traffic at toll plaza location 1 while multi axle along with 3 axle commercial vehicles are about 18% of total traffic. Truck / Bus and LCV share about 12% and 3% of traffic volume respectively at toll plaza on 119.000 km.

It is observed that car traffic forms about 61% of total traffic at toll plaza location 2 while multi axle along with 3 axle commercial vehicles are about 18% of total traffic. Truck / Bus and LCV share about 17% and 4% of traffic volume respectively at toll plaza on 184.000 km.

It is observed that car traffic forms about 64% of total traffic at toll plaza location 3 while multi axle along with 3 axle commercial vehicles are about 16% of total traffic. Truck / Bus and LCV share about 16% and 4% of traffic volume respectively at toll plaza on 243.000 km.

Thus project corridor has good mix of about 60% -70% passenger and 30-40% commercial traffic.

Another important bifurcation of traffic is components of traffic with respect various type of toll ticketing like

1. Single Journey
2. Multi Journey
3. Monthly Pass (Local and General)

The following table provides numbers of vehicles falling in each of above category on base year 2019-20, 2020-21, 2021-22 & April 2022 to September 2022.

Table 3-8 : Journey Type Bifurcation of Traffic at TP-1 KM 119.00

Sr. No	Type	Traffic Volume (Nos.)2022-23
1	Single Journey	2548
2	Return Journey	1745
3	Local Commercial Single Journey	170
4	Monthly Pass Local	8
5	Monthly Pass	0

Table 3-9 : Journey Type Bifurcation of Traffic at TP KM 184.00

Sr. No	Type	Traffic Volume (Nos.)2022-23
1	Single Journey	4886
2	Return Journey	2770
3	Local Commercial Single Journey	395
4	Monthly Pass Local	10
5	Monthly Pass	0

Table 3-10 : Journey Type Bifurcation of Traffic at TP KM 243.00

Sr. No	Type	Traffic Volume (Nos.)2022-23
1	Single Journey	4880
2	Return Journey	3789
3	Local Commercial Single Journey	355
4	Monthly Pass Local	15
5	Monthly Pass	0

Most dominant part of the above is the single journey type followed by return journey at project stretch. Monthly pass commuters are a very low fraction of the total traffic on the project corridor.

The single journey component in total traffic numbers is a high as 57%. Return journey component is 39% and Local Commercial Single Journey is 4% at toll plaza at Km 119.00

The single journey component in total traffic numbers is a high as 61%. Return journey component is 34% and Local Commercial single journey 5% at toll plaza at Km 184.00

The single journey component in total traffic numbers is a high as 54%. Return journey component is 42% and Local Commercial Single Journey is 4% at toll plaza at Km 243.00

It is observed that the project corridor demonstrates a similar pattern of single journey dominated mix of traffic across the entire stretch which is typical of major national highways.

2.8 Secondary Data Collection

There are several other factors which have a substantial impact on traffic pattern and growth on any project corridor. Following are some of such important factors

- Industrial development around project corridor and its catchment
- Educational infrastructure along project corridor
- Demographic pattern
- Urban area development
- Tourism potential
- Upcoming major infrastructural or Industrial projects
- Special Industry in project corridor
- Overall trends of economic growth local as well as national / regional

Hence in addition to traffic details on project site, secondary data was also collected from various other sources. Typical secondary data includes the following:

1. Vehicle registration data of regional and national level.
2. Economic Data
   a) GDP
   b) NSDP
   c) Population Growth
   d) Per Capita Income growth
   e) Industrial Growth
   f) Special Industry Potential
   g) Regional and National development vision / plan
   h) Any other relevant data
3. Competing road network

We have collected and utilized such underlying data in the study to estimate the growth and risk factors for traffic along the project corridor.

CHAPTER 4

INFLUENCE ZONE TRANSPORT NETWORK ANALYSIS

3.1 Introduction

Highway corridors behave like integrated circuit network and more often than not every road is connected to various networks having different origin and destinations. Traffic running on these networks behave like fluid and flow on network on alignment of least friction.

Following Factors can be considered as major contributors to friction on transportation network

- Travel Speed / Travel Time
- Geometric deficiencies like blind horizontal curves and steep vertical gradients etc,
- Configuration of road
- Riding quality
- Traffic delays,
- Length of road,
- Passing through built up or Urban Area,
- Terrain,
- Facilities,

3.2 Competing / Alternate route

Project stretch runs on west coast of India. Most of the roads other than NH-17 run radial to NH-17 as complimentary network. There are large number of stream and rivers falling into Arabian sea on west coast. Hence any parallel road would require many major bridges. This has prevented any parallel road to NH-17. Following figure show bird's eye view of project corridor.

Figure 4-1 : Project corridor and radial roads

Still geographically there can be alternate routes to project road between certain pairs of origin and destinations. Following figure show such routes which are much longer than project road practically cannot be considered as alternate routes.

Figure 4-2 : Alternate route at regional level

Thus practically there is no alternate route to project road between Goa/ Karnataka border and Kundapur. Under these circumstances it is not envisaged that commercial or passenger traffic would switch to alternate roads from the project road. Further with completion of Mumbai Kanyakumari section of road traffic on project road would get a boost in period 2024-2026 when it would be completed.

CHAPTER 5

GROWTH OF TRAFFIC ON PROJECT HIGHWAY

5.1 Introduction

Traffic growth is a function of the interplay of a number of contributory factors such as National economy, Government policy, socio-economic conditions of the people, and changes in land uses along the project corridor precincts etc. As these factors have a number of uncertainties associated with them, forecasts of traffic are dependent on the projections of other factors such as population, gross domestic product (GDP), vehicle ownership, per capita income (PCI), agricultural output, fuel consumption etc. Future pattern of change in these factors can be estimated with only a reasonable degree of accuracy and hence the resultant traffic forecast levels may not be precise.

Traffic growth forecast for project corridor Goa/ Karnataka Border – Kundapur section of NH-17 has been done taking the above factors into consideration. "**IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**" is established best practice and has been used for traffic growth forecast.

5.2 Trend Analysis

One of the methods of estimation of future rate of growth is to assume the same rate of growth as in the past. Although such a method is more suitable to projects of short durations say 5-10 years, however for long term projections it would-be erroneous to assume that the past rate of growth will continue to prevail for a long time in future. Economic conditions, which are major influencing factors, are bound to change over a long period of time. Thus, it would be necessary to modify the past trends of growth suitably.

Elasticity model of growth projection is one of the most widely acceptable methods for traffic forecast. The same is recommended in **IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**.

In this method the past trend of vehicular data is paired with an economic indicator and a regression analysis is done to yield the economic model of growth. Growth of vehicle traffic varies for different type of vehicle. It is a proven fact that the growth pattern for passenger and goods vehicle is different. Traffic growth on any highway typically depends on number of economic parameters. Most important and direct parameters are given as under

- Per Capita Income
- Net State Domestic Product (NSDP)
- Population

It can be observed that the ownership of a car is more closely related to affordability; hence per capita is the index which closely fits the growth of car traffic among other criteria. In a similar fashion, the following can be pairs of vehicle type and independent variable for elasticity modeling of growth.

- Car / Jeep – Par Capita Income
- Bus / Minibus – Population
- Goods Vehicle – NSDP

5.3 Estimation of Traffic Demand Elasticity

Elasticity of traffic demand is defined as the rate at which traffic intensity varies due to a change in the corresponding indicator selected. Hence, In order to estimate the elasticity of traffic demand, it is necessary to establish relationship between the growth in number of given category of vehicles with the relevant economic variable considered, such as NSDP, per capita income and population growth. Latest available data for vehicle registration, per capita income, NSDP and population is used in analysis.

As per IRC: 108-1996 the model for estimating elasticity index for the project corridor is of the following form and is given as below:

$$\text{Log}(P) = k \times \text{Log}(EI) + A$$

Where,

P = *Number of Vehicles (Mode wise)*

EI = *Economic Indicator*

A = *Regression constant*

k = *Elasticity coefficient (Regression coefficient)*

The elasticity for car and bus (passenger vehicles) is calculated based on the Population and Per Capita Domestic Product (PCDP) and the elasticity for trucks is calculated based on the Net State Domestic Product (NSDP).

The project corridor spreads across state of Karnataka. Toll plazas at Km 119.00. Km 184.00 and 243.00 are in the state of Karnataka. Contribution of Goa / Maharashtra is also substantial at stretch. For elasticity calculations, working data from Karnataka and Maharashtra / Goa has been analyzed.

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Karnataka State.

Table 5-1 : Per Capita Income Vs Car Karnataka

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	90269	1269430	4.96	6.10		
2013	94382	1420767	4.97	6.15	5%	
2014	101864	1572521	5.01	6.20	8%	
2015	105703	1741831	5.02	6.24	4%	
2016	116819	1916373	5.07	6.28	11%	
2017	131260	2110493	5.12	6.32	12%	7.83%

Regression analysis of same is given in figure below

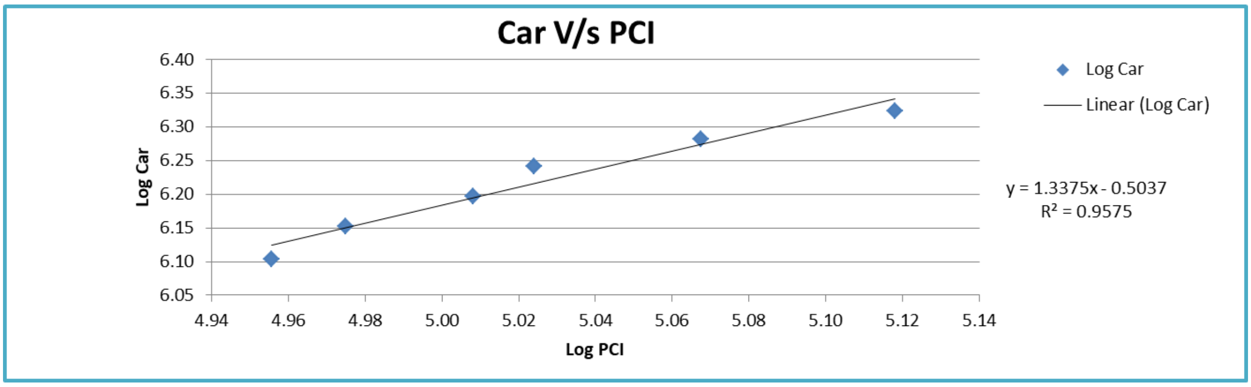


Figure 5-1 : Regression and Elasticity PCI vs. Car – Extrapolation Karnataka

Table 5-2 : Population Vs Bus Karnataka

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	1458545	9513	6.16	3.98		
2013	1466020	9956	6.17	4.00	1%	
2014	1473384	10925	6.17	4.04	1%	
2015	1480636	11224	6.17	4.05	0%	
2016	1487779	11503	6.17	4.06	0%	
2017	1494812	11888	6.17	4.08	0%	0.49%

Regression analysis of same is given in figure below

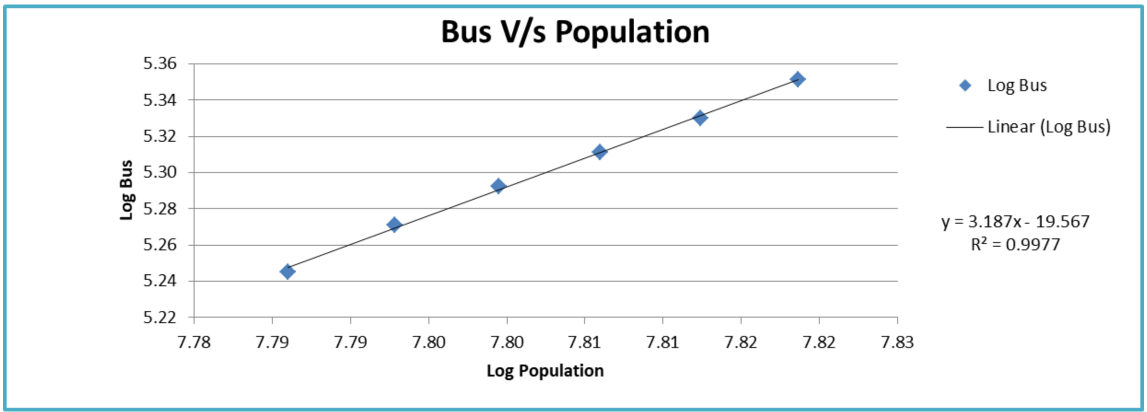


Figure 5-2 : Regression and Elasticity Population vs. Bus – Extrapolation Karnataka

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details

Table 5-3 : Goods Traffic Vs NSDP Karnataka

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth
2012	554990	221160	5.74	5.34		
2013	586592	258701	5.77	5.41	6%	
2014	639981	294266	5.81	5.47	9%	
2015	671322	331381	5.83	5.52	5%	
2016	749990	367572	5.88	5.57	12%	7.85%

Following figure depict regression analysis and extrapolation.

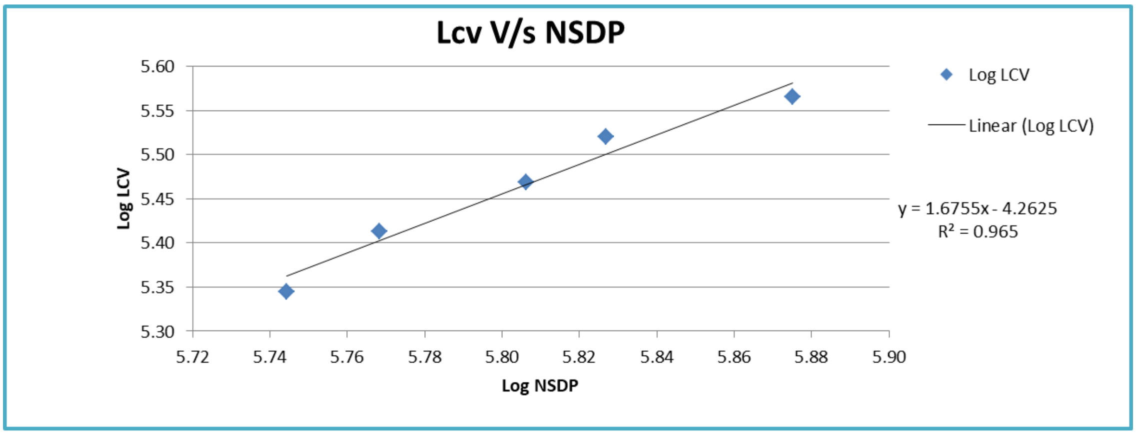


Figure 5-3 : Regression and Elasticity NSDP vs. LCV Traffic - extrapolation Karnataka

Table 5-4 : Traffic Truck Vs NSDP Karnataka

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	554990	233422	5.74	5.37		
2013	586592	247639	5.77	5.39	6%	
2014	639981	260989	5.81	5.42	9%	
2015	671322	274971	5.83	5.44	5%	
2016	749990	290415	5.88	5.46	12%	
2017	851880	306290	5.93	5.49	14%	9.00%

Following figure depict regression analysis and extrapolation.

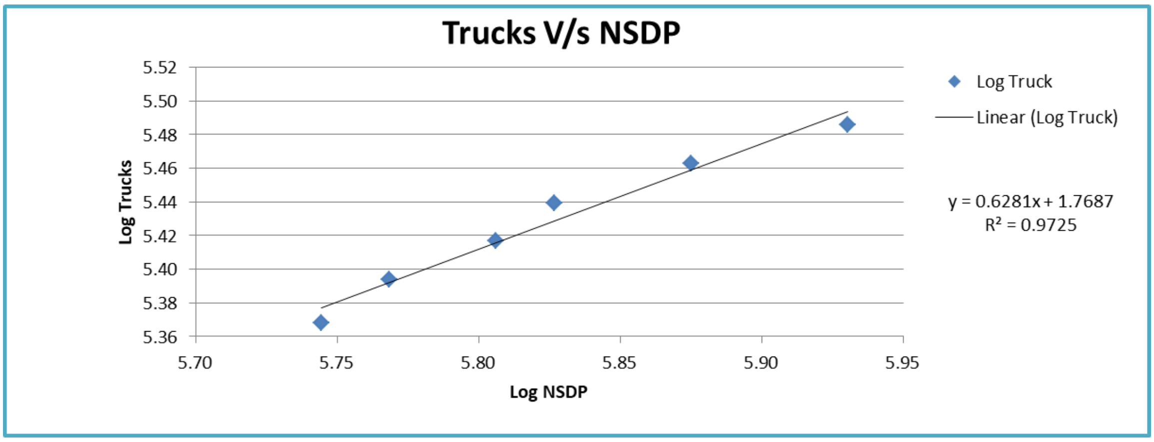


Figure 5-4 : Regression and Elasticity NSDP vs. Truck Traffic - extrapolation Karnataka

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below

Table 5-5 : Summary Regression Analysis Karnataka

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average Growth	Growth Elastic Model
Karnataka	Car/Jeep	PCI	y = 1.3375x + -0.5037	R^2 = 0.9575	1.3375	7.83%	10.47%
	Bus	Population	y = 3.187x - -19.567	R^2 = 0.9977	3.1870	1.52%	4.83%
	LCV	NSDP	y = 1.6755x - -4.2625	R^2 = 0.965	1.6755	7.85%	13.16%
	Truck	NSDP	y = 0.6281x - 1.7687	R^2 = 0.9725	0.6281	9.00%	5.65%

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Maharashtra State.

Table 5-6 : Per Capita Income Vs Car Maharashtra

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	99564	2307841	5.00	6.36		
2013	103904	2592565	5.02	6.41	4%	
2014	109399	2834847	5.04	6.45	5%	
2015	114746	3113773	5.06	6.49	5%	
2016	122422	3406872	5.09	6.53	7%	
2017	132899	3715744	5.12	6.57	9%	5.96%

Regression analysis of same is given in figure below

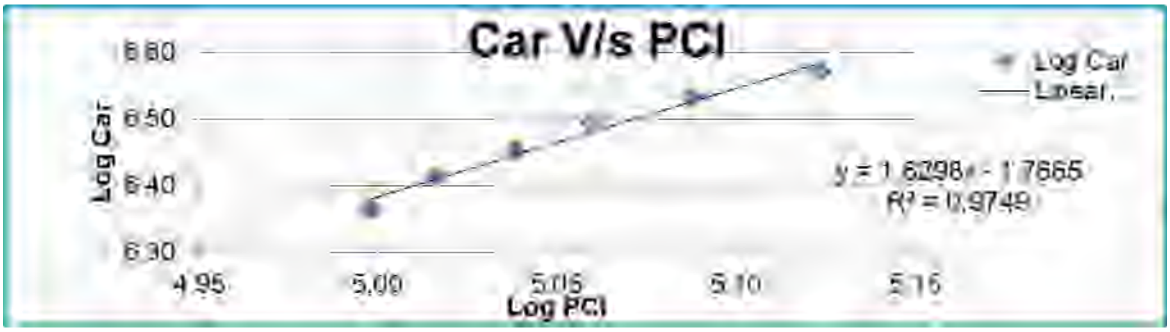


Figure 5-5 : Regression and Elasticity PCI vs. Car – Extrapolation Maharashtra

Table 5-7 : Population Vs Bus Maharashtra

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	112374333	119298	8.05	5.08		
2013	113807248	129535	8.06	5.11	1%	
2014	115229410	140087	8.06	5.15	1%	
2015	116640546	140102	8.07	5.15	1%	
2016	118040394	150427	8.07	5.18	1%	

2017	119428710	160042	8.08	5.20	1%	1.23%

Regression analysis of same is given in figure below

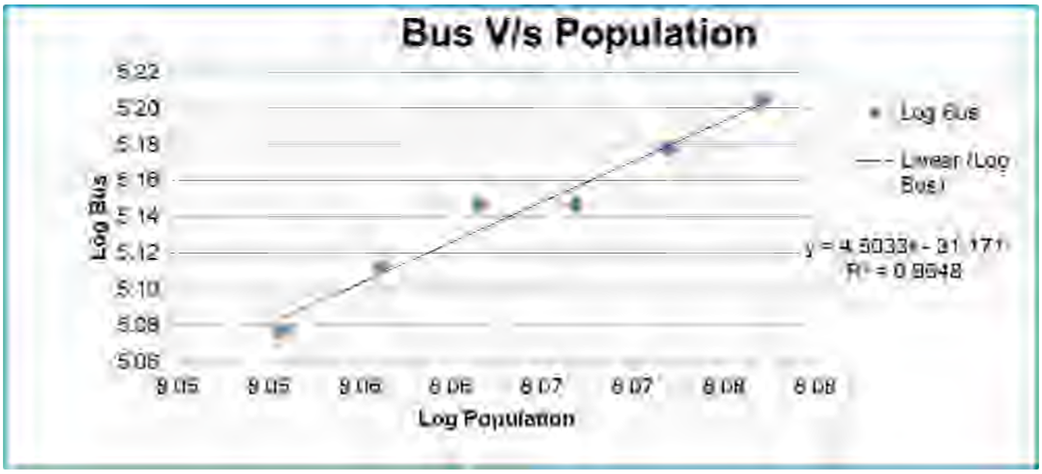


Figure 5-6 : Regression and Elasticity Population vs. Bus – Extrapolation Maharashtra

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-8 : LCV Traffic Vs NSDP Maharashtra

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth (5 Year)
2012	1126595	656407	6.05	5.82		
2013	1189711	739725	6.08	5.87	6%	
2014	1267551	803128	6.10	5.90	7%	
2015	1345341	868632	6.13	5.94	6%	
2016	1452439	927903	6.16	5.97	8%	6.56%

Following figure depict regression analysis and extrapolation.

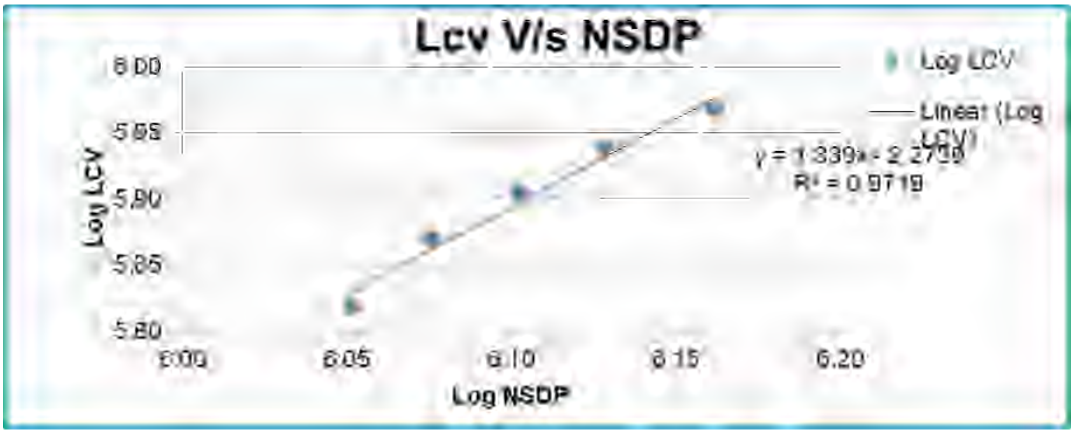


Figure 5-7 : Regression and Elasticity NSDP vs. Goods Traffic - extrapolation Maharashtra

Table 5-9 : Trucks Traffic Vs NSDP Maharashtra

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	1126595	411418	6.05	5.61		
2013	1189711	402366	6.08	5.60	6%	
2014	1267551	470128	6.10	5.67	7%	
2015	1345341	491582	6.13	5.69	6%	
2016	1452439	468810	6.16	5.67	8%	
2017	1595514	496439	6.20	5.70	10%	7.22%

Following figure depict regression analysis and extrapolation.

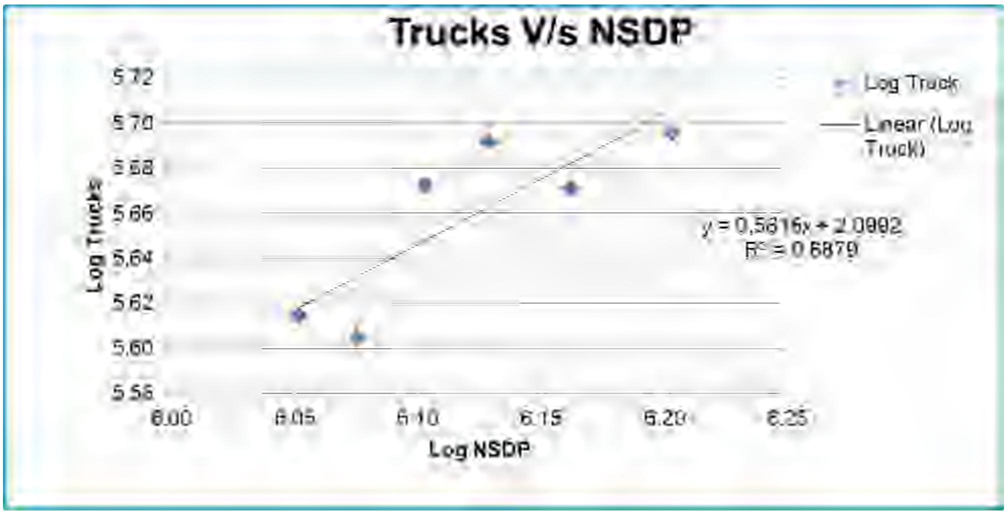


Figure 5-8 : Regression and Elasticity NSDP vs. Goods Traffic - extrapolation Maharashtra

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below

Table 5-10 : Summary Regression Analysis Maharashtra.

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average Growth	Growth Elastic Model
Maharashtra	Car/Jeep	PCI	y = 1.6298x + -1.7665	R² = 0.9749	1.6298	5.96%	9.71%
	Bus	Population	y = 4.5033x - -31.1713	R² = 0.9648	4.5033	1.23%	5.52%
	LCV	NSDP	y = 1.339x - -2.2739	R² = 0.9719	1.3390	6.56%	8.78%

	Truck	NSDP	y = 0.5815x - 2.0992	R^2 = 0.6879	0.5815	7.22%	4.20%

Economical model for predicting growth is good tool, however other local, regional, national factors should also be considered before finalizing growth factors. Considering factors such as proposed developments and other influencing economic factors, moderated growth should be considered. These factors are discussed in subsequent sections.

5.4 Analysis of Historic Traffic Data

Historical traffic data forms useful information for any highway project. It provides useful information for establishing past trend of growth. Project stretch of Goa/ Karnataka Border to Kundapur is under tolling operation with current concessionaire and has only two month of tolling history from February 2020. Further for last two years traffic is impacted by COVID-19 pandemic. Hence sufficient data points to be able to establish a reliable past trend of traffic growth are not available. A minimum of about 5 -6 years' consistent traffic data is required for establishing a reliable past trend.

5.5 Other Factors Influencing Growth

There are many factors which have impact on traffic growth. As discussed previously these factors can be economical, social, educational, and industrial.

Potentiality of such factors for project highway is discussed as under.

ECONOMY

After witnessing a slowdown during 2011-12, the economy recovered in 2013-14, and a high growth rate of GDP was recorded in up to 2018-19. Pandemic of COVID-19 impacted all economies of world including India. Following figure show trend of GDP growth in India.

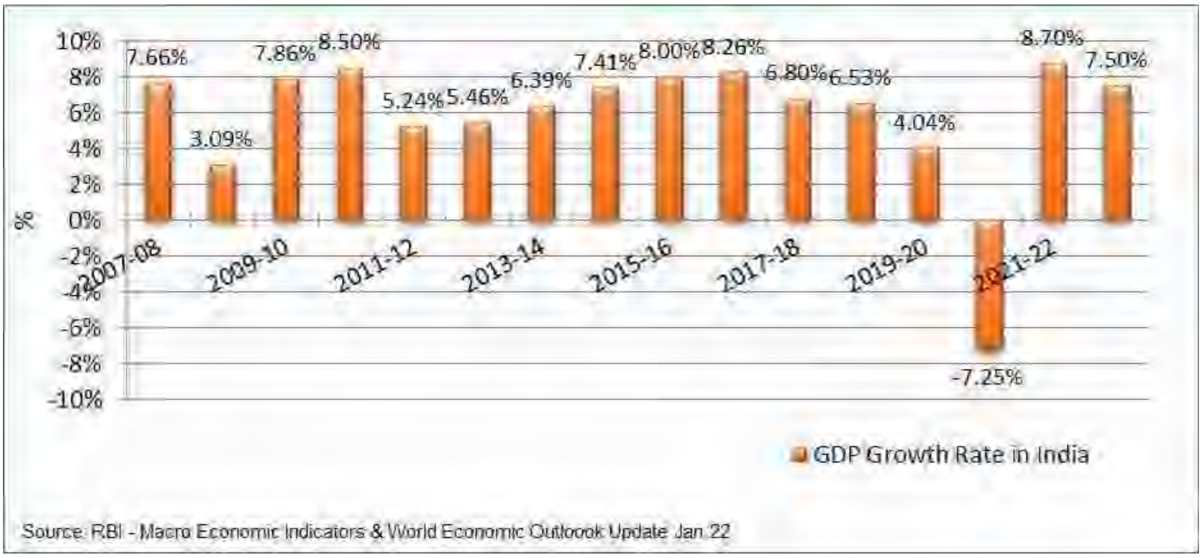


Figure 5-9 : Growth of GDP in India

FY 2017-18 recorded a growth of 6.7% which had slight impact of GST and demonetization. Indian economy appears on recovery path with estimated growth of 6.8% in FY 2018-19. Government took major policy decision including tax infrastructure reforming, banking sector improvement and ease of doing business.

Major economies of world collapsed due to pandemic COVID-19 including India. Indian economy is also registered negative growth in financial year 2020-21. After that Indian economy recovered handsomely and registered a growth of about 9% in Year 2021-22. This was partly due to low base of year 2020-21 as well.

Honorable Prime Minister has announced a major relief package of Rs. 20 lakh crores which is about 10% of GDP. This is aimed at turning this major crisis of COVID-19 into opportunity by providing major impetus to industrial production to the limit of becoming a self-reliant economy. With major thrust of this package being on **Make -In- India** it is expected that industry in India would grow at rapid pace and recover handsomely in post COVID-19 scenario. World Economic Outlook update also has predicted a growth rate of about 7.5 % in year 2022-23.

5.6 Developments along and around the Project Corridor & State

West Coast Ports - West coast is coast of submergence (except Malabar Coast) while east coast is an emergent coast. These imply that sea is deeper in west coast than sea on east coast. So, west coast has favourable conditions for natural harbours. This is the reason that ports on west coast of India contribute more in terms of commercial cargo traffic. Expansion of JNPT port may further boost cargo traffic from Kerala, Karnataka and Parts of Tamilnaduon project corridor.

Mangalore - The coastal city of Mangalore is one of the upcoming and fastest developing metropolises of Karnataka. While Mangalore embeds itself in the conventional city affairs, what sets it apart from others is the amalgamation of its heritage, history, culture, food and scenic coastal lines.

Known for its architectural marvels, temples, churches and pristine beaches, the city attracts tourists throughout the year. Some of the popular tourist spots include Mangaladevi temple, St. Aloysius church, Pilikula Nisarga Dhama (a biological park and a picnic spot), Panambur beach and Surathkal beach. Its proximity to Agumbe, Coorg, Kaup beach and temple town Udupi also makes for a quick getaway for city folks.

Mangalore is the largest exporter of coffee in India. One of the flourishing industries in the city is the automobile leaf spring business. Petrochemicals, iron-ore, fertilizers and agricultural processing are some other thriving industries.

In addition, three special economic zones (SEZs) are being set up in the city with IT companies such as TCS, Wipro and Lotus estimated to invest up to Rs.30 billion, creating 67,000 jobs over the next three years. Mangalore is also one of the top five emerging cities of India for outsourcing, according to Alsbridge.

The city is witnessing aggressive industrial development, aiding in its economic growth. Growth of Mangalore as tourism and Industrial hub would have positive impact on growth of traffic on project road

5.7 Recommended Growth Rates of Traffic

Based on the above analysis and after giving due consideration to the entire listed factors, the following overall growth rates are recommended for each category of vehicle as under. Rate of growth is moderated in light of overall regional trend. Growth of Multi-Axle is kept slightly higher as trend of technological advances in logistic industry favors multi-axle over 2/3 axle carriage. It is also expected that as the economy moves from developing to developed, rate of growth diminishes. Same growth rate is not sustainable for long. Traffic growth is suitably stepped down for future years.

Growth rates are recommended for three scenarios for sensitivity analysis namely **Optimistic, Pessimistic** and **Most Likely** with a positive and negative variation 0.5% from Most Likely case for corridor in both states.

5.7.1 Recommended Growth Rates of Traffic for Project Stretch

Table 5-11 : Recommended Growth Rates Optimistic

Category / Year	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050
Car/Jeep/Van	10.02%	9.29%	8.50%	8.14%	8.03%	7.57%
Bus	5.59%	5.28%	4.97%	4.90%	4.75%	4.52%
LCV	5.80%	4.95%	4.12%	3.72%	3.70%	3.28%
2- Axle	5.71%	5.04%	4.36%	4.04%	4.02%	3.68%
3 - Axle	6.04%	5.32%	4.60%	4.26%	4.24%	3.88%
4 to 6 Axle	7.02%	6.17%	5.33%	4.93%	4.90%	4.47%
7 and Above Axle	7.02%	6.17%	5.33%	4.93%	4.90%	4.47%

Table 5-12 : Recommended Growth Rates Pessimistic

Category / Year	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050
Car/Jeep/Van	9.52%	8.79%	8.00%	7.64%	7.53%	7.07%
Bus	5.09%	4.78%	4.47%	4.40%	4.25%	4.02%
LCV	5.30%	4.45%	3.62%	3.22%	3.20%	2.78%
2- Axle	5.21%	4.54%	3.86%	3.54%	3.52%	3.18%
3 - Axle	5.54%	4.82%	4.10%	3.76%	3.74%	3.38%
4 to6 Axle	6.52%	5.67%	4.83%	4.43%	4.40%	3.97%
7 and Above Axle	6.52%	5.67%	4.83%	4.43%	4.40%	3.97%

Table 5-13 : Recommended Growth Rates Most Likely

Category / Year	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050
Car/Jeep/Van	9.77%	9.04%	8.25%	7.89%	7.78%	7.32%
Bus	5.34%	5.03%	4.72%	4.65%	4.50%	4.27%
LCV	5.34%	5.03%	4.72%	4.65%	4.50%	4.27%
2- Axle	5.55%	4.70%	3.87%	3.47%	3.45%	3.03%
3 - Axle	5.46%	4.79%	4.11%	3.79%	3.77%	3.43%
4 to 6 Axle	5.79%	5.07%	4.35%	4.01%	3.99%	3.63%
7 and Above Axle	6.77%	5.92%	5.08%	4.68%	4.65%	4.22%

Project road is part of planned Mumbai- Kochi Economic Corridor under Bharatmala Pariyojna. At present various sections of corridor are under advance stage of construction and planning. Out of total about 1300 km of total length of corridor approximately 900 km is either completed or in under construction. Balance 400 km is to be awarded soon under Bharatmala Pariyojna. It is expected that substantial part of Mumbai – Kochi Economic Corridor would be operational by year 2024-25. This would be shorter than current preferred route of Bangalore highway (NH-48) by about 100 km. In such case it is expected that in horizon year 2024-25 certain part of traffic between Gujarat / Mumbai and Kochi / Kanyakumari would starts using project corridor as most preferred route. Further development of Tuticorin – Kochi economic corridor and ports at Mangalore, Goa and Kochi would also boost traffic on project corridor by year say 2024-25. Same has been considered while taking additional growth of traffic as discussed above.

Traffic and revenue has been worked out on the basis of above growths and same is presented in subsequent chapter of report.

5.8 COVID Impact

6. All social and economic activities had been completely disrupted due worldwide pandemic of Corona Virus. This had affected traffic on project stretch as well. Traffic was severely affected form March-2020 due to lockdown and then in second wave and third waves.

7. Government has announced a mega economic stimulate and package of Rs. 20 Lakh Crore to bring the economy back on track and recover the losses. Traffic has shown impressive recovery post lockdown period and has recovered to normal level.

Taking recommended traffic growth and additional factors as discussed above into consideration traffic forecast for concession period is done and presented in next chapter

CHAPTER 6

TRAFFIC FORECAST

8.1 Traffic Projections

Growth rates recommended in previous section of report are used to arrive at traffic projections for future years. Toll plaza wise futuristic traffic projection is given in tables below.

These projections have been done for following three cases of growth up to concession period

1. Optimistic Scenario
2. Pessimistic Scenario
3. Most Likely Scenario

Table 6-1 : Total Tollable Traffic @ Toll Plaza 1- 119 KM (Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	3002	138	254	252	196	626	4	4471	8147
2023-24	3303	145	268	266	207	671	4	4864	8781
2024-25	3633	154	283	281	220	718	4	5293	9465
2025-26	3970	161	298	296	232	762	4	5723	10137
2026-27	4338	168	313	311	245	809	4	6188	10856
2027-28	4741	177	329	327	258	859	4	6695	11632
2028-29	5181	186	346	343	272	912	4	7244	12465
2029-30	5662	195	363	361	286	968	4	7839	13359
2030-31	6143	203	380	377	299	1019	4	8425	14219
2031-32	6665	212	399	393	313	1073	4	9059	15145
2032-33	7232	221	419	410	327	1130	4	9743	16135

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2033-34	7847	230	440	428	342	1190	4	10481	17195
2034-35	8514	239	462	446	357	1253	4	11275	18324
2035-36	9207	248	484	464	372	1314	4	12093	19470
2036-37	9956	257	508	482	387	1378	4	12972	20692
2037-38	10767	266	532	502	404	1446	4	13921	22005
2038-39	11643	275	558	522	421	1517	4	14940	23403
2039-40	12590	286	585	543	439	1591	4	16038	24898
2040-41	13601	297	613	565	457	1669	4	17206	26480
2041-42	14693	308	641	588	476	1750	4	18460	28163
2042-43	15873	319	671	611	496	1835	4	19809	29961
2043-44	17148	330	703	636	517	1925	4	21263	31892
2044-45	18525	342	736	661	539	2019	4	22826	33950
2045-46	19928	353	769	685	560	2109	4	24408	36008
2046-47	21437	364	804	710	582	2203	4	26104	38203
2047-48	23060	376	840	735	605	2301	4	27921	40537

Table 6-2 : Total Tollable Traffic @ Toll Plaza 2- 184KM
(Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	4941	296	551	830	302	1135	5	8061	15567
2023-24	5436	313	582	877	321	1216	6	8751	16745
2024-25	5982	330	614	928	340	1301	6	9501	18005
2025-26	6538	346	646	974	358	1382	6	10250	19237
2026-27	7146	363	680	1023	377	1467	6	11062	20559
2027-28	7810	380	716	1075	396	1558	6	11941	21979
2028-29	8536	399	754	1129	417	1654	6	12895	23505

2029-30	9328	418	793	1186	439	1756	6	13926	25138
2030-31	10120	435	832	1238	459	1850	6	14940	26712
2031-32	10980	452	873	1292	480	1948	6	16031	28386
2032-33	11914	471	916	1348	502	2052	6	17209	30180
2033-34	12927	490	962	1406	525	2162	6	18478	32097
2034-35	14025	510	1009	1468	549	2278	6	19845	34146
2035-36	15165	529	1059	1527	572	2391	6	21249	36219
2036-37	16399	548	1110	1589	596	2509	6	22757	38424
2037-38	17733	568	1164	1653	621	2632	6	24377	40770
2038-39	19176	588	1221	1720	648	2761	6	26120	43277
2039-40	20737	610	1280	1790	675	2897	6	27995	45951
2040-41	22402	632	1340	1862	703	3039	6	29984	48768
2041-42	24201	655	1403	1937	732	3188	6	32122	51773
2042-43	26145	679	1469	2014	763	3344	6	34420	54977
2043-44	28244	704	1539	2095	795	3508	6	36891	58400
2044-45	30512	729	1612	2180	828	3681	6	39548	62057
2045-46	32822	753	1685	2261	860	3845	6	42232	65699
2046-47	35308	778	1762	2344	893	4018	6	45109	69580
2047-48	37983	803	1842	2430	927	4198	6	48189	73703

Table 6-3 : Total Tollable Traffic @ Toll Plaza 3- Chainage 243 KM

(Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	5776	396	526	898	320	1121	4	9039	16660
2023-24	6354	418	555	950	340	1199	4	9820	17930
2024-25	6990	442	586	1005	360	1283	4	10670	19298
2025-26	7639	464	617	1056	379	1362	4	11521	20638
2026-27	8348	487	649	1109	398	1446	4	12441	22072

2027-28	9123	511	683	1164	419	1535	4	13439	23613
2028-29	9970	536	720	1222	441	1630	4	14523	25276
2029-30	10897	563	758	1283	464	1731	4	15700	27064
2030-31	11824	586	796	1339	485	1823	4	16857	28785
2031-32	12829	610	835	1397	507	1920	4	18102	30619
2032-33	13919	635	877	1458	530	2022	4	19445	32584
2033-34	15102	661	921	1521	554	2130	4	20893	34685
2034-35	16386	688	967	1587	579	2243	4	22454	36929
2035-36	17720	714	1014	1651	604	2353	4	24060	39205
2036-37	19162	741	1064	1717	630	2469	4	25787	41635
2037-38	20721	768	1116	1787	656	2590	4	27642	44223
2038-39	22406	797	1171	1860	683	2718	4	29639	46993
2039-40	24229	826	1229	1936	712	2852	4	31788	49951
2040-41	26174	856	1287	2013	742	2991	4	34067	53062
2041-42	28276	887	1348	2093	773	3137	4	36518	56383
2042-43	30547	920	1412	2177	806	3291	4	39157	59940
2043-44	33000	953	1479	2265	840	3452	4	41993	63734
2044-45	35649	989	1549	2356	875	3621	4	45043	67785
2045-46	38350	1021	1619	2442	909	3783	4	48128	71833
2046-47	41254	1054	1692	2531	944	3952	4	51431	76138
2047-48	44378	1088	1769	2624	981	4129	4	54973	80731

Table 6-4 : Total Tollable Traffic @ Toll Plaza 1- Chainage 119 KM (Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	3002	138	254	252	196	626	4	4471	8147
2023-24	3288	144	267	265	207	668	4	4843	8745
2024-25	3601	151	280	279	219	711	4	5245	9379
2025-26	3918	158	293	292	229	751	4	5645	9995

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2026-27	4262	165	306	305	240	794	4	6076	10654
2027-28	4636	172	321	319	252	838	4	6542	11359
2028-29	5044	179	336	334	264	885	4	7046	12115
2029-30	5486	186	351	349	277	935	4	7588	12922
2030-31	5925	193	366	362	289	980	4	8119	13694
2031-32	6399	200	381	376	301	1027	4	8688	14513
2032-33	6911	207	398	391	314	1077	4	9302	15395
2033-34	7463	214	415	406	327	1128	4	9957	16322
2034-35	8059	221	432	422	340	1182	4	10660	17310
2035-36	8674	228	451	437	353	1234	4	11381	18310
2036-37	9336	235	471	452	366	1288	4	12152	19370
2037-38	10049	242	492	468	380	1345	4	12980	20503
2038-39	10816	249	514	484	394	1405	4	13866	21706
2039-40	11642	256	536	501	408	1467	4	14814	22981
2040-41	12518	265	558	519	423	1531	4	15818	24323
2041-42	13461	274	582	537	439	1598	4	16895	25755
2042-43	14475	283	606	555	456	1668	4	18047	27275
2043-44	15565	292	632	575	473	1741	4	19282	28896
2044-45	16737	301	658	595	491	1818	4	20604	30620
2045-46	17921	310	684	613	508	1890	4	21930	32324
2046-47	19188	319	712	633	525	1965	4	23346	34137
2047-48	20545	328	740	653	543	2043	4	24856	36057

Table 6-5 : Total Tollable Traffic @ Toll Plaza 2- Chainage 184 KM (Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	4941	296	551	830	302	1135	5	8061	15567
2023-24	5412	312	579	873	318	1209	6	8709	16658
2024-25	5927	328	609	919	336	1288	6	9413	17834
2025-26	6447	342	639	961	351	1361	6	10107	18965
2026-27	7013	357	670	1004	368	1438	6	10856	20173
2027-28	7629	373	701	1050	386	1519	6	11664	21462
2028-29	8299	389	734	1097	404	1605	6	12534	22837
2029-30	9028	406	769	1148	423	1696	6	13476	24316
2030-31	9750	420	803	1192	440	1778	6	14389	25713
2031-32	10529	435	839	1238	458	1864	6	15369	27202
2032-33	11371	451	877	1285	476	1955	6	16421	28786
2033-34	12281	467	916	1336	495	2049	6	17550	30470
2034-35	13263	484	957	1388	515	2147	6	18760	32258
2035-36	14275	500	999	1437	534	2242	6	19993	34051
2036-37	15365	516	1042	1488	554	2341	6	21312	35953
2037-38	16538	532	1088	1541	574	2445	6	22724	37975
2038-39	17801	549	1136	1596	596	2553	6	24237	40124
2039-40	19159	566	1186	1652	618	2666	6	25853	42400
2040-41	20601	583	1236	1709	641	2784	6	27560	44789
2041-42	22152	602	1288	1770	665	2906	6	29389	47328
2042-43	23820	621	1343	1832	689	3034	6	31345	50024
2043-44	25613	641	1400	1897	715	3167	6	33439	52889
2044-45	27542	661	1458	1963	742	3306	6	35678	55927
2045-46	29489	680	1516	2025	766	3437	6	37919	58924
2046-47	31574	699	1577	2090	792	3574	6	40312	62110
2047-48	33807	718	1640	2156	819	3716	6	42862	65478

Table 6-6 : Total Tollable Traffic @ Toll Plaza 3- Chainage 243 KM (Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	5776	396	526	898	320	1121	4	9039	16660
2023-24	6325	416	552	944	339	1194	4	9774	17845
2024-25	6926	438	579	993	357	1272	4	10569	19112
2025-26	7534	457	606	1039	374	1345	4	11359	20347
2026-27	8196	477	635	1086	392	1421	4	12211	21663
2027-28	8915	498	666	1135	410	1502	4	13130	23072
2028-29	9698	521	698	1187	429	1587	4	14124	24581
2029-30	10551	545	731	1241	449	1677	4	15198	26196
2030-31	11396	564	764	1289	467	1758	4	16242	27731
2031-32	12308	584	798	1339	486	1843	4	17362	29365
2032-33	13292	605	834	1391	505	1932	4	18563	31102
2033-34	14354	626	872	1445	526	2025	4	19852	32953
2034-35	15502	649	911	1500	548	2123	4	21237	34924
2035-36	16685	669	951	1553	568	2217	4	22647	36899
2036-37	17960	690	993	1608	589	2315	4	24159	39001
2037-38	19332	712	1037	1665	611	2417	4	25778	41234
2038-39	20809	735	1083	1723	634	2524	4	27512	43608
2039-40	22398	759	1130	1784	657	2635	4	29367	46125
2040-41	24084	784	1178	1847	682	2751	4	31330	48779
2041-42	25898	809	1229	1911	707	2872	4	33430	51595
2042-43	27849	835	1281	1978	733	2998	4	35678	54587
2043-44	29946	862	1336	2048	760	3130	4	38086	57774
2044-45	32202	890	1393	2121	789	3267	4	40666	61166
2045-46	34480	915	1449	2189	815	3396	4	43248	64512
2046-47	36918	941	1507	2259	842	3531	4	46002	68061
2047-48	39529	967	1568	2331	871	3672	4	48942	71832

Traffic projections for Most Likely scenario are given as under

Table 6-7 : Total Tollable Traffic @ Toll Plaza 1- Chainage 119 KM (Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	3002	138	254	252	196	626	4	4471	8147
2023-24	3295	145	267	266	207	669	4	4853	8761
2024-25	3617	152	280	281	219	714	4	5267	9416
2025-26	3944	159	293	294	230	756	4	5680	10054
2026-27	4300	166	308	309	242	800	4	6129	10744
2027-28	4689	173	323	324	254	847	4	6614	11481
2028-29	5113	181	338	340	267	897	4	7140	12274
2029-30	5574	190	355	356	280	950	4	7709	13125
2030-31	6033	197	372	371	292	998	4	8267	13943
2031-32	6531	204	389	386	305	1049	4	8868	14816
2032-33	7070	211	406	402	318	1102	4	9513	15742
2033-34	7653	219	426	418	332	1158	4	10210	16739
2034-35	8284	228	446	435	346	1216	4	10959	17797
2035-36	8938	235	466	451	360	1273	4	11727	18868
2036-37	9643	243	488	468	374	1333	4	12553	20014
2037-38	10404	252	510	486	389	1395	4	13440	21233
2038-39	11225	261	534	504	404	1460	4	14392	22531
2039-40	12110	270	558	523	421	1528	4	15414	23915
2040-41	13052	279	582	543	438	1599	4	16497	25373
2041-42	14067	288	608	563	456	1673	4	17659	26927
2042-43	15162	297	634	584	474	1751	4	18906	28581
2043-44	16341	308	662	606	493	1832	4	20246	30348
2044-45	17612	319	692	629	512	1917	4	21685	32234

2045-46	18901	328	721	650	530	1998	4	23132	34105
2046-47	20285	337	751	672	549	2082	4	24680	36094
2047-48	21770	348	784	695	568	2170	4	26339	38216

Table 6-8 : Total Tollable Traffic @ Toll Plaza 2- Chainage 184 KM (Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	4941	296	551	830	302	1135	5	8061	15567
2023-24	5424	312	580	876	320	1211	6	8729	16697
2024-25	5954	329	611	923	338	1293	6	9454	17909
2025-26	6492	344	642	967	355	1369	6	10175	19088
2026-27	7078	360	674	1013	373	1451	6	10955	20355
2027-28	7717	377	708	1061	391	1537	6	11797	21706
2028-29	8414	394	744	1112	410	1628	6	12708	23156
2029-30	9174	412	782	1165	431	1724	6	13694	24711
2030-31	9931	428	818	1212	449	1811	6	14655	26187
2031-32	10749	444	856	1263	468	1903	6	15689	27767
2032-33	11635	461	895	1315	488	1999	6	16799	29443
2033-34	12595	478	938	1369	509	2101	6	17996	31242
2034-35	13634	497	982	1425	531	2207	6	19282	33152
2035-36	14709	514	1028	1479	552	2310	6	20598	35079
2036-37	15868	531	1076	1535	574	2417	6	22007	37123
2037-38	17118	549	1126	1593	597	2531	6	23520	39306
2038-39	18468	568	1177	1654	620	2650	6	25143	41625
2039-40	19924	587	1232	1717	644	2774	6	26884	44094
2040-41	21474	607	1287	1782	670	2903	6	28729	46692
2041-42	23144	627	1345	1849	697	3037	6	30705	49451
2042-43	24945	649	1406	1919	724	3178	6	32827	52394
2043-44	26885	671	1469	1991	752	3326	6	35100	55522

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2044-45	28977	694	1534	2066	782	3481	6	37540	58856
2045-46	31099	714	1599	2137	810	3628	6	39993	62161
2046-47	33376	736	1668	2210	839	3782	6	42617	65677
2047-48	35819	758	1738	2286	870	3941	6	45418	69400

Table 6-9 : Total Tollable Traffic @ Toll Plaza 3- Chainage 230 KM (Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	5776	396	526	898	320	1121	4	9039	16660
2023-24	6340	418	554	946	339	1196	4	9797	17884
2024-25	6960	441	584	998	358	1277	4	10622	19206
2025-26	7588	461	614	1046	376	1353	4	11442	20494
2026-27	8273	483	645	1096	395	1433	4	12329	21872
2027-28	9021	506	677	1148	414	1518	4	13288	23346
2028-29	9837	530	710	1203	435	1608	4	14327	24930
2029-30	10726	555	747	1261	457	1703	4	15453	26635
2030-31	11611	577	782	1313	476	1789	4	16552	28258
2031-32	12570	600	819	1367	496	1880	4	17736	29994
2032-33	13606	623	858	1423	518	1975	4	19007	31843
2033-34	14727	647	898	1481	540	2075	4	20372	33810
2034-35	15943	672	941	1542	563	2180	4	21845	35917
2035-36	17200	695	985	1600	585	2282	4	23351	38040
2036-37	18557	719	1030	1661	608	2389	4	24968	40301
2037-38	20019	744	1078	1724	632	2500	4	26701	42705
2038-39	21597	770	1128	1789	657	2617	4	28562	45269
2039-40	23301	797	1180	1856	683	2739	4	30560	47997

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2040-41	25115	824	1232	1927	710	2866	4	32678	50873
2041-42	27069	852	1288	2000	738	2999	4	34950	53939
2042-43	29176	881	1346	2076	767	3138	4	37388	57204
2043-44	31447	911	1407	2155	797	3284	4	40005	60687
2044-45	33894	942	1470	2237	828	3437	4	42812	64397
2045-46	36376	971	1533	2314	858	3582	4	45638	68085
2046-47	39040	1000	1598	2393	889	3733	4	48657	71997
2047-48	41899	1030	1667	2475	921	3891	4	51887	76161

8.2 Modification in Concession Period

As per Article 29 of the concession agreement, if actual traffic on the project falls short or exceeds Target Traffic on project highway on defined date, concession period shall be modified subject to calculation stipulated therein. For Goa/ Karnataka - Moradabad project, the Target Date and Target Traffic are defined as under:

Target Date - 1st April 2022

Target Traffic - 21307 in PCU

It was observed that as per traffic projections, average traffic volume falls short of target traffic in all scenarios. Probable extension of concession period is estimated according to article 29 of concession agreement which comes to about 6 years. Traffic forecast and revenue projections are done for probable extended period accordingly.

Most Likely

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2022	21307	12055	-43%	65%	20%	28	5.6

Optimistic

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2022	21307	12067	-43%	65%	20%	28	5.6

Pessimistic

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2022	21307	12044	-43%	65%	20%	28	5.6

CHAPTER 7

FORECAST OF TOLL REVENUE

7.1 General

This chapter presents the tolling rate calculations, categories and toll revenue of the project.

7.2 Discount Categories

The fee schedule in the CA of Goa / Karnataka Border- Kundapur section of NH-17 is based on the old toll policy. As per the Toll Notification (Schedule - G) the discounts and special provisions have been considered. In addition to discounts as per Fee Notification concessionaire has declared special category rates also. Salient features of toll rate structure are given as under

1. Monthly Pass: For frequent users monthly pass would be issued for 50 trips in month at 2/3d rate..
2. Multiple Journeys (for Return Trip): Will be charged at 1.5 times single journey.
3. Single Journey: Full single journey toll would be charged to this category of vehicles who are infrequent travelers or whose frequency does not yield any discount from the above categories.
4. Local Discounts: There are several categories of local discounts.
   a) Local Passenger Car Jeep Van I - Rs. 275 per month as per fee notification
   b) Local commercial vehicles single at 50% rate for normal single trip

Building of inflation and escalation of rate on the basis of WPI are done as per toll notification (Schedule G) as given under as extract from concession agreement.

The formula for determining the applicable rate of fee shall be as follows:-

$$\text{Applicable rate of fee} = \text{base rate} + \text{base rate} \times \left\{ \frac{\text{WPI A} - \text{WPI B}}{\text{WPI B}} \right\} \times 0.4$$

Factor of inflation / growth has been incorporated as per Schedule R. WPI numbers (2011-12 series) are available up to 2018-19. A moderate growth in Wholesale Price Index (WPI) has been assumed after that. The following graph provides historical rate of inflation (WPI) in India. Data has been sourced from the Office of Economic Advisor web site (www.eaindustry.nic.in) WPI for year 2017-18 and 2018-2019 is worked back by applying a correlation factor for 2004-05 series as 2017-18 and 2018-2019 data is available in 2011-12 series only. Ratio of WPI for year 2016-17 for both series is used for conversion of WPI in 2004-05 series

Figure 7-1 : Historical Rate of WPI Inflation in India

Average inflation in WPI in last few years is steadily growing. It grew in range of 4% - 5% in previous years. For future years initially it is takes 5% and Suitably Stepped down for future years.

7.3 Estimation of Toll Rates

As per the applicable MORTH notification and Schedule R of contract agreement, the following Base rate of fee for the categories mentioned in the table stands true in the National Highways Fee Rules applicable for contract.

Table 7-1 : Base Toll Rates June 2007-08

Type of Vehicle	Base Rate of Fee / Km (in Rs.)
Car, Jeep, Van or Light Motor Vehicle	0.65
Light Commercial Vehicle, Light Goods Vehicle or Mini Bus	1.05
Bus or Truck (Two Axles)	2.20
Three Axle Commercial Vehicles	2,40
Heavy Construction Machinery (HCM) or Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 axles)	3.45
Oversized Vehicles (7 or more Axles)	4.20

There is no bypass or structure to be factored in for rates calculations.

Toll rates are calculated as per guidelines provided in schedule R (rounded to nearest Rs.) for the concession period and are given below.

Thus worked out rates for various categories of vehicle and discounts are given as under

Table 7-2 : Toll Rates for Single Journey @ Km 119.000

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	100	155	320	320	355
2022-23	105	165	345	345	375
2023-24	110	175	360	360	395
2023-24	125	195	405	405	440
2024-25	130	200	415	415	455
2025-26	135	210	440	440	480

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2026-27	140	225	460	460	505
2027-28	150	235	485	485	530
2028-29	155	245	505	505	555
2029-30	165	260	530	530	580
2030-31	170	270	560	560	610
2031-32	180	285	585	585	640
2032-33	190	300	615	615	675
2033-34	200	315	645	645	705
2034-35	210	330	680	680	740
2035-36	220	345	715	715	780
2036-37	230	365	750	750	820
2037-38	245	380	785	785	860
2038-39	255	400	825	825	905
2039-40	270	420	870	870	950
2040-41	280	445	915	915	1000
2041-42	295	465	960	960	1050
2042-43	310	490	1010	1010	1105
2043-44	330	515	1060	1060	1160
2044-45	345	540	1115	1115	1220
2045-46	365	570	1175	1175	1285
2046-47	380	600	1235	1235	1355
2047-48	400	630	1300	1300	1425

Table 7-3 : Toll Rates for Single Journey @ Km 184.000

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	100	155	320	320	350

2022-23	105	165	340	340	370
2023-24	110	170	355	355	390
2023-24	120	185	385	385	425
2024-25	120	195	400	400	440
2025-26	130	205	420	420	460
2026-27	135	215	445	445	485
2027-28	140	225	465	465	510
2028-29	150	235	490	490	535
2029-30	155	250	515	515	560
2030-31	165	260	540	540	590
2031-32	170	275	565	565	615
2032-33	180	285	595	595	650
2033-34	190	300	620	620	680
2034-35	200	315	655	655	715
2035-36	210	330	685	685	750
2036-37	220	350	720	720	785
2037-38	230	365	755	755	825
2038-39	240	385	795	795	870
2039-40	255	405	835	835	915
2040-41	270	425	875	875	960
2041-42	280	445	920	920	1010
2042-43	295	470	970	970	1060
2043-44	310	490	1020	1020	1115
2044-45	325	515	1070	1070	1170
2045-46	345	545	1125	1125	1230
2046-47	360	570	1185	1185	1295
2047-48	380	600	1245	1245	1360

Table 7-4 : Toll Rates for Single Journey @ Km 243.000

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	90	150	310	310	340
2022-23	95	150	315	315	345
2023-24	100	160	330	330	360
2023-24	100	165	345	345	375
2024-25	105	175	360	360	395
2025-26	110	180	380	380	415
2026-27	120	190	400	400	435
2027-28	125	200	420	420	455
2028-29	130	210	440	440	480
2029-30	135	220	460	460	505
2030-31	145	230	485	485	525
2031-32	150	240	505	505	550
2032-33	155	255	530	530	580
2033-34	165	265	555	555	605
2034-35	175	280	585	585	635
2035-36	180	290	615	615	670
2036-37	190	305	645	645	700
2037-38	200	320	675	675	735
2038-39	210	340	710	710	770
2039-40	220	355	745	745	810
2040-41	230	370	780	780	850
2041-42	240	390	820	820	895
2042-43	255	410	860	860	935
2043-44	265	430	900	900	985
2044-45	280	450	950	950	1035
2045-46	295	475	995	995	1085
2046-47	310	500	1045	1045	1140

2047-48	325	525	1100	1100	1200

Table 7-5 : Toll Rates for Return journey @ Km 119.000

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	150	235	485	485	530
2022-23	160	250	515	515	565
2023-24	170	265	545	545	595
2023-24	185	295	605	605	660
2024-25	190	305	625	625	685
2025-26	200	320	655	655	720
2026-27	215	335	690	690	755
2027-28	225	350	725	725	795
2028-29	235	370	760	760	830
2029-30	245	385	800	800	875
2030-31	260	405	835	835	915
2031-32	270	425	880	880	960
2032-33	285	450	925	925	1010
2033-34	300	470	970	970	1060
2034-35	315	495	1020	1020	1115
2035-36	330	520	1070	1070	1170
2036-37	345	545	1125	1125	1230
2037-38	365	570	1180	1180	1290
2038-39	385	600	1240	1240	1355
2039-40	400	630	1305	1305	1425
2040-41	425	665	1370	1370	1500
2041-42	445	700	1440	1440	1575
2042-43	470	735	1515	1515	1655

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2043-44	490	775	1595	1595	1745
2044-45	515	815	1675	1675	1835
2045-46	545	855	1765	1765	1930
2046-47	575	900	1855	1855	2030
2047-48	605	945	1950	1950	2135

Table 7-6 : Toll Rates for Return Journey @ Km 184.000

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	145	235	480	480	525
2022-23	155	245	505	505	555
2023-24	165	255	535	535	580
2023-24	175	280	580	580	635
2024-25	185	290	605	605	660
2025-26	195	305	635	635	690
2026-27	205	320	665	665	730
2027-28	215	335	700	700	765
2028-29	225	355	735	735	800
2029-30	235	370	770	770	840
2030-31	245	390	805	805	880
2031-32	260	410	845	845	925
2032-33	270	430	890	890	970
2033-34	285	450	935	935	1020
2034-35	300	475	980	980	1070
2035-36	315	495	1030	1030	1125
2036-37	330	520	1080	1080	1180

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2037-38	345	550	1135	1135	1240
2038-39	365	575	1190	1190	1305
2039-40	380	605	1250	1250	1370
2040-41	400	635	1315	1315	1440
2041-42	420	670	1385	1385	1510
2042-43	445	700	1455	1455	1590
2043-44	465	740	1530	1530	1670
2044-45	490	775	1605	1605	1755
2045-46	515	815	1690	1690	1845
2046-47	540	860	1775	1775	1940
2047-48	570	905	1870	1870	2045

Table 7-7 : Toll Rates for Return journey @ Km 243.000

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	140	225	470	470	510
2022-23	140	225	470	470	515
2023-24	145	235	495	495	540
2023-24	155	245	515	515	565
2024-25	160	260	545	545	595
2025-26	170	270	570	570	625
2026-27	175	285	600	600	655
2027-28	185	300	630	630	685
2028-29	195	315	660	660	720
2029-30	205	330	690	690	755
2030-31	215	345	725	725	790

2031-32	225	360	760	760	830
2032-33	235	380	795	795	870
2033-34	245	400	835	835	910
2034-35	260	420	875	875	955
2035-36	270	440	920	920	1000
2036-37	285	460	965	965	1050
2037-38	300	485	1010	1010	1105
2038-39	315	505	1060	1060	1160
2039-40	330	530	1115	1115	1215
2040-41	345	560	1170	1170	1275
2041-42	365	585	1230	1230	1340
2042-43	380	615	1290	1290	1405
2043-44	400	645	1355	1355	1475
2044-45	420	680	1420	1420	1550
2045-46	440	715	1495	1495	1630
2046-47	465	750	1570	1570	1710
2047-48	485	785	1645	1645	1795

Table 7-8 : Toll Rates for Monthly Pass Local Car Ticket @ all Toll Plaza

Year	Car	Mini Bus /LCV
2022-23	315	315
2022-23	315	315
2023-24	330	330
2023-24	330	330
2024-25	345	345
2025-26	365	365
2026-27	385	385
2027-28	400	400

2028-29	420	420
2029-30	440	440
2030-31	460	460
2031-32	485	485
2032-33	510	510
2033-34	535	535
2034-35	560	560
2035-36	585	585
2036-37	615	615
2037-38	645	645
2038-39	675	675
2039-40	710	710
2040-41	745	745
2041-42	785	785
2042-43	825	825
2043-44	865	865
2044-45	905	905
2045-46	955	955
2046-47	1000	1000
2047-48	1050	1050

Table 7-9 : Toll Rates for Monthly Pass @ Km 119.000

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2022-23	3330	5220	10740	10740	11755
2022-23	3550	5570	11475	11475	12555
2023-24	3730	5855	12060	12060	13195
2023-24	4140	6515	13425	13425	14690
2024-25	4275	6725	13870	13870	15175

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2025-26	4495	7070	14585	14585	15955
2026-27	4725	7435	15335	15335	16775
2027-28	4960	7805	16100	16100	17610
2028-29	5205	8190	16890	16890	18480
2029-30	5465	8595	17730	17730	19395
2030-31	5735	9025	18605	18605	20355
2031-32	6020	9475	19535	19535	21370
2032-33	6325	9945	20510	20510	22435
2033-34	6640	10445	21535	21535	23560
2034-35	6975	10970	22615	22615	24745
2035-36	7325	11525	23755	23755	25990
2036-37	7700	12105	24955	24955	27305
2037-38	8090	12720	26225	26225	28690
2038-39	8505	13370	27560	27560	30150
2039-40	8940	14050	28965	28965	31690
2040-41	9395	14775	30450	30450	33315
2041-42	9880	15530	32015	32015	35025
2042-43	10390	16335	33665	33665	36830
2043-44	10930	17180	35405	35405	38735
2044-45	11500	18070	37240	37240	40745
2045-46	12095	19010	39175	39175	42860
2046-47	12730	20005	41215	41215	45095
2047-48	13395	21050	43370	43370	47455

Table 7-10 : Toll Rates for Monthly Pass @ Km 184.000

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2022-23	3275	5180	10715	10715	11715

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2022-23	3440	5440	11260	11260	12310
2023-24	3615	5720	11835	11835	12940
2023-24	3935	6230	12900	12900	14105
2024-25	4080	6465	13390	13390	14635
2025-26	4290	6795	14075	14075	15385
2026-27	4510	7145	14800	14800	16180
2027-28	4730	7500	15530	15530	16975
2028-29	4965	7865	16290	16290	17805
2029-30	5210	8250	17090	17090	18680
2030-31	5465	8660	17930	17930	19605
2031-32	5735	9085	18820	18820	20570
2032-33	6020	9540	19750	19750	21590
2033-34	6320	10010	20735	20735	22665
2034-35	6635	10510	21765	21765	23795
2035-36	6970	11040	22855	22855	24985
2036-37	7320	11590	24000	24000	26240
2037-38	7690	12175	25210	25210	27560
2038-39	8075	12790	26485	26485	28950
2039-40	8485	13440	27825	27825	30415
2040-41	8920	14120	29235	29235	31960
2041-42	9375	14840	30725	30725	33590
2042-43	9855	15600	32295	32295	35310
2043-44	10360	16400	33950	33950	37115
2044-45	10895	17245	35695	35695	39025
2045-46	11455	18135	37535	37535	41035
2046-47	12050	19075	39475	39475	43160
2047-48	12675	20060	41520	41520	45395

Table 7-11 : Toll Rates for Monthly Pass @ Km 243.000

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2022-23	3070	4965	10400	10400	11345
2022-23	3100	5010	10500	10500	11455
2023-24	3260	5265	11030	11030	12030
2023-24	3395	5485	11490	11490	12535
2024-25	3565	5760	12070	12070	13170
2025-26	3750	6055	12685	12685	13840
2026-27	3940	6365	13335	13335	14545
2027-28	4130	6670	13975	13975	15245
2028-29	4330	6990	14650	14650	15980
2029-30	4535	7330	15355	15355	16750
2030-31	4755	7685	16095	16095	17560
2031-32	4985	8055	16880	16880	18410
2032-33	5230	8445	17700	17700	19305
2033-34	5485	8860	18560	18560	20250
2034-35	5750	9290	19465	19465	21235
2035-36	6035	9745	20420	20420	22280
2036-37	6330	10225	21425	21425	23370
2037-38	6640	10730	22480	22480	24525
2038-39	6970	11260	23590	23590	25735
2039-40	7315	11815	24760	24760	27010
2040-41	7680	12405	25990	25990	28350
2041-42	8060	13020	27280	27280	29760
2042-43	8465	13670	28645	28645	31250
2043-44	8885	14355	30075	30075	32810
2044-45	9330	15075	31585	31585	34460
2045-46	9800	15835	33175	33175	36190

2046-47	10295	16630	34850	34850	38015
2047-48	10815	17475	36610	36610	39940

7.4 Toll Revenue

As indicated earlier, toll revenue on the Project Road has been calculated in all three scenarios based on above rates and projected traffic. The estimates of toll revenue under ***Optimistic***, ***Pessimistic*** and ***Most Likely*** growth scenarios are presented in the following section.

7.5 Toll Revenue at all toll plazas under Scenarios

Toll Revenue estimates under most likely scenario at each of the toll plaza up to extended concession period (5 years from the end of original Concession Period) starting from the year 2022-23 are shown in tables below.

Table 7-12 : Toll Revenue Optimistic Scenario

(Rs. Crores)

Year	TP-1	TP2	TP3	Total
2022-23	22.96	44.74	45.36	**113.06**
2023-24	32.69	62.62	60.58	**155.89**
2024-25	41.71	77.79	74.14	**193.64**
2025-26	46.84	87.91	83.08	**217.84**
2026-27	52.69	98.64	93.70	**245.03**
2027-28	59.65	110.34	105.23	**275.22**
2028-29	66.49	123.93	117.76	**308.17**
2029-30	74.92	138.57	131.57	**345.06**
2030-31	83.40	154.71	147.19	**385.30**
2031-32	93.56	172.16	164.02	**429.74**
2032-33	104.54	191.47	181.74	**477.74**
2033-34	116.89	214.09	202.80	**533.78**
2034-35	130.78	239.03	227.05	**596.86**
2035-36	146.16	266.51	251.75	**664.43**

2036-37	162.33	295.60	280.09	**738.01**
2037-38	182.25	328.45	311.94	**822.63**
2038-39	203.08	365.72	347.35	**916.15**
2039-40	227.70	409.06	387.62	**1024.38**
2040-41	253.12	456.02	429.72	**1138.86**
2041-42	282.77	505.90	478.59	**1267.26**
2042-43	316.36	565.59	533.93	**1415.89**
2043-44	355.68	631.66	595.26	**1582.60**
2044-45	396.02	702.19	663.10	**1761.31**
2045-46	442.96	783.57	737.08	**1963.60**
2046-47	492.66	869.22	820.78	**2182.66**
2047-48	549.78	969.05	910.39	**2429.23**

Table 7-13 : Toll Revenue Pessimistic Scenario

(Rs. Crores)

Year	TP-1	TP2	TP3	Total
2022-23	22.96	44.74	45.36	**113.06**
2023-24	32.64	62.54	60.49	**155.67**
2024-25	41.31	77.08	73.37	**191.75**
2025-26	46.16	86.72	81.80	**214.68**
2026-27	51.69	96.83	91.81	**240.33**
2027-28	58.26	107.82	102.64	**268.72**
2028-29	64.61	120.52	114.31	**299.44**
2029-30	72.50	134.16	127.15	**333.80**
2030-31	80.34	149.07	141.59	**371.00**
2031-32	89.74	165.16	157.00	**411.89**
2032-33	99.86	182.83	173.12	**455.82**
2033-34	111.11	203.43	192.32	**506.86**
2034-35	123.68	226.03	214.36	**564.08**

Year	TP-1	TP2	TP3	Total
2035-36	137.63	250.85	236.57	**625.04**
2036-37	152.05	276.95	262.00	**691.00**
2037-38	169.85	306.23	290.47	**766.54**
2038-39	188.35	339.42	321.86	**849.63**
2039-40	210.11	377.85	357.52	**945.48**
2040-41	232.45	419.23	394.54	**1046.22**
2041-42	258.43	462.91	437.39	**1158.73**
2042-43	287.77	515.14	485.61	**1288.52**
2043-44	322.06	572.77	538.86	**1433.69**
2044-45	357.00	633.72	597.56	**1588.28**
2045-46	397.60	703.91	661.01	**1762.52**
2046-47	440.17	777.24	732.66	**1950.06**
2047-48	488.94	862.37	808.89	**2160.20**

Table 7-14 : Toll Revenue Most Likely Scenario

(Rs. Crores)

Year	TP-1	TP2	TP3	Total
2022-23	22.96	44.74	45.36	**113.06**
2023-24	32.67	62.57	60.52	**155.76**
2024-25	41.53	77.35	73.70	**192.59**
2025-26	46.53	87.26	82.36	**216.14**
2026-27	52.23	97.65	92.70	**242.58**
2027-28	58.96	109.01	103.89	**271.86**
2028-29	65.55	122.11	115.97	**303.64**
2029-30	73.74	136.27	129.30	**339.31**
2030-31	81.87	151.79	144.33	**378.00**
2031-32	91.67	168.52	160.44	**420.63**
2032-33	102.21	186.94	177.37	**466.52**

Year	TP-1	TP2	TP3	Total
2033-34	113.98	208.51	197.51	**519.99**
2034-35	127.18	232.20	220.65	**580.03**
2035-36	141.83	258.26	244.08	**644.16**
2036-37	157.10	285.75	270.94	**713.79**
2037-38	175.88	316.77	301.10	**793.75**
2038-39	195.52	351.84	334.43	**881.78**
2039-40	218.76	392.71	372.26	**983.74**
2040-41	242.67	436.77	411.71	**1091.15**
2041-42	270.48	483.47	457.57	**1211.52**
2042-43	301.91	539.33	509.27	**1350.51**
2043-44	338.61	600.95	566.48	**1506.05**
2044-45	376.25	666.46	629.58	**1672.29**
2045-46	419.94	741.99	698.18	**1860.12**
2046-47	465.96	821.22	775.63	**2062.81**
2047-48	518.73	913.42	858.23	**2290.38**

CHAPTER 8

CONCLUSION & RECOMMENDATIONS

8.1 Conclusion & Recommendations

Project stretch of Goa/ Karnataka to Kundapur section of NH-17 in state of Karnataka from km 93.70.000 to km 183.300 is four lane. The road is in sound condition and serves healthy traffic volumes. Project corridor is a part of the busy and prominent national highway NH-17 which is main link for traffic on west coast to from Rajasthan, Gujarat, Maharashtra to Kerala. There are large number of townships, industrial corridors and other business establishment coming up along project corridor. As Indian economy is poised to grow at 6%+ post COVID-19, the project corridor is expected to pick up the same trend in terms of traffic flow. All these developments have potential to give positive impact to traffic flow on project. The following can be considered as major outcomes of the study

a) There is good amount of tollable traffic running on project

b) Project corridor has potential to witness traffic growth @ 6-8% annually in near future due to various development in area and overall development of economy

c) Project corridor has committed traffic as long route traffic and does not run a risk of traffic leakage due to quality competing road

Based on above it can be considered a stable healthy project from traffic and revenue point of view.

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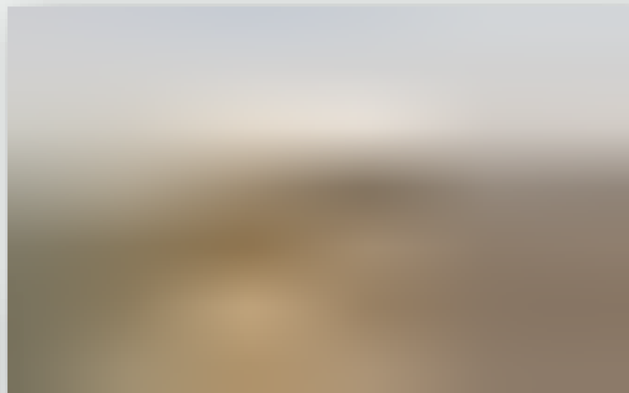
KISHANGARH TO GULABPURA SECTION OF NH-79 &NH-79A IN THE STATE OF RAJASTHAN (LENGTH 90 KM)



TRAFFIC STUDY & REVENUE PROJECTION REPORT (FINAL)

JANUARY 2023

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KISHANGARH TO GULABPURA SECTION OF NH-79 &NH-79A IN THE STATE OF RAJASTHAN (LENGTH 90 KM)

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GMD CONSULTANTS
NAVI MUMBAI

CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

AADT - Annual Average Daily Traffic
BOT - Build Operate Transfer
CAGR - Compound Annual Growth Rate
CTV - Classified traffic volume
DBFOT - Design, Build, Finance, Operate & Transfer
EME - Earth Moving Equipment
GDP - Gross Domestic Product
GSDP - Gross State Domestic Product
HCM - Heavy Construction Machinery
HCV - Heavy Commercial Vehicle
HTMS - Highway Traffic Management System
IRC - Indian Road Congress
IRR - Internal Rate of Return
LCV - Light Commercial Vehicle
LHS - Left Hand Side
LGV - Light Goods Vehicle
MAV - Multi Axle Vehicle
MORTH - Ministry of Road Transport and Highways
NH - National Highway
PCC - Plain Cement Concrete
CR - Coarse Rubble
NHAI - National Highway Authority of India
NHDP - National Highways Development Project
NSDP - Net State Domestic Product
O&M - Operation & Maintenance
PCDP - Per Capita Domestic Product
PCI - Per Capita Income
PCU - Passenger Car Unit
PSC - Pre-stressed Concrete
RCC - Reinforced cement concrete
RHS - Right Hand Side
SH - State Highway
TP - Toll Plaza
WPI - Wholesale Price Index
SIR - Special Investment Region
c. - Circa
ROB - Railway Over Bridge
MDR - Major District Road
ODR - Other District Road
CA - Concession Agreement
RMT - Running Meter

CHAPTER 1

INTRODUCTION

1.1 Background

The Government of India through National Highway Authority of India (NHAI) embarked upon a program to enhance the traffic capacity and safety for efficient transportation of goods as well as passenger traffic on National Highway Sections under NHDP Phase V. Under Phase V NHAI has planned to convert 6,500 km of existing 4-lane National Highways into 6-lane National Highway. Sections envisaged under 6-laning comprise the Golden Quadrilateral section (5,700 km) and some other sections which are 800 km in length.

The project under consideration, Six Laning of **Kishangarh** to **Gulabpura** section of NH-79A & NH-79 (length 90.00km) is one such road project NHAI intended to implement on a BOT basis in the DBFOT format. *M/s Kishangarh Gulabpura Tollway Ltd.* (Concessionaire) has been awarded the Project for a concession period of 20 years starting from 21st February 2018. The Project has been commissioned and is currently in the operation / maintenance phase. Six laning of project has also been completed in July2022.

Length of project road is 90.00 Kms. The project road is section of NH-79A & 79 A, which connects Ajmer to Ghat Bilod. Project section of NH-79 passes through district of Bhiwara and Ajmer.

Project road alignment passes through the small towns of Shreenagar, Nasirabad, Jharwasa, Bandanwara and Bijainagar (Vijay Nagar). Following figure shows alignment of project road section from Kishangarh to Gulabpura.

Figure 1-1 : Alignment of Project Stretch

1.2 Objective of the Study

M/s IRB INFRASTRUCTURE TRUST has engaged *GMD Consultants* to assess the future traffic and toll potential of project along with related operation & maintenance expenditure involved.

This report named as **"Traffic Study & *Toll Revenue Projection Report*"** mainly focuses on traffic and revenue aspects of the project. Other parameters like competing road, area developments etc. have been considered from a traffic development point of view.

1.2.1 Scope of Services

The broad scope of work covered in the assignment is as follows

a) Analysis of Traffic Growth

b) Toll Rate Growth

c) Revenue Forecasting

The Concessionaire has provided basic traffic data and other project details on the basis of which the above analysis has been carried out.

CHAPTER 2

PROJECT DETAILS

2.1 Project Corridor

National Highway 79 (NH 79) is important link for traffic connecting Delhi, Jaipur to Udaipur, Chittorgarh and down south. The project road is the section of the former NH-79A &NH-79 which has now been re-designated as NH-48. The project road section takes off at Kishangarh and ends at Gulabpura, both in the state of Rajasthan. The NH-79A was the section from Kishangarh to Nasirabad and part of NH-79 (Ajmer to Ghata Billod) was the remaining section from Nasirabad to Gulabpura

It is one of the major north-south road connectivity for the traffic from northern states of Haryana, Punjab and Delhi to Industrial and tourist areas of Rajasthan like Jaipur, Chittorgarh, Udaipur and then to Dahod, Ratlam and other parts of Madhya Pradesh.

After renumbering of all national highways by National Highway Authority of India in 2010, the current NH 48 was formed by merging the old NH 8 (Delhi-Mumbai section) and NH 4 (Mumbai-Chennai). National Highway 48 starts at Delhi and terminates at Chennai and goes through Jaipur, Udaipur, Vadodara, Mumbai, Pune and Bengaluru, traversing through six states of India. It has a total length of 2807 km (1744 miles)

2.2 Project Stretch Description

Section of NH-79 from Kishangarh to Gulabpura is part of major transportation link in the area connecting industrial / tourist cities of Jaipur- , Bhilwara, Chittorgarh and Udaipur. Project stretch would be faster connectivity to Udaipur from Jaipur once six laning is complete.

Major mining industries of marble, Zink, felspar, quarts of Udaipur and textile industry of Bhiwara provide are major contributor of commercial traffic on project corridor. Additionally Jaipur, Ajmer, Udaipur, Chittorgarh and Bhilwara major tourist centers of India. This adds substantial value for passenger traffic on project corridor section.

Like other parts of India rapid ribbon development is happening around these cities on project highway. This also contributes to sustainable traffic growth.

There are one operative toll plaza at project stretch at Bandanwara at km 61.020. Following figure show project alignment and toll plaza locations.

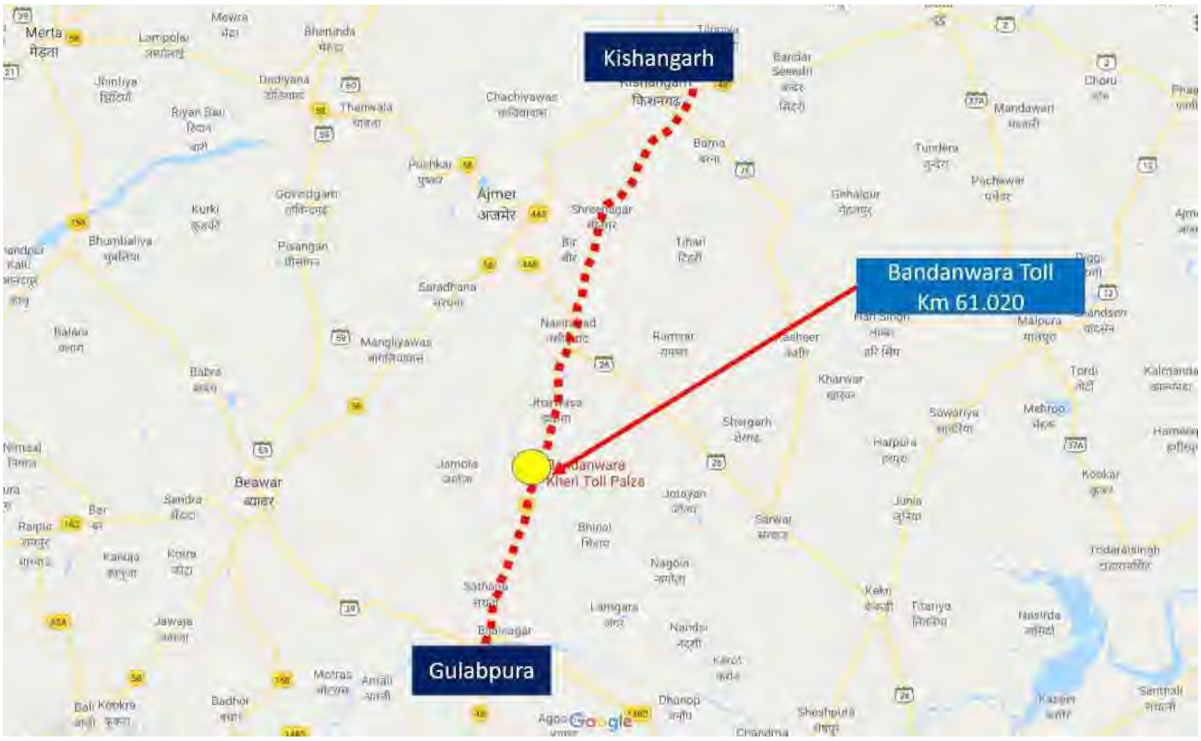

Figure 2-1 : Project Alignment with Toll Plaza

2.3 Project Corridor Illustration

Six laning of project stretch is in progress and would be completed soon. Following photographs illustrate project section along the corridor.

Figure 2-2 : Photographs showing Project Corridor

CHAPTER 3

TRAFFIC SURVEYS AND ANALYSIS

3.1 Traffic Surveys

The Consultants have collected the required information for project corridor to understand the general traffic and travel characteristics on the corridor.

The following traffic data has been collected from client for project.

- Classified traffic volume counts at toll plaza location on Kishangarh – Gulabpura section of NH-79 for year 2018-19 (part), 2019-20, 2020-21, 2021-22 & Six-Monthly traffic data from April 2022 to September 2022.
- Local Component of traffic
- Component of Return Journey
- Component of Monthly Pass Journey

The main objective of the traffic data analysis is to:

- Determine the existing traffic movement characteristics of the project
- Establish base year traffic
- Identification of travel patterns and modal split of project traffic
- Deriving growth factors for traffic forecasting
- Estimation of corridor traffic including traffic diversion if any
- Preparation of revenue model and projection of revenue as per toll policy for various scenarios

Table 3-1 below lists provides details of locations from where traffic details have been collected.

Table 3-1 : Traffic Data Details

SR. NO	LOCATION	CTV	Single Journey Traffic	Daily Return Journey	Monthly Pass	Local Pass
1	Km 61.020 Toll Plaza at Bandanwara	AADT for Year 2018-19, 2019-2020 ,2020-2021, 2021-2022 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-2020 ,2020-2021, 2021-2022 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-2020 ,2020-2021, 2021-2022 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-2020 ,2020-2021, 2021-2022 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-2020 ,2020-2021, 2021-2022 & Six Monthly Data from April 22 to September 22

Classified Traffic Volume

The objective of conducting a Classified Traffic Volume Count is to understand the traffic flow pattern including modal split on a roadway. The Classified Traffic Volume Count survey has been provided by the concessionaire of project highway from actual traffic data gathered at toll plaza locations based on monthly data shared with NHAI.

The vehicles can broadly be classified into fast moving / motorized and slow moving / non-motorized vehicles, which can be further classified into specific categories of vehicles. The groupings of vehicles are further segregated to capture the tollable vehicle categories specifically and toll exempted vehicles are counted separately. The detailed vehicle classification system as per IRC: 64-1990 is given in table below

Table 3-2 : Vehicle Classification System

Vehicle Type	
Auto Rickshaw	
Passenger Car	Car, Jeep, Taxi & Van (Old / new technology)
Bus	Mini Bus
	Standard Bus
Truck	Light Goods Vehicle (LCV)

	2 – Axle Truck
	3 Axle Truck (HCV)
	Multi Axle Truck (4-6 Axle)
	Oversized Vehicles (7 or more axles)
Other Vehicles	Agriculture Tractor, Tractor & Trailer

Source - IRC: 64 – 1990

However, since project highway is currently under toll operation, the data collected is corresponding to category of tollable vehicles. Following are the type of vehicles as per concession agreement.

- Car / Jeep / van
- Min Bus /LCV
- Truck / Bus
- Multi Axle

2.6 Traffic Characteristic

Toll revenue of project highway does not solely depend on traffic volume. There are certain characteristics of traffic which have substantial potential to affect toll collection. Component of local traffic, component of passenger and commercial traffic, portion of return journey traffic, % of monthly pass traffic are some of such characteristics of traffic. These will be discussed in subsequent sections of report.

2.6.1 Traffic Data

Project concessionaire has provided Traffic data for base year 2019-20, 2020-21, 2021-2022 and from April 2022 to September 2022 as under for both toll plazas–

Table 3-3 : Traffic Data at Bandanwara Toll Plaza at Km 61.020

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)-2019-20	Annual Average Daily Traffic (Nos.)-2020-21	Annual Average Daily Traffic (Nos.)-2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	2572	448	3827	5383
2	Minibus /LCV	1009	326	522	749

3	Bus	376	38	337	514
4	Truck	1511	264	1756	2406
5	3-Axle Commercial vehicle	2095	318	1805	2156
6	Multi axle	4421	748	4141	5160
7	Oversized Vehicle	19	70	319	11
Total		**12003**	**2212**	**12707**	**16379**

Pandemic of COVID-19 (Corona Virus) had impacted entire world. Taking precaution, government of India announced a complete lockdown in last of March 2020 and traffic on highways was stopped which was eased out progressively later. There after India was hit by Covid-19 second and third wave in February 21 to July -21 and December 21 to March-22. Recovering traffic pattern was somewhat again disturbed du to second and third wave of Covid-19. Traffic numbers of for period from April-2020 to March 2021 were not representative of traffic pattern at project corridor due to pandemic lockdown impact. However, for integrity of data same shown above. Traffic has almost recovered from Covid -19 impact as of now.

Since the traffic data available for this update is for only six months, from April 2022 to September 2022, a seasonality factor for balance half year has been applied to average traffic of current six months to arrive at Annual Average Daily Traffic for future projections and revenue calculations.

This data was then bifurcated to various components like through local, monthly, return journey etc. category. Same is discussed in detail in following section.

2.7 Data Analysis

2.7.1 Analysis of Traffic Volume Count

Understanding the character of existing traffic forms the basis of the traffic forecast. The various vehicle types having different sizes and characteristics can be converted into a single unit called Passenger Car Unit (PCU). Passenger Car equivalents for various vehicles are adopted based on recommendations of Indian Road Congress prescribed in

"IRC-64-1990: Guidelines for Capacity of Roads in Rural areas". The adopted passenger car unit values (PCU) are presented in ***Table 3-4.***

Table 3-4 : PCU Factors Adopted for Study

Vehicle Type	PCUs
Car	1.0
Mini Bus	1.5
Standard Bus	3.0
LCV/LGV	1.5
2 Axle Truck	3.0
3 – 6 Axle Truck	4.5
MAV	4.5
Auto Rickshaw	1.0
Van/Tempo	1.0
Agriculture Tractor with Trailer	4.5
Agriculture Tractor without Trailer	1.5

Source: IRC: 64-1990

Traffic volume at each toll plaza was converted to PCU and same is presented as under

Table 3-5 : Traffic in PCU at Project Stretch Base Year 2019-20, 2020-21, 2021-22 & 2022-23

Year	Toll Plaza Location (Km)	Traffic No	PCU	PCU Index
2019-20	Bandanwara 61.020	12003	36011	3.00
2020-21		2212	6478	2.93
2021-22		12707	36374	2.86
2022-23		16379	45005	2.75

It can be observed from above that project traffic has PCU index 3 which is an indicator of very high proportion of commercial traffic in traffic mix in project corridor. Following figure illustrates variation of PCU index at four toll plaza locations.

2.7.2 Components of Traffic

As discussed previously, components of traffic volume play an important role in determining project revenue. A larger component of commercial traffic with higher axle configuration adds to project revenue positively. Similarly, a larger component of local traffic affects the project revenue potential negatively.

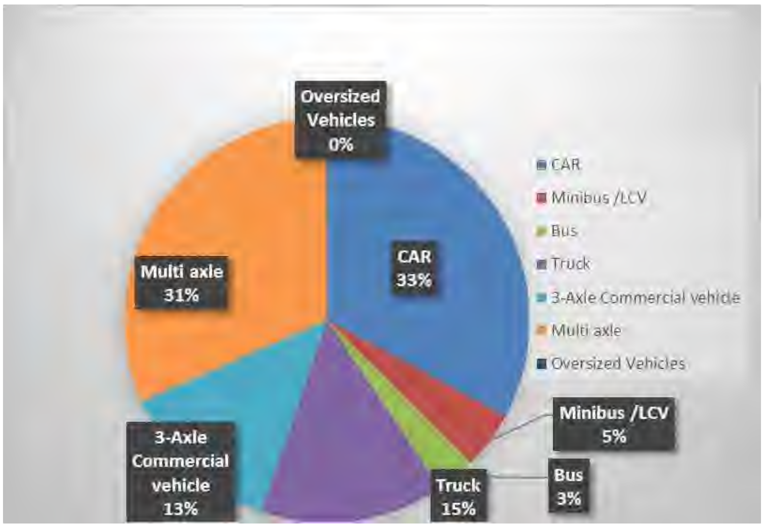

Figure 3-1 : Model Split of Tollable Vehicle

It is observed that car traffic forms about 33% of total traffic at toll plaza locations while multi axle commercial vehicles are about 44% of total traffic. Truck / Bus and LCV share about 18% and 5 % of traffic volume respectively.

Another important bifurcation of traffic is components of traffic with respect various type of toll ticketing like

1. Single Journey
2. Multi Journey
3. Monthly Pass (Local and General)

The following table provides numbers of vehicles falling in each of above category on base year 2019-20, 2020-21, 2021-22 & 2022-23

Table 3-6 : Journey Type Bifurcation of Traffic at Bandanwara TP KM 61.020

Sr. No	Type	Traffic Volume (Nos.)2022-23
1	Single Journey	11633
2	Return Journey	3270
3	Local Commercial Single Journey	1471
4	Monthly Pass Local	4
5	Monthly Pass	0

Most dominant part of the above is the single journey type followed by return journey at project stretch. Monthly pass commuters are a very low fraction of the total traffic on the project corridor.

The single journey component in total traffic numbers is a high as 71%. Return journey component is 20%. The number of Local Commercial Single Journey is 9% and Monthly Pass Local 0% at Bandanwara toll plaza.

It is observed that the project corridor demonstrates pattern of single journey dominated mix of traffic at stretch which is typical of major national highways with high component of long distance traffic.

2.8 Secondary Data Collection

There are several other factors which have a substantial impact on traffic pattern and growth on any project corridor. Following are some of such important factors

- Industrial development around project corridor and its catchment
- Educational infrastructure along project corridor
- Demographic pattern
- Urban area development
- Tourism potential
- Upcoming major infrastructural or Industrial projects
- Special Industry in project corridor
- Overall trends of economic growth local as well as national / regional

Hence in addition to traffic details on project site, secondary data was also collected from various other sources. Typical secondary data includes the following:

1. Vehicle registration data of regional and national level.
2. Economic Data
   a) GDP
   b) NSDP
   c) Population Growth
   d) Per Capita Income growth
   e) Industrial Growth
   f) Special Industry Potential
   g) Regional and National development vision / plan
   h) Any other relevant data
3. Competing road network

We have collected and utilized such underlying data in the study to estimate the growth and risk factors for traffic along the project corridor.

CHAPTER 4

INFLUENCE ZONE TRANSPORT NETWORK ANALYSIS

3.1 Introduction

Highway corridors behave like integrated circuit network and more often than not every road is connected to various networks having different origin and destinations. Traffic running on these networks behave like fluid and flow on network on alignment of least friction.

Following Factors can be considered as major contributors to friction on transportation network

- Travel Speed / Travel Time
- Geometric deficiencies like blind horizontal curves and steep vertical gradients etc,
- Configuration of road
- Riding quality
- Traffic delays,
- Length of road,
- Passing through built up or Urban Area,
- Terrain,
- Facilities,

3.2 Competing / Alternate route

Project stretch has toll application history from last few years, and it can be assumed that project traffic is settled. At local level there is no potential competing route bypassing toll plaza between.

At regional level, there can be two alternates for Udaipur traffic after Kishangarh. One via project road (Kishangarh – Bhiwara- Chittorgarh- Udaipur) and one via Ajmer, Beawer and Rajsamand.

Following maps show these routes in relation to project stretch at regional level.

Figure 4-1 : Alternate route at regional level

It can be observed that project highway forms the one of the main spine of the corridor between Kishangarh / Jaipur and Chittorgarh. Traffic on project road is now settled and it can be assumed as dedicated traffic on project road for logistic obligations.

At regional level for Udaipur traffic alternate route is faster and traffic is already using this alternate.

With six laning now nearing completion, project stretch would become slightly more attractive due to improved level of service. In such case further diversion of traffic from project road is not envisaged.

Following table provide summary of analysis of alternate route/ roads discussed above.

Table 4-1 : Competing Roads Details

<table>
<tr><th>Sr. No</th><th>Route Details</th><th>Designation</th><th>Length (Km)</th><th>Avg. Speed (KMPH)</th><th>Time Taken (Min)</th><th>Observations</th></tr>
<tr><td colspan="7">Regional Level</td></tr>
<tr><td rowspan="2">1</td><td>Jaipur – Ajmer-Udaipur</td><td>Alternate Route</td><td>395</td><td>61</td><td>6 Hr 23 Min</td><td rowspan="2">At present alternate route via Ajmer is a bit faster but after completion of six laning level of service would increase at project road as well</td></tr>
<tr><td>Jaipur- Bhilwara - Chittorgarh- Udaipur</td><td>Project Road</td><td>398</td><td>51</td><td>6 Hr 58 Min</td></tr>
</table>

It may be noted that since the project highway has already been commissioned and has a tolling history, the current traffic traversing the project corridor already factors in traffic diversion (if any) that may have taken place. Further after completion of six laning, level of service would improve on project corridor and this would create favorable conditions for traffic. Under these circumstances it is not envisaged that commercial or passenger traffic would switch to alternate roads from the project road. It is expected that there would be some additional traffic on project corridor once six lane is completed due to improvement in level of service.

CHAPTER 5

GROWTH OF TRAFFIC ON PROJECT HIGHWAY

5.1 Introduction

Traffic growth is a function of the interplay of a number of contributory factors such as National economy, Government policy, socio-economic conditions of the people, and changes in land uses along the project corridor precincts etc. As these factors have a number of uncertainties associated with them, forecasts of traffic are dependent on the projections of other factors such as population, gross domestic product (GDP), vehicle ownership, per capita income (PCI), agricultural output, fuel consumption etc. Future pattern of change in these factors can be estimated with only a reasonable degree of accuracy and hence the resultant traffic forecast levels may not be precise.

Traffic growth forecast for project corridor Kishangarh to Gulabpur section of NH-79 has been done taking the above factors into consideration. "**IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**" is established best practice and has been used for traffic growth forecast.

5.2 Trend Analysis

One of the methods of estimation of future rate of growth is to assume the same rate of growth as in the past. Although such a method is more suitable to projects of short durations say 5-10 years, however for long term projections it would-be erroneous to assume that the past rate of growth will continue to prevail for a long time in future. Economic conditions, which are major influencing factors, are bound to change over a long period of time. Thus, it would be necessary to modify the past trends of growth suitably.

Elasticity model of growth projection is one of the most widely acceptable methods for traffic forecast. The same is recommended in **IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**.

In this method the past trend of vehicular data is paired with an economic indicator and a regression analysis is done to yield the economic model of growth. Growth of vehicle traffic varies for different type of vehicle. It is a proven fact that the growth pattern for passenger and goods vehicle is different. Traffic growth on any highway

typically depends on number of economic parameters. Most important and direct parameters are given as under

- Per Capita Income
- Net State Domestic Product (NSDP)
- Population

It can be observed that the ownership of a car is more closely related to affordability; hence per capita is the index which closely fits the growth of car traffic among other criteria. In a similar fashion, the following can be pairs of vehicle type and independent variable for elasticity modeling of growth.

- Car / Jeep – Par Capita Income
- Bus / Minibus – Population
- Goods Vehicle – NSDP

5.3 Estimation of Traffic Demand Elasticity

Elasticity of traffic demand is defined as the rate at which traffic intensity varies due to a change in the corresponding indicator selected. Hence, In order to estimate the elasticity of traffic demand, it is necessary to establish relationship between the growth in number of given category of vehicles with the relevant economic variable considered, such as NSDP, per capita income and population growth. Latest available data for vehicle registration, per capita income, NSDP and population is used in analysis.

As per IRC: 108-1996 the model for estimating elasticity index for the project corridor is of the following form and is given as below:

$$Log\,(P) = k \times Log\,(EI) + A$$

Where,

P = *Number of Vehicles (Mode wise)*

EI = *Economic Indicator*

A = *Regression constant*

k = *Elasticity coefficient (Regression coefficient)*

The elasticity for car and bus (passenger vehicles) is calculated based on the Population and Per Capita Domestic Product (PCDP) and the elasticity for trucks is calculated based on the Net State Domestic Product (NSDP).

The project corridor spreads across state of Rajasthan. Toll plaza at Bandanwara is in the state of Rajasthan but it has influence of Gujarat also. For elasticity calculations, working data from Rajasthan and Gujarat has been analyzed.

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Rajasthan State.

Table 5-1 : Per Capita Income Vs Car Rajasthan

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	57192	591069	4.76	5.77		
2013	58441	659542	4.77	5.82	2%	
2014	61053	733916	4.79	5.87	4%	
2015	64496	814079	4.81	5.91	6%	
2016	68565	899307	4.84	5.95	6%	
2017	71394	988391	4.85	5.99	4%	4.55%

Regression analysis of same is given in figure below

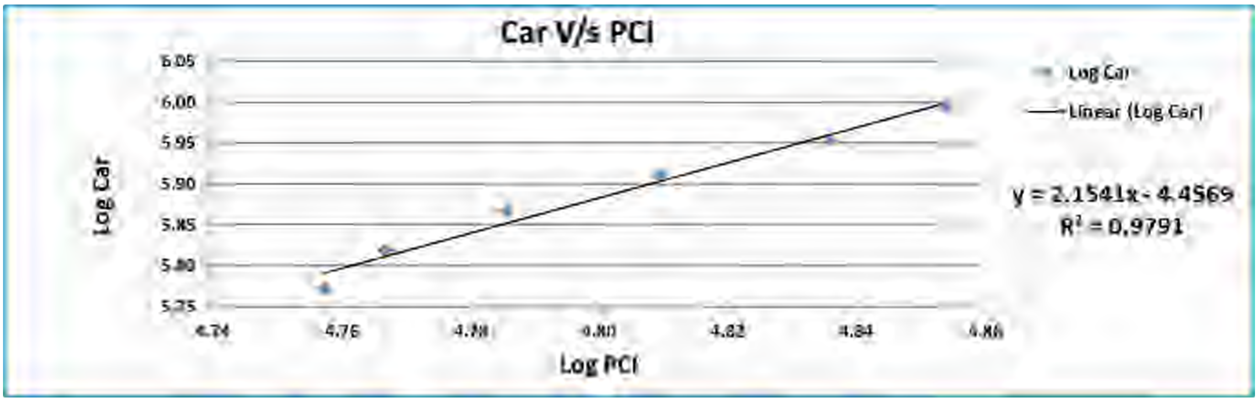

Figure 5-1 : Regression and Elasticity PCI vs. Car – Extrapolation Rajasthan

Table 5-2 : Population Vs Bus Rajasthan

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	68548437	83345	7.84	4.92		
2013	69783885	88616	7.84	4.95	2%	
2014	71016445	93892	7.85	4.97	2%	
2015	72245688	97650	7.86	4.99	2%	
2016	73471198	102818	7.87	5.01	2%	
2017	74692571	108680	7.87	5.04	2%	1.73%

Regression analysis of same is given in figure below

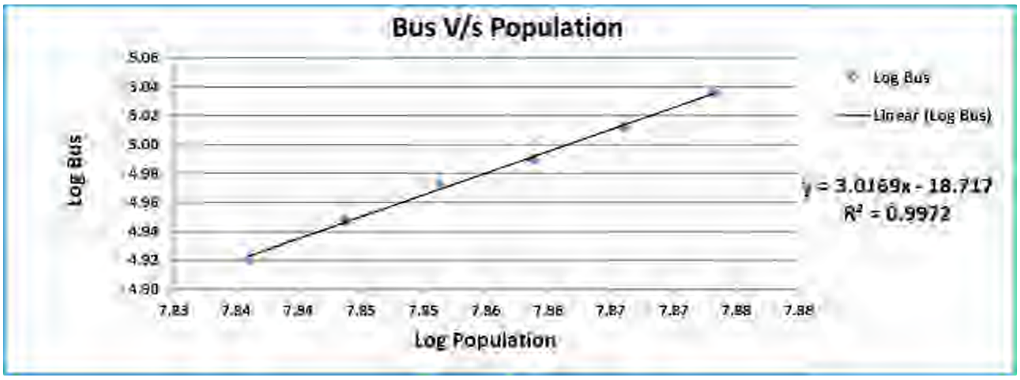

Figure 5-2 : Regression and Elasticity Population vs. Bus – Extrapolation Rajasthan

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-3 : LCV Traffic Vs NSDP Rajasthan

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth
2012	395331	69509	5.60	4.84		
2013	409802	76396	5.61	4.88	4%	
2014	434292	33379	5.64	4.52	6%	
2015	465408	91787	5.67	4.96	7%	
2016	501922	99763	5.70	5.00	8%	6.16%

Following figure depict regression analysis and extrapolation.

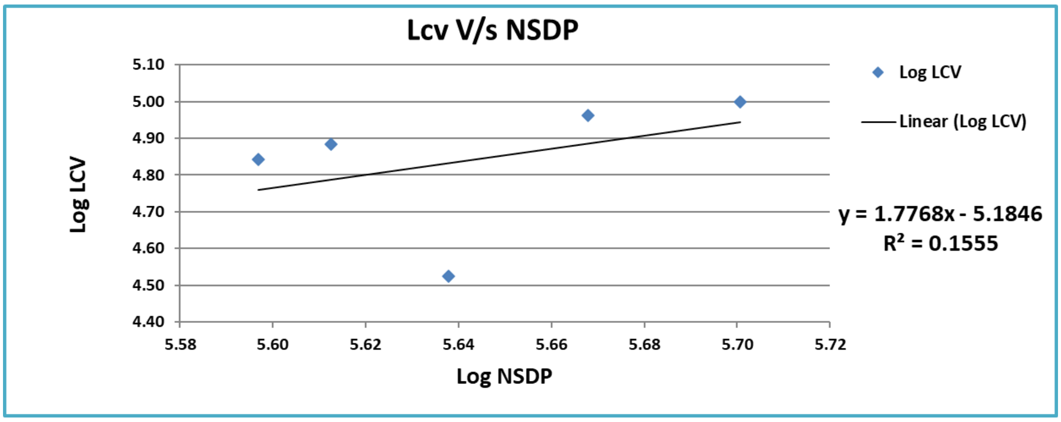

Figure 5-3 : Regression and Elasticity NSDP vs. LCV Traffic - extrapolation Rajasthan

Following figure depict regression analysis and extrapolation.

Table 5-4 : Goods Traffic Vs NSDP Rajasthan

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth
2012	395331	362028	5.60	5.56		
2013	409802	401983	5.61	5.60	4%	
2014	434292	434379	5.64	5.64	6%	
2015	465408	472365	5.67	5.67	7%	
2016	501922	517604	5.70	5.71	8%	
2017	530172	561158	5.72	5.75	6%	6.06%

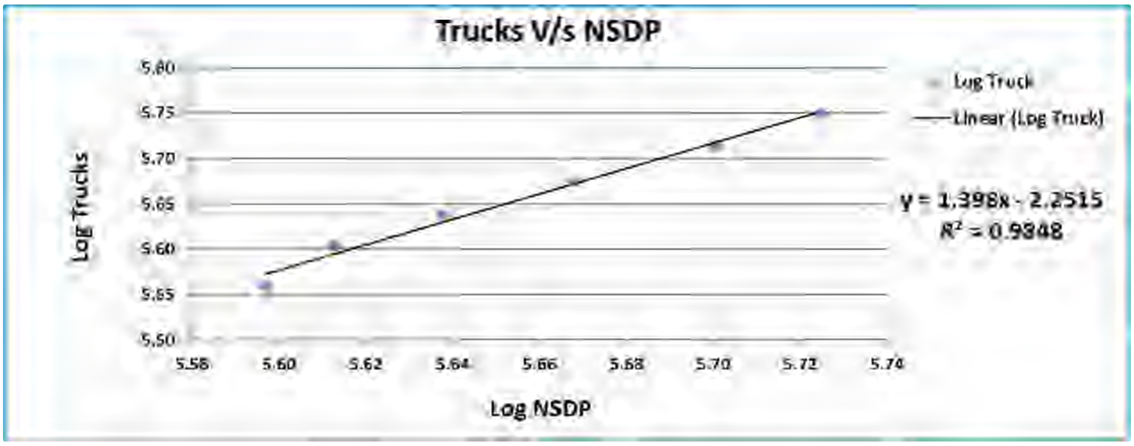

Figure 5-4 : Regression and Elasticity NSDP vs. Goods Traffic - extrapolation Rajasthan

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below

Table 5-5 : Summary Regression Analysis Rajasthan

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average IV Growth (5yrs)	Growth Elastic Model	Remarks
Rajasthan	Car/Jeep	PCI	y = 2.1541x + -4.4569	R^2 = 0.9791	2.1541	4.55%	9.79%	Good Regression
	Bus	Population	y = 3.0169x - -18.7174	R^2 = 0.9972	3.0169	1.73%	5.22%	Good Regression
	LCV	NSDP	y = 1.7768x - -5.1846	R^2 = 0.1555	1.7768	6.16%	10.95%	Poor Regression
	Truck	NSDP	y = 1.398x - -2.2515	R^2 = 0.9848	1.3980	6.06%	8.46%	Good Regression

Table 5-6 : Per Capita Income Vs Car Gujarat

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	87481	1411898	4.94	6.15		
2013	96683	1602129	4.99	6.20	11%	
2014	102589	1771298	5.01	6.25	6%	
2015	111370	2008748	5.05	6.30	9%	
2016	120683	2260084	5.08	6.35	8%	
2017	129738	2527537	5.11	6.40	8%	8.21%

Regression analysis of same is given in figure below

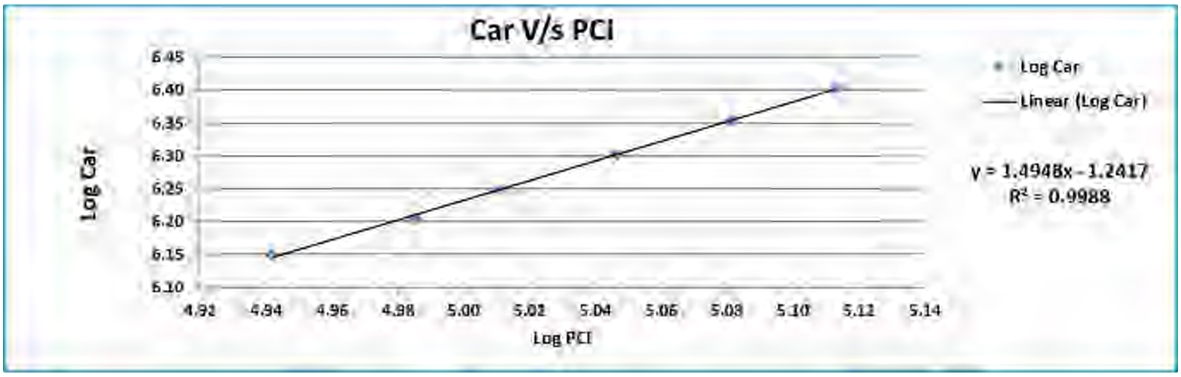

Figure 5-5 : Regression and Elasticity PCI vs. Car – Extrapolation Gujarat

Table 5-7 : Population Vs Bus Gujarat

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	60439692	67546	7.78	4.83		
2013	61563037	70615	7.79	4.85	2%	
2014	62684375	72998	7.80	4.86	2%	
2015	63803304	76435	7.80	4.88	2%	

2016	64919427	82734	7.81	4.92	2%	
2017	66032362	74855	7.82	4.87	2%	1.79%

Regression analysis of same is given in figure below

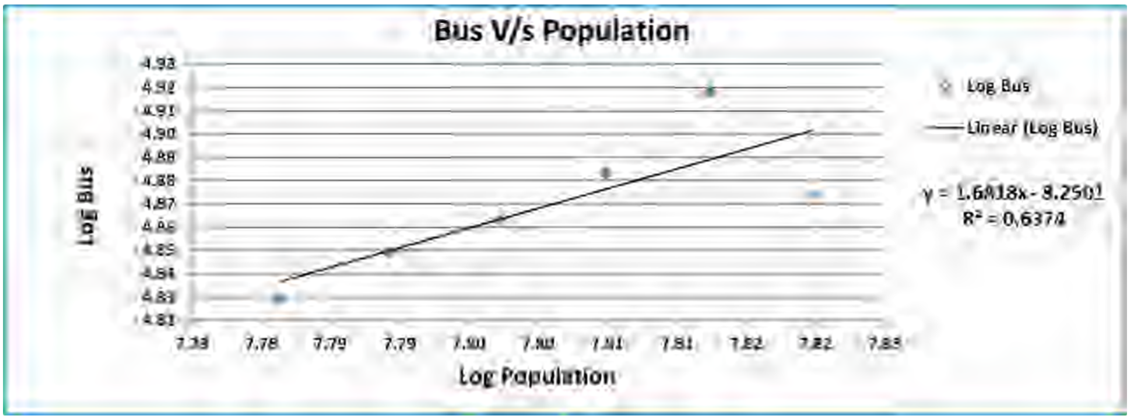

Figure 5-6 : Regression and Elasticity Population vs. Bus – Extrapolation Gujarat

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-8 : LCV Traffic Vs NSDP Gujarat

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth
2012	532809	448958	5.73	5.65		
2013	596659	499277	5.78	5.70	12%	
2014	641489	542918	5.81	5.73	8%	
2015	705629	589984	5.85	5.77	10%	
2016	774775	633599	5.89	5.80	10%	9.82%

Following figure depict regression analysis and extrapolation.

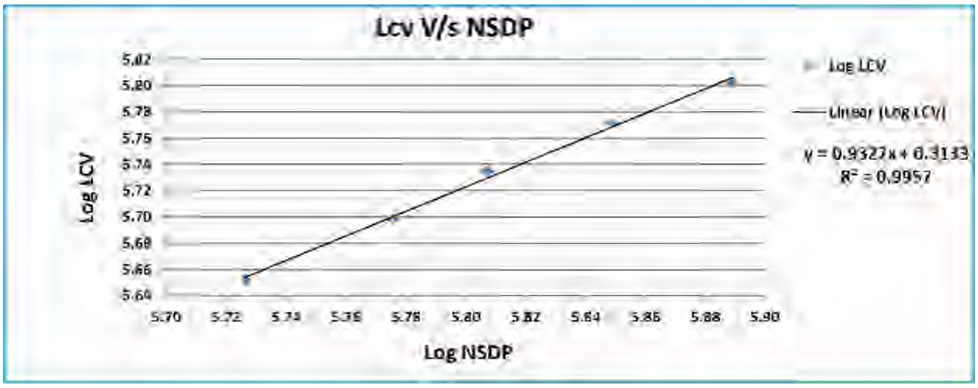

Figure 5-7 : Regression and Elasticity NSDP vs. LCV Traffic - extrapolation Gujarat

Following figure depict regression analysis and extrapolation.

Table 5-9 : Goods Traffic Vs NSDP Gujarat

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth
2012	532809	301533	5.73	5.48		
2013	596659	319207	5.78	5.50	12%	
2014	641489	332185	5.81	5.52	8%	
2015	705629	352225	5.85	5.55	10%	
2016	774775	375265	5.89	5.57	10%	
2017	843930	396061	5.93	5.60	9%	9.64%

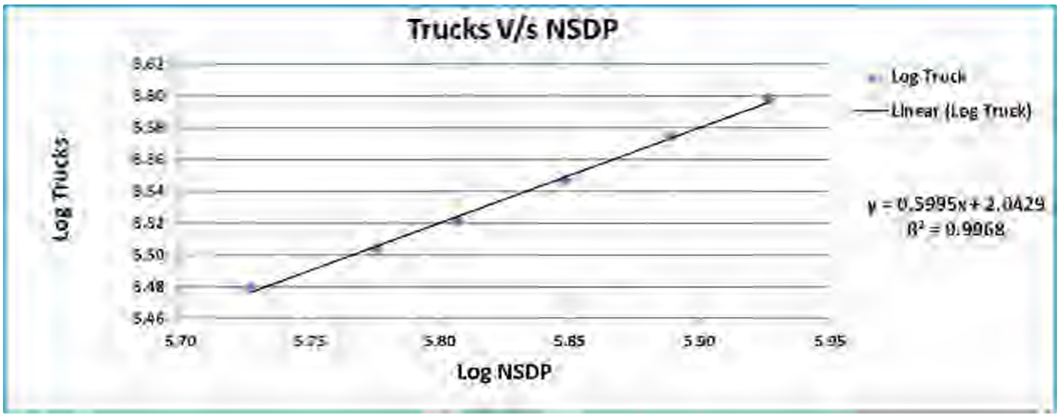

Figure 5-8 : Regression and Elasticity NSDP vs. Goods Traffic - extrapolation Gujarat

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below

Table 5-10 : Summary Regression Analysis Gujarat

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average IV Growth (5yrs)	Growth Elastic Model	Remarks
Gujarat	Car/Jeep	PCI	y = 1.4948x + - 1.2417	R^2 = 0.9988	1.4948	8.21%	12.27%	Good Regression
	Bus	Population	y = 1.6818x - - 8.2501	R^2 = 0.6374	1.6818	1.79%	3.00%	Fair Regression
	LCV	NSDP	y = 0.9327x - 0.3133	R^2 = 0.9957	0.9327	9.82%	9.16%	Good Regression
	Truck	NSDP	y = 0.5995x - 2.0429	R^2 = 0.9968	0.5995	9.64%	5.78%	Good Regression

Economical model for predicting growth is good tool, however other local, regional, national factors should also be considered before finalizing growth factors. Considering factors such as proposed developments and other influencing economic factors, moderated growth should be considered. These factors are discussed in subsequent sections.

5.4 Analysis of Historic Traffic Data

Historical traffic data forms useful information for any highway project. It provides useful information for establishing past trend of growth. Project stretch of Kishangarh to Gulabpura is under tolling operation with current concessionaire and has two year of tolling history from 2018-19. As traffic data available with the project concessionaire of year two years, we do not have sufficient data points to be able to establish a reliable past trend of traffic growth. A minimum of about 5 -6 years’ traffic data is required for establishing a reliable past trend.

5.5 Other Factors Influencing Growth

There are many factors which have impact on traffic growth. As discussed previously these factors can be economical, social, educational, and industrial.

Potentiality of such factors for project highway is discussed as under.

ECONOMY

After witnessing a slowdown during 2011-12, the economy recovered in 2013-14, and a high growth rate of GDP was recorded in up to 2018-19. Pandemic of COVID-

19 impacted all economies of world including India. Following figure show trend of GDP growth in India.

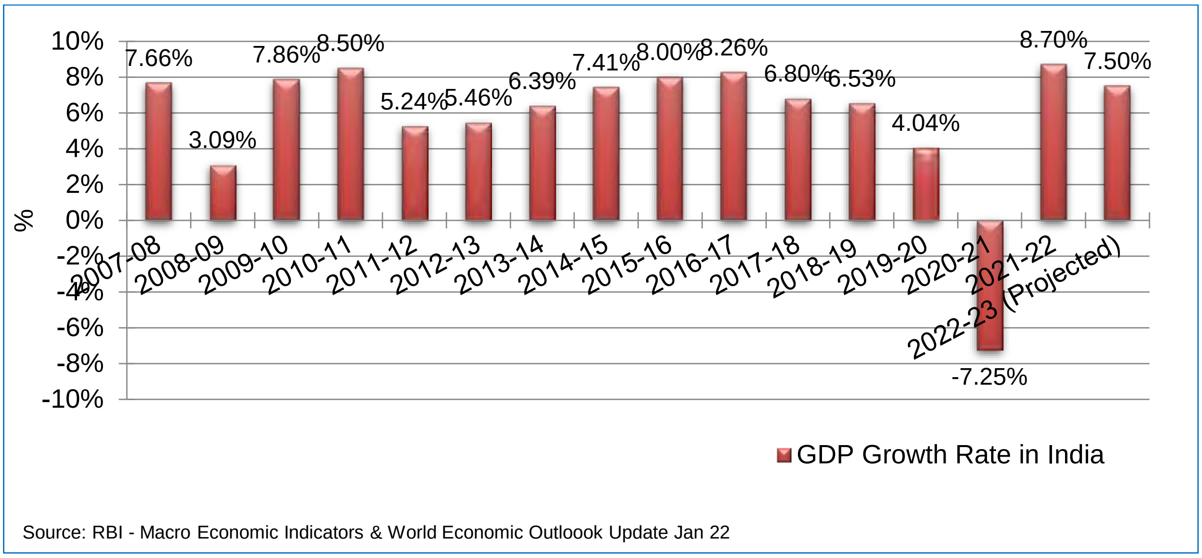

Figure 5-9 : Growth of GDP in India

FY 2017-18 recorded a growth of 6.7% which had slight impact of GST and demonetization. Indian economy appears on recovery path with estimated growth of 6.8% in FY 2018-19. Government took major policy decision including tax infrastructure reforming, banking sector improvement and ease of doing business.

Major economies of world collapsed due to pandemic COVID-19 including India. Indian economy is also registered negative growth in financial year 2020-21. After that Indian economy recovered handsomely and registered a growth of about 9% in Year 2021-22. This was partly due to low base of year 2020-21 as well.

Honorable Prime Minister has announced a major relief package of Rs. 20 lakh crores which is about 10% of GDP. This is aimed at turning this major crisis of COVID-19 into opportunity by providing major impetus to industrial production to the limit of becoming a self-reliant economy. With major thrust of this package being on **Make -In- India** it is expected that industry in India would grow at rapid pace and recover handsomely in post COVID-19 scenario. World Economic Outlook update also has predicted a growth rate of about 7.5 % in year 2022-23.

5.6 Developments along and around the Project Corridor & State

This Highway passes through Ajmer district of Rajasthan, having Industrial Areas of RIICO Kishangarh and Silora. There are Large Scale Industries of Cement, Marble & Granite and Medium Scale Industries of engineering and instrumentation in this area Asset primarily serves traffic travelling between Delhi, Rajasthan, Gujarat and Maharashtra. It is observed that the vehicle distribution to be dominated by heavy vehicles. We further noticed several textile industries and marble/granite industries bordering the Asset. Udaipur serves as a big tourism hub as well as a consumption centre which also result in traffic feeding into the demand being generated.

In addition, Chittorgarh has 4 major cement plants located in Chanderiya and Nimbahera villages. There is a regular movement of Cement bulkers to and from these locations along asset. Chanderiya Lead-Zinc Smelter, is the one of the largest zinc-lead smelting complexes in the world, is also located in Chittorgarh. Bhilwara is home to textiles industry and only centre in the country producing insulation bricks. Mining is another major sector for large scale mining of sandstone, soap stone feldspar, quartz, mica China clay and granite. Also, Iron Ore, Led, and Zinc is mined and processed in Bhilwara

growth of Rajasthan has been comparable to the national average economic growth. Rajasthan is rich in natural resources and benefits from its strategic geographic location in India. The state is pre-eminent in quarrying, mining in India and has been a leader in crude oil extraction over the past the few years. Moreover, Rajasthan is also a relevant tourism attractor in India. Considering the scenario, it may be assumed that the traffic growth on project highway would remain high and there are minimal risks in terms of growth.

Table 5-11 : GDP of India, UP and other important states

Year	India (GDP)	Bihar	Haryana	Madhya Pradesh	Maharashtra	Odisha	Punjab	Rajasthan	Uttar Pradesh	Uttarakhand	West Bengal	Delhi
1980-81	12336	514	357	623	1464	529	504	560	1631	138	830	269
1981-82	13030	543	371	639	1498	528	551	607	1670	141	808	291
1982-83	13411	548	394	668	1556	497	568	620	1800	152	840	328
1983-84	14464	601	402	702	1654	597	578	761	1871	158	939	320
1984-85	15037	658	418	668	1675	569	623	706	1900	161	964	333
1985-86	15663	672	493	726	1807	635	670	704	1975	167	1005	386
1986-87	16339	725	493	694	1832	643	694	771	2060	174	1045	411
1987-88	16917	685	484	789	1955	623	730	718	2154	182	1101	447
1988-89	18635	772	602	847	2159	754	769	1014	2434	206	1148	486
1989-90	19778	759	610	865	2515	805	834	993	2502	212	1188	531
1990-91	20824	831	674	987	2629	668	849	1149	2651	224	1251	553
1991-92	21122	784	688	916	2620	753	888	1061	2662	225	1349	638

1992-93	22254	737	688	983	3017	740	930	1220	2690	228	1389	660
1993-94	23519	755	719	1088	3349	788	970	1121	2757	233	1490	705
1994-95	25023	842	771	1107	3414	826	995	1325	2901	254	1594	790
1995-96	26846	712	787	1174	3791	864	1032	1374	2995	251	1713	804
1996-97	28987	893	879	1252	3941	804	1107	1535	3327	267	1832	915
1997-98	30234	850	887	1318	4158	920	1137	1721	3292	270	1985	1063
1998-99	32255	904	934	1405	4324	948	1203	1797	3316	274	2112	1116
1999-00	34837	950	1002	1552	4735	1008	1267	1801	3440	274	2264	1170
2000-01	36282	1106	1081	1426	4589	982	1309	1743	3511	308	2343	1215
2001-02	38236	1043	1165	1528	4751	1042	1326	1941	3575	323	2512	1262
2002-03	39719	1175	1236	1449	5079	1034	1348	1708	3690	353	2600	1359
2003-04	42883	1099	1358	1611	5471	1185	1433	2251	3885	381	2753	1433
2004-05	45906	1238	1475	1664	5948	1340	1504	2196	4079	431	2936	1588
2005-06	50257	1207	1608	1748	6810	1399	1577	2344	4317	492	3121	1752
2006-07	55066	1416	1791	1907	7748	1574	1748	2620	4660	551	3366	1969
2007-08	60199	1489	1931	1997	8650	1708	1899	2739	4959	648	3627	2191
2008-09	64248	1716	2080	2250	8786	1837	2004	2969	5336	716	3774	2464
2009-10	69769	1798	2340	2463	9634	1852	2132	3142	5668	839	4067	2667
2010-11	75987	2073	2498	2592	10732	1968	2270	3614	6120	927	4313	2888
2011-12	81069	2285	2712	2824	11222	2042	2392	3953	6451	1020	4471	3147
2012-13	85463	2369	2894	3069	11842	2163	2518	4098	6736	1095	4838	3342
2013-14	90636	2469	3142	3226	12671	2331	2675	4343	7075	1178	5247	3565
2014-15	97121	2557	3314	3394	13322	2359	2777	4656	7297	1257	5633	3882
2015-16	105033	2749	3612	3597	14417	2557	2926	4981	7894	1355	-	4291
2016-17	112476	3033	3927	4129	15744	2828	3095	5352	8457	1448	-	4658
2017-18	119762	-	-	4432	-	3029	-	5736	9011	1547	-	5035
Growth 1981-2018	6.34	5.05	6.88	5.44	6.82	4.83	5.17	6.49	4.73	6.75	5.79	8.24
Growth 1994-2018	7.02	6.23	7.66	6.03	6.96	5.77	5.17	7.04	5.06	8.20	6.54	8.53
Growth 2000-2018	7.10	7.07	8.37	6.00	7.32	6.30	5.40	6.65	5.50	10.10	6.27	8.45

5.6.1 Industrial Units along Project Corridor

There are number of medium and big size industrial establishments along project corridor. Following figure show spread of these industries along project road.

Figure 5-10 : Industrial Units along project corridor

1. RIICO Industrial Area **Kishangarh** (Marbel & Cement Manufacturing Industries)
2. RIICO **Silora** (Wire Product, Ice Factory)
3. Welding Wire & Plastic Manufacturing Industries
4. Industrial Process Measurement & Control Instruments
5. FMCG & Quartz Manufacturers
6. Brick Manufacturers
7. **Bijainnagar** (Cattle Feed Products Manufacturer – Kapila)

Presence of these units promotes sustainable traffic on project corridor.

5.7 Recommended Growth Rates of Traffic

Based on the above analysis and after giving due consideration to the entire listed factors, the following overall growth rates are recommended for each category of vehicle as under. Rate of growth is moderated in light of overall regional trend. Growth of Multi-Axle is kept slightly higher as trend of technological advances in logistic industry favors multi-axle over 2/3 axle carriage. It is also expected that as the economy moves from developing to developed, rate of growth diminishes. Same growth rate is not sustainable for long. Traffic growth is suitably stepped down for future years.

Growth rates are recommended for three scenarios for sensitivity analysis namely **Optimistic, Pessimistic** and **Most Likely** with a positive and negative variation 0.5% from Most Likely case for corridor in both states.

5.7.1 Recommended Growth Rates of Traffic for Project Stretch

Table 5-12 : Recommended Growth Rates Optimistic

Category / Year	2021-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
Car/Jeep/Van	9.26%	8.70%	8.16%	7.62%	7.58%	7.03%
Bus	4.38%	4.12%	3.88%	3.64%	3.57%	3.33%
LCV	3.56%	3.74%	3.92%	4.10%	4.27%	4.44%
2- Axle	4.39%	3.95%	3.52%	3.09%	2.86%	2.41%
3 - Axle	5.43%	4.88%	4.33%	3.80%	3.67%	3.08%
4 to6 Axle	6.46%	5.80%	5.15%	4.50%	4.27%	3.58%
7 and Above Axle	6.46%	5.80%	5.15%	4.50%	4.27%	3.58%

Table 5-13 : Recommended Growth Rates Pessimistic

Category / Year	2021-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
Car/Jeep/Van	8.76%	8.20%	7.66%	7.12%	7.08%	6.53%
Bus	3.88%	3.62%	3.38%	3.14%	3.07%	2.83%
LCV	3.06%	3.24%	3.42%	3.60%	3.77%	3.94%
2- Axle	3.89%	3.45%	3.02%	2.59%	2.36%	1.91%
3 - Axle	4.93%	4.38%	3.83%	3.30%	3.17%	2.58%
4 to6 Axle	5.96%	5.30%	4.65%	4.00%	3.77%	3.08%
7 and Above Axle	5.96%	5.30%	4.65%	4.00%	3.77%	3.08%

Table 5-14 : Recommended Growth Rates Most Likely

Category / Year	2021-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
Car/Jeep/Van	9.01%	8.45%	7.91%	7.37%	7.33%	6.78%
Bus	4.13%	3.87%	3.63%	3.39%	3.32%	3.08%
LCV	3.31%	3.49%	3.67%	3.85%	4.02%	4.19%
2- Axle	4.14%	3.70%	3.27%	2.84%	2.61%	2.16%
3 - Axle	5.18%	4.63%	4.08%	3.55%	3.42%	2.83%
4 to6 Axle	6.21%	5.55%	4.90%	4.25%	4.02%	3.33%
7 and Above Axle	6.21%	5.55%	4.90%	4.25%	4.02%	3.33%

5.8 COVID-19 Impact

All social and economic activities had been completely disrupted due worldwide pandemic of Corona Virus. This had affected traffic on project stretch as well. Traffic was severely affected form March-2020 due to lockdown and then in second wave and third waves.

Government has announced a mega economic stimulate and package of Rs. 20 Lakh Crore to bring the economy back on track and recover the losses. Traffic has shown impressive recovery post lockdown period and has recovered to normal level.

Taking recommended traffic growth and additional factors as discussed above into consideration traffic forecast for concession period is done and presented in next chapter.

Traffic and revenue has been worked out on the basis of above growths and same is presented in subsequent chapter of report.

CHAPTER 6

TRAFFIC FORECAST

6.1 Traffic Projections

Growth rates recommended in previous section of report are used to arrive at traffic projections for future years. Toll plaza wise futuristic traffic projection is given in tables below.

These projections have been done for following three cases of growth up to concession period

1. Optimistic Scenario
2. Pessimistic Scenario
3. Most Likely Scenario

Table 6-1 : Total Tollable Traffic @ Toll Plaza Chainage KM 61.02
(Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	5383	749	514	2406	2156	5160	11	16379	45005
2023-24	6175	892	615	2889	2613	6319	14	19517	54363
2024-25	6747	923	642	3016	2755	6728	15	20826	57714
2025-26	7333	957	669	3135	2890	7118	16	22118	60954
2026-27	7971	993	696	3259	3030	7531	17	23497	64382
2027-28	8665	1030	724	3387	3178	7968	18	24970	68014
2028-29	9418	1068	754	3522	3333	8430	19	26544	71868
2029-30	10237	1107	785	3661	3496	8919	20	28225	75949
2030-31	11071	1151	816	3789	3647	9379	21	29874	79854
2031-32	11973	1196	848	3923	3804	9863	22	31629	83975
2032-33	12949	1243	881	4061	3969	10371	23	33497	88320
2033-34	14004	1292	915	4204	4140	10905	24	35484	92900
2034-35	15146	1342	951	4352	4320	11466	25	37602	97738
2035-36	16300	1398	985	4487	4484	11982	26	39662	102301
2036-37	17542	1455	1021	4626	4654	12522	27	41847	107098
2037-38	18879	1514	1058	4769	4831	13086	28	44165	112137
2038-39	20318	1576	1096	4916	5014	13676	29	46625	117433
2039-40	21867	1640	1136	5067	5205	14292	30	49237	123000
2040-41	23524	1710	1176	5213	5397	14903	31	51954	128650
2041-42	25177	1786	1215	5338	5563	15436	32	54547	133810
2042-43	26947	1865	1255	5467	5734	15988	33	57289	139207

Table 6-2 : Total Tollable Traffic @ Toll Plaza 2- Chainage KM 61.02 (Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	5383	749	514	2406	2156	5160	11	16379	45005
2023-24	6147	887	614	2875	2600	6288	14	19425	54103
2024-25	6686	914	638	2986	2729	6663	15	20631	57167
2025-26	7233	944	661	3089	2849	7016	16	21808	60090
2026-27	7826	975	684	3196	2973	7388	17	23059	63170
2027-28	8468	1007	709	3306	3104	7779	18	24391	66422
2028-29	9163	1040	735	3420	3240	8192	19	25809	69858
2029-30	9914	1074	762	3538	3381	8627	20	27316	73480
2030-31	10672	1111	788	3645	3511	9028	21	28776	76891
2031-32	11490	1149	815	3755	3646	9447	22	30324	80472
2032-33	12369	1188	842	3868	3785	9886	23	31961	84227
2033-34	13315	1228	870	3985	3931	10346	24	33699	88180
2034-35	14334	1270	899	4105	4082	10826	25	35541	92327
2035-36	15355	1316	927	4211	4217	11260	26	37312	96181
2036-37	16449	1363	956	4320	4356	11711	27	39182	100211
2037-38	17621	1412	986	4431	4499	12180	28	41157	104423
2038-39	18875	1463	1017	4546	4648	12668	29	43246	108839
2039-40	20219	1515	1049	4663	4801	13174	30	45451	113449
2040-41	21650	1572	1082	4773	4953	13671	31	47732	118091
2041-42	23063	1634	1113	4864	5080	14092	32	49878	122243
2042-43	24568	1698	1144	4957	5212	14526	33	52138	126570

Table 6-3 : Total Tollable Traffic @ Toll Plaza 3- Chainage KM 61.02 (Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	5383	749	514	2406	2156	5160	11	16379	45005
2023-24	6160	890	615	2881	2608	6302	14	19470	54229
2024-25	6715	920	640	2999	2743	6694	15	20726	57432
2025-26	7282	952	665	3110	2869	7066	16	21960	60511
2026-27	7896	985	691	3225	3002	7458	17	23274	63765
2027-28	8562	1019	718	3344	3141	7872	18	24674	67205
2028-29	9285	1055	746	3468	3287	8309	19	26169	70847
2029-30	10070	1092	774	3596	3439	8770	20	27761	74690
2030-31	10866	1131	802	3713	3579	9200	21	29312	78339
2031-32	11725	1173	831	3834	3726	9651	22	30962	82186
2032-33	12652	1217	862	3959	3878	10124	23	32715	86236
2033-34	13651	1262	893	4088	4035	10620	24	34573	90490
2034-35	14730	1308	925	4221	4200	11140	25	36549	94973
2035-36	15816	1358	956	4340	4349	11615	26	38460	99173
2036-37	16982	1410	988	4463	4503	12109	27	40482	103571
2037-38	18234	1465	1022	4589	4663	12624	28	42625	108188
2038-39	19578	1522	1056	4719	4829	13162	29	44895	113033
2039-40	21021	1580	1092	4853	5000	13722	30	47298	118110
2040-41	22562	1643	1129	4980	5170	14273	31	49788	123232
2041-42	24091	1712	1163	5088	5317	14748	32	52151	127873
2042-43	25724	1783	1199	5198	5468	15238	33	54643	132713

6.2 Modification in Concession Period

As per Article 29 of the concession agreement, if actual traffic on the project falls short or exceeds Target Traffic on project highway on defined date, concession period shall be modified subject to calculation stipulated therein. For Gulabpura - Chittorgarh project, the Target Date and Target Traffic are defined as under:

Target Date - 1st May 2026

Target Traffic - 76236 in PCU

It was observed that as per traffic projections, average traffic volume falls short of target traffic in all scenarios. Probable extension of concession period is estimated according to article 29 of concession agreement which comes to about three years. Traffic forecast and revenue projections are done for probable extended period accordingly.

Most Likely

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2026	76236	63827	-16%	24%	20%	20	4.0

Optimistic

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2026	76236	64450	-15%	23%	20%	20	4.0

Pessimistic

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2026	76236	63227	-17%	26%	20%	20	4.0

CHAPTER 7

FORECAST OF TOLL REVENUE

7.1 General

This chapter presents the tolling rate calculations, categories and toll revenue of the project.

7.2 Discount Categories

The fee schedule in the CA of Kishangarh- Gulabpura section of NH-79 is based on the old toll policy. As per the Toll Notification (Schedule - G) the discounts and special provisions have been considered. In addition to discounts as per Fee Notification concessionaire has declared special category rates also. Salient features of toll rate structure are given as under

1. Monthly Pass: For frequent users monthly pass would be issued for 50 trips in month at 2/3d rate.
2. Multiple Journeys (for Return Trip): Will be charged at 1.5 times single journey.
3. Single Journey: Full single journey toll would be charged to this category of vehicles who are infrequent travelers or whose frequency does not yield any discount from the above categories.
4. Local Discounts: There are several categories of local discounts.
   a) Local Car Jeep Van I - Rs. 275 per
   b) Local Commercial Vehicles at 50% rate for single journey

Building of inflation and escalation of rate on the basis of WPI are done as per toll notification (Schedule G) as given under as extract from concession agreement.

The formula for determining the applicable rate of fee shall be as follows:-

$$\text{Applicable rate of fee} = \text{base rate} + \text{base rate} \times \left\{ \frac{\text{WPI A} - \text{WPI B}}{\text{WPI B}} \right\} \times 0.4$$

Factor of inflation / growth has been incorporated as per Schedule R. WPI numbers (2011-12 series) are available up to 2018-19. A moderate growth in Wholesale Price Index (WPI) has been assumed after that. The following graph provides historical rate of inflation (WPI) in India. Data has been sourced from the Office of Economic Advisor web site (www.eaindustry.nic.in) WPI for year 2017-18 and 2018-2019 is worked back by applying a correlation factor for 2004-05 series as 2017-18 and 2018-2019 data is available in 2011-12 series only. Ratio of WPI for year 2016-17 for both series is used for conversion of WPI in 2004-05 series

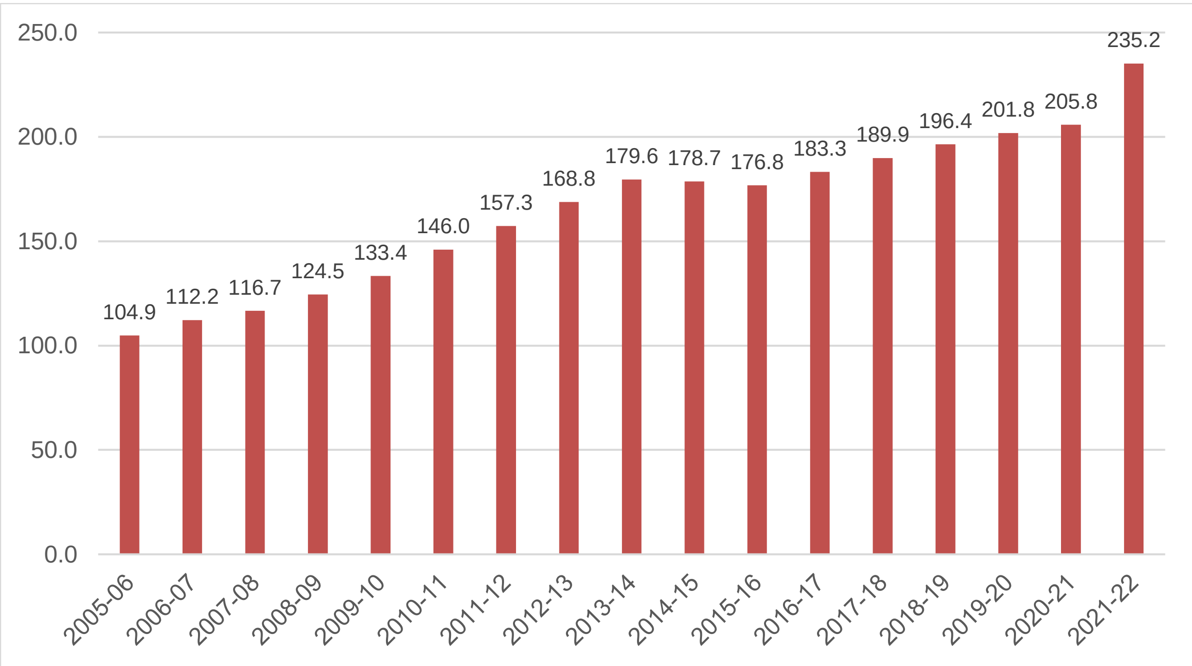

Figure 7-1 : Historical Rate of WPI Inflation in India

Average inflation in WPI in last few years is steadily growing. It grew in range of 4% - 5% in previous years. For future years initially it is takes 5% and Suitably Stepped down for future years.

7.3 Estimation of Toll Rates

As per the applicable MORTH notification and Schedule R of contract agreement, the following Base rate of fee for the categories mentioned in the table stands true in the National Highways Fee Rules applicable for contract.

Table 7-1 : Base Toll Rates June 2007-08

Type of Vehicle	Base Rate of Fee / Km (in Rs.)
Car, Jeep, Van or Light Motor Vehicle	0.65
Light Commercial Vehicle, Light Goods Vehicle or Mini Bus	1.05
Bus or Truck (Two Axles)	2.20
Three Axle Commercial Vehicles	2,40
Heavy Construction Machinery (HCM) or Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 axles)	3.45
Oversized Vehicles (7 or more Axles)	4.20

There is no bypass or structure to be factored in for rates calculations.

Toll rates are calculated as per guidelines provided in schedule R (rounded to nearest Rs.) for the concession period and are given below.

Thus worked out rates for various categories of vehicle and discounts are given as under

Table 7-2 : Toll Rates for Single Journey @ Chainage KM 61.02

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles
2022-23	75	120	250	250	275	395	480
2022-23	135	215	450	450	490	710	860
2023-24	140	225	475	475	515	745	905
2024-25	145	240	500	500	545	780	950
2025-26	155	250	525	525	570	820	1000
2026-27	165	265	550	550	600	865	1050
2027-28	170	275	575	575	630	905	1100
2028-29	180	290	605	605	660	950	1155
2029-30	185	300	635	635	690	995	1210
2030-31	195	315	665	665	725	1040	1270
2031-32	205	330	695	695	760	1090	1330
2032-33	215	350	730	730	795	1145	1395
2033-34	225	365	765	765	835	1200	1460

2034-35	235	385	805	805	875	1260	1535
2035-36	250	400	845	845	920	1320	1610
2036-37	260	420	885	885	965	1385	1685
2037-38	275	445	925	925	1010	1455	1770
2038-39	290	465	975	975	1060	1525	1860
2039-40	300	490	1020	1020	1115	1600	1950
2040-41	315	510	1070	1070	1170	1680	2045
2041-42	335	535	1125	1125	1230	1765	2150
2042-43	350	565	1180	1180	1290	1855	2255

Table 7-3 : Toll Rates for Return Journey @ Chainage KM 61.02

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles
2022-23	110	180	380	380	410	595	720
2022-23	200	325	675	675	740	1060	1290
2023-24	210	340	710	710	775	1115	1360
2024-25	220	355	745	745	815	1170	1425
2025-26	230	375	785	785	855	1230	1500
2026-27	245	395	825	825	900	1295	1575
2027-28	255	415	865	865	945	1355	1650
2028-29	270	435	905	905	990	1420	1730
2029-30	280	455	950	950	1035	1490	1815
2030-31	295	475	995	995	1085	1560	1900
2031-32	310	500	1045	1045	1140	1640	1995
2032-33	325	525	1095	1095	1195	1720	2090
2033-34	340	550	1150	1150	1255	1800	2195
2034-35	355	575	1205	1205	1315	1890	2300
2035-36	375	605	1265	1265	1380	1980	2415
2036-37	390	635	1325	1325	1445	2080	2530
2037-38	410	665	1390	1390	1520	2180	2655
2038-39	430	695	1460	1460	1595	2290	2785
2039-40	455	730	1530	1530	1670	2405	2925
2040-41	475	770	1610	1610	1755	2520	3070
2041-42	500	805	1690	1690	1840	2650	3225
2042-43	525	845	1775	1775	1935	2780	3385

Table 7-4 : Toll Rates for Monthly Pass Local@ Chainage KM 61.02

Year	Car	Mini Bus /LCV
2022-23	255	255
2022-23	315	315
2023-24	330	330
2024-25	345	345
2025-26	365	365
2026-27	385	385

2027-28	400	400
2028-29	420	420
2029-30	440	440
2030-31	460	460
2031-32	485	485
2032-33	510	510
2033-34	535	535
2034-35	560	560
2035-36	585	585
2036-37	615	615
2037-38	645	645
2038-39	675	675
2039-40	710	710
2040-41	745	745
2041-42	785	785
2042-43	825	825

Table 7-5 : Toll Rates for Monthly Pass @ Chainage KM 61.02

Year	Car	Mini Bus /LCV	Bus	Truck	3-Axle Commercial Vehicle	Multi Axle	Oversized Vehicle
2022-23	2480	4010	8400	8400	9160	13170	16030
2022-23	4445	7180	15040	15040	16410	23590	28715
2023-24	4670	7540	15800	15800	17240	24780	30165
2024-25	4905	7925	16605	16605	18110	26035	31695
2025-26	5155	8325	17445	17445	19035	27360	33310
2026-27	5420	8750	18340	18340	20005	28760	35010
2027-28	5680	9175	19220	19220	20965	30140	36690
2028-29	5950	9615	20145	20145	21975	31590	38460
2029-30	6240	10080	21115	21115	23035	33115	40315
2030-31	6540	10565	22140	22140	24150	34715	42265
2031-32	6860	11080	23210	23210	25320	36400	44310
2032-33	7190	11615	24340	24340	26550	38170	46465
2033-34	7540	12185	25525	25525	27845	40030	48730
2034-35	7910	12780	26775	26775	29205	41985	51110
2035-36	8300	13405	28085	28085	30635	44040	53615
2036-37	8705	14060	29465	29465	32140	46205	56250
2037-38	9135	14755	30915	30915	33725	48480	59020
2038-39	9585	15485	32440	32440	35390	50875	61935
2039-40	10060	16250	34050	34050	37145	53395	65000
2040-41	10560	17060	35740	35740	38990	56045	68230
2041-42	11085	17905	37520	37520	40930	58835	71630
2042-43	11640	18800	39390	39390	42975	61775	75205

7.4 Toll Revenue

As indicated earlier, toll revenue on the Project Road has been calculated in all three scenarios based on above rates and projected traffic. The estimates of toll revenue under ***Optimistic***, ***Pessimistic*** and ***Most Likely*** growth scenarios are presented in the following section.

7.5 Toll Revenue at all toll plazas under Scenarios

Toll Revenue estimates under most likely scenario at each of the toll plaza up to 2024-25 (5 years from the end of original Concession Period) starting from the year 2015-16 are shown in tables below.

Table 7-6 : Toll Revenue Optimistic Scenario

(Rs. Crores)

Year	TP-1
2022-23	199.49
2023-24	296.30
2024-25	329.11
2025-26	364.98
2026-27	406.08
2027-28	449.50
2028-29	497.30
2029-30	549.01
2030-31	604.23
2031-32	667.35
2032-33	734.15
2033-34	808.54
2034-35	891.66
2035-36	981.57
2036-37	1072.73
2037-38	1177.80
2038-39	1293.87
2039-40	1422.79
2040-41	1555.64
2041-42	1700.02
2042-43	1784.40

Table 7-7 : Toll Revenue Pessimistic Scenario

(Rs. Crores)

Year	TP-1
2022-23	199.49
2023-24	294.91
2024-25	326.03
2025-26	359.82
2026-27	398.45
2027-28	438.97
2028-29	483.39
2029-30	531.20
2030-31	581.84
2031-32	639.61
2032-33	700.33
2033-34	767.63
2034-35	842.53
2035-36	923.05
2036-37	1004.03
2037-38	1097.24
2038-39	1199.65
2039-40	1312.86
2040-41	1428.57
2041-42	1553.94
2042-43	1631.07

Table 7-8 : Toll Revenue Most Likely Scenario

(Rs. Crores)

Year	TP-1
2022-23	199.49
2023-24	295.52
2024-25	327.47
2025-26	362.32
2026-27	402.23
2027-28	444.18
2028-29	490.25
2029-30	539.97
2030-31	592.85
2031-32	653.26
2032-33	716.97
2033-34	787.79
2034-35	866.78
2035-36	951.97
2036-37	1037.89
2037-38	1136.88
2038-39	1245.94
2039-40	1366.91
2040-41	1490.94

2041-42	1625.52
2042-43	1706.20

CHAPTER 8

CONCLUSION & RECOMMENDATIONS

8.1 Conclusion & Recommendations

Project stretch of Kishangarh to Gulabpura section of NH-79 in state of Rajasthan is nearing completion of six laning. The road is in sound condition and serves healthy traffic volumes. Project corridor is a part of the busy and prominent national highway NH-79 which connects Kishangarh to Udaipur via Bhiwala and Chittorgarh. There are large number of townships, industrial corridors and other business establishment coming up along project corridor. As discussed, dominant portion of traffic is long route traffic, which is more sensitive towards the growth of national economy. As Indian economy is poised to grow at 7%+ post COVID-19, the project corridor is expected to pick up the same trend in terms of traffic flow. All these developments have potential to give positive impact to traffic flow on project. The following can be considered as major outcomes of the study

a) There is good amount of tollable traffic running on project

b) Project corridor has potential to witness traffic growth @ 7-8% annually in near future due to various development in area and overall development of economy

c) Project corridor has committed traffic as long route traffic and does not run a risk of traffic leakage due to quality competing road

Based on above it can be considered a stable healthy project from traffic and revenue point of view.

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KAITHAL TO RAJASTHAN SECTION OF NH 152/65 (KM 33.250 TO KM 241.580) IN THE STATE OF HARYANA

TRAFFIC STUDY & REVENUE PROJECTION REPORT (FINAL)

JANUARY 2023

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KAITHAL TO RAJASTHAN SECTION OF NH-152/65

(KM 33.250 TO 241.580)

IN THE STATE OF HARYANA

TRAFFIC STUDY & REVENUE PROJECTION REPORT (FINAL)

JANUARY 2023

GMD CONSULTANTS NAVI MUMBAI

CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

AADT	Annual Average Daily Traffic	**NHAI**	National Highway Authority of India
BOT	Build Operate Transfer	**NHDP**	National Highways Development Project
CAGR	Compound Annual Growth Rate	**NSDP**	Net State Domestic Product
CTV	Classified traffic volume	**O&M**	Operation & Maintenance
DBFOT	Design, Build, Finance, Operate & Transfer	**PCDP**	Per Capita Domestic Product
EME	Earth Moving Equipment	**PCI**	Per Capita Income
GDP	Gross Domestic Product	**PCU**	Passenger Car Unit
GSDP	Gross State Domestic Product	**PSC**	Pre-stressed Concrete
HCM	Heavy Construction Machinery	**RCC**	Reinforced cement concrete
HCV	Heavy Commercial Vehicle	**RHS**	Right Hand Side
HTMS	Highway Traffic Management System	**SH**	State Highway
IRC	Indian Road Congress	**TP**	Toll Plaza
IRR	Internal Rate of Return	**WPI**	Wholesale Price Index
LCV	Light Commercial Vehicle	**SIR**	Special Investment Region
LHS	Left Hand Side	**c.**	Circa
LGV	Light Goods Vehicle	**ROB**	Railway Over Bridge
MAV	Multi Axle Vehicle	**MDR**	Major District Road
MORTH	Ministry of Road Transport and Highways	**ODR**	Other District Road
NH	National Highway	**CA**	Concession Agreement
PCC	Plain Cement Concrete	**RMT**	Running Meter
CR	Coarse Rubble		

CHAPTER 1

INTRODUCTION

1.1 Background

The Government of India through National Highway Authority of India (NHAI) embarked upon a program to enhance the traffic capacity and safety for efficient transportation of goods as well as passenger traffic on National Highway Sections under various NHDP Phases.

The project under consideration, Four Laning of **Kaithal** to **Rajasthan** section of NH-152/65 from km 33.250 to km 241.580 in the state of Haryana is one such road project NHAI intended to implement on a BOT basis in the DBFOT format. *M/s Kaithal Tollway Ltd*. (Concessionaire) has been awarded the Project for a concession period of 27 years starting from appointed date of 15th July 2015. COD was achieved for part length of project in September 2017 and Tolling Operation on Project started. Final COD for full length was achieved on 29th March-2019

Project road section from Kaithal to Rajasthan border is part of important corridor which connects part of Haryana, Punjab, Himachal Pradesh, J&K and certain part of Uttarakhand to Rajasthan, Gujarat and Costal parts of Maharashtra and then to down to south.

Project road section form Kaithal to Rajasthan border passes through three districts of Haryana namely Kaithal, Hisar and Bhiwani. Project road also passes through important towns and development areas of Narwana, Hisar and Siwani in addition to Kaithal

Following figure shows the project road alignment.

Figure 1-1 : Alignment of Project Stretch

1.2 Objective of the Study

M/s IRB INFRASTRUCTURE TRUST has engaged *GMD Consultants* to assess the future traffic and toll potential of project along with related operation & maintenance expenditure involved.

This report named as **"Traffic Study & *Toll Revenue Projection Report*"** mainly focuses on traffic and revenue aspects of the project. Other parameters like competing road, area developments etc. have been considered from a traffic development point of view.

1.2.1 Scope of Services

The broad scope of work covered in the assignment is as follows

a) Analysis of Traffic Growth

b) Toll Rate Growth

c) Revenue Forecasting

The Concessionaire has provided basic traffic data and other project details on the basis of which the above analysis has been carried out.

CHAPTER 2

PROJECT DETAILS

2.1 Project Corridor

The project road forms part of important connectivity between Northern states like Haryana,Punjab,Himachal Pradesh,J&K and states like Maharashtra,Gujarat (Kandla and Mundra),and parts of Rajasthan. It is the shortest route between Punjab / J&K , Gujarat, Rajasthan, Maharashtra, Goa, Kerala and becomes good alternate route to NH-1 and NH-8 for Gujarat, Rajasthan, Maharashtra Goa and Kerala bound traffic from Haryana, Punjab, J&K Himachal Pradesh.

Project road also caters to local intrastate traffic between districts of Ambala, Chandigarh, Kaithal, Jind, Hisar, Bhiwani in Haryana and Churu, Sikar, Nagaur and Jodhpur in Rajasthan.

2.2 Project Stretch Description

The Project Project highway from Kaithal to Rajasthan border from Km 33.250 to km 241.580 has been widened to four lanes as per schedules. The project has following bypasses which are part of project road.

Table 2-1 : Bypass Details

Sr. No	Bypass Name	Length	Toll Plaza
1	Kalyat	3.450	125.790
2	Dhanaudha	3.800	
3	Narwana	1.900	
4	Barwala	7.850	171.580
5	Hisar+Talwandi Rana	25.900	
6	Barwa	3.300	212.400
7	Siwani	6.150	

Full COD for project is achived on 29th March 2019.

Project road forms part of very important transportation corridor which connects Northern states like Haryana, Punjab, J&K, Himachal etc to Southern states and development centers especially on west coast line of India. In previous years project road from Ambala to onwards was in bad shape. There were large number of congestion points along the route in form of narrow roads inside towns, level crossings and bad riding quality. Project road from Kaithal to Rajasthan Border is almost complete which has taken up bypasses and ROBs. Also the road from Ambala to Kaithal is under four laning construction as of now. The project is awarded to M/s Sadbhav Engineering Limited and is expected to complete in current year. This would improve the flow of traffic on project corridor to great extent

Following figure show project alignment and toll plaza locations.

Figure 2-1 : Project Alignment with Toll Plaza

2.3 Project Corridor Illustration

Six laning of project stretch is complete. Following photographs illustrate project section along the corridor.

Figure 2-2 : Photographs showing Project Corridor

CHAPTER 3

TRAFFIC SURVEYS AND ANALYSIS

3.1 Traffic Surveys

The Consultants have collected the required information for project corridor to understand the general traffic and travel characteristics on the corridor.

The following traffic data has been collected from client for project.

- Classified traffic volume counts at three toll plaza locations on Kaithal-Rajasthan Border section of NH-152/65 for Year 2018-19,2019-20, 2020-21, 2021-22 & Six-Monthly traffic data from April 2022 to September 2022.
- Local Component of traffic
- Component of Return Journey
- Component of Monthly Pass Journey

The main objective of the traffic data analysis is to:

- Determine the existing traffic movement characteristics of the project
- Establish base year traffic
- Identification of travel patterns and modal split of project traffic
- Deriving growth factors for traffic forecasting
- Estimation of corridor traffic including traffic diversion if any
- Preparation of revenue model and projection of revenue as per toll policy for various scenarios

Table 3-1 below lists provides details of locations from where traffic details have been collected.

Table 3-1 : Traffic Data Details

SR. NO	LOCATION	CTV	Single Journey Traffic	Daily Return Journey	Monthly Pass	Local Pass
1	Km 125 Toll Plaza at Narwana	AADT for Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22
2	Km 171 Toll Plaza at Badopatti	AADT for Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22
3	Km 212 Toll Plaza at Chaudhariwas	AADT for Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to	For Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to	For Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from	For Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to	For Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September

		September 22	September 22	April 22 to September 22	September 22	22

Classified Traffic Volume

The objective of conducting a Classified Traffic Volume Count is to understand the traffic flow pattern including modal split on a roadway. The Classified Traffic Volume Count survey has been provided by the concessionaire of project highway from actual traffic data gathered at toll plaza locations based on monthly data shared with NHAI.

The vehicles can broadly be classified into fast moving / motorized and slow moving / non-motorized vehicles, which can be further classified into specific categories of vehicles. The groupings of vehicles are further segregated to capture the tollable vehicle categories specifically and toll exempted vehicles are counted separately. The detailed vehicle classification system as per IRC: 64-1990 is given in table below

Table 3-2 : Vehicle Classification System

Vehicle Type	
Auto Rickshaw	
Passenger Car	Car, Jeep, Taxi & Van (Old / new technology)
Bus	Mini Bus
	Standard Bus
Truck	Light Goods Vehicle (LCV)
	2 – Axle Truck
	3 Axle Truck (HCV)
	Multi Axle Truck (4-6 Axle)
	Oversized Vehicles (7 or more axles)
Other Vehicles	Agriculture Tractor, Tractor & Trailer

Source - IRC: 64 – 1990

However, since project highway is currently under toll operation, the data collected is corresponding to category of tollable vehicles. Following are the type of vehicles as per concession agreement.

- Car / Jeep / van
- Min Bus /LCV

- Truck / Bus
- Multi Axle

2.6 Traffic Characteristic

Toll revenue of project highway does not solely depend on traffic volume. There are certain characteristics of traffic which have substantial potential to affect toll collection. Component of local traffic, component of passenger and commercial traffic, portion of return journey traffic, % of monthly pass traffic are some of such characteristics of traffic. These will be discussed in subsequent sections of report.

2.6.1 Traffic Data

Project concessionaire has provided Traffic data for base year 2019-20, 2020-21, 2021-22 and from April 2022 to September 2022 as under for both toll plazas–

Table 3-3 : Traffic Data at Narwana Toll Plaza at Km 125

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)- 2019-20	Annual Average Daily Traffic (Nos.)- 2020-21	Annual Average Daily Traffic (Nos.)- 2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	2952	2657	4351	4284
2	Mini Bus/LCV	633	569	381	325
3	Bus	310	279	315	298
4	Truck	320	287	529	494
5	3-Axle	314	283	416	357
6	Multi Axle	771	694	1347	1183
7	Oversized Vehicles	5	5	20	37
	Total	**5305**	**4774**	**7357**	**6977**

Table 3-4 : Traffic Data at Badopatti Toll Plaza at Km 171

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)- 2019-20	Annual Average Daily Traffic (Nos.)- 2020-21	Annual Average Daily Traffic (Nos.)- 2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	5387	4850	4915	4834

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)- 2019-20	Annual Average Daily Traffic (Nos.)- 2020-21	Annual Average Daily Traffic (Nos.)- 2021-22	Average Daily Traffic April-2022 to Sept 2022
2	Mini Bus/LCV	630	567	374	316
3	Bus	431	387	395	393
4	Truck	327	295	577	530
5	3-Axle	376	339	505	423
6	Multi Axle	923	831	1522	1302
7	Oversized Vehicles	3	3	16	36
	Total	**8077**	**7272**	**8303**	**7834**

Table 3-5 : Traffic Data at Chaudhariwas Toll Plaza at Km 212

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)- 2019-20	Annual Average Daily Traffic (Nos.)- 2020-21	Annual Average Daily Traffic (Nos.)- 2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	2947	2652	4371	4306
2	Mini Bus/LCV	592	532	335	318
3	Bus	162	147	181	168
4	Truck	367	331	629	564
5	3-Axle	470	423	630	553
6	Multi Axle	1395	1257	2121	1759
7	Oversized Vehicles	6	5	29	59
	Total	**5939**	**5347**	**8295**	**7728**

Pandemic of COVID-19 (Corona Virus) had impacted entire world. Taking precaution, government of India announced a complete lockdown in last of March 2020 and traffic on highways was stopped which was eased out progressively later. There after India was hit by Covid-19 second and third wave in February 21 to July -21 and December 21 to March-22. Recovering traffic pattern was somewhat again disturbed du to second and third wave of Covid-19. Traffic numbers of for period from April-2020 to March 2021 were not representative of traffic pattern at project corridor due to pandemic lockdown impact. However, for integrity of data same shown above. Traffic has almost recovered from Covid -19 impact as of now.

Since the traffic data available for this update is for only six months, from April 2022 to September 2022, a seasonality factor for balance half year has been applied to average traffic of current six months to arrive at Annual Average Daily Traffic for future projections and revenue calculations.

Recently there has been agitations of farmer across a state of Punjab against road toll. This has resulted in closer of multiple toll plazas in Punjab. It is expected that this may impact the growth of traffic in next few months. This has been considered while working out annual daily traffic from six month traffic data.

This data was then bifurcated to various components like through local, monthly, return journey etc. category. Same is discussed in detail in following section.

2.7 Data Analysis

2.7.1 Analysis of Traffic Volume Count

Understanding the character of existing traffic forms the basis of the traffic forecast. The various vehicle types having different sizes and characteristics can be converted into a single unit called Passenger Car Unit (PCU). Passenger Car equivalents for various vehicles are adopted based on recommendations of Indian Road Congress prescribed in “IRC-64-1990: Guidelines for Capacity of Roads in Rural areas”. The adopted passenger car unit values (PCU) are presented in ***Table 3-6.***

Table 3-6 : PCU Factors Adopted for Study

Vehicle Type	PCUs
Car	1.0
Mini Bus	1.5
Standard Bus	3.0
LCV/LGV	1.5
2 Axle Truck	3.0
3 – 6 Axle Truck	4.5
MAV	4.5
Auto Rickshaw	1.0

Van/Tempo	1.0
Agriculture Tractor with Trailer	4.5
Agriculture Tractor without Trailer	1.5

Source: IRC: 64-1990

Traffic volume at each toll plaza was converted to PCU and same is presented as under

Table 3-7 : Traffic in PCU at Project Stretch Base Year 2022-23

Year	Toll Plaza Location (Km)	Traffic No	PCU	PCU Index
2019-20	Narwana Km 125.79	5305	10226	1.93
	Badopatti Km 171.58	8077	13901	1.72
	Chaudhariwas Km 212.400	5939	13136	2.21
2020-21	Narwana Km 125.79	4774	9203	1.93
	Badopatti Km 171.58	7272	12516	1.72
	Chaudhariwas Km 212.400	5347	11832	2.21
2021-22	Narwana Km 125.79	7357	14849	2.02
	Badopatti Km 171.58	8303	16824	2.03
	Chaudhariwas Km 212.400	8295	18866	2.27
2022-23	Narwana Km 125.79	6977	13706	1.96
	Badopatti Km 171.58	7834	15366	1.96
	Chaudhariwas Km 212.400	7728	16820	2.18

It can be observed from above that project traffic has PCU index ranging from 2.0 to 2.3 which is an indicator of good proportion of commercial traffic in traffic mix in project corridor. Following figure illustrates variation of PCU index at three toll plaza locations.

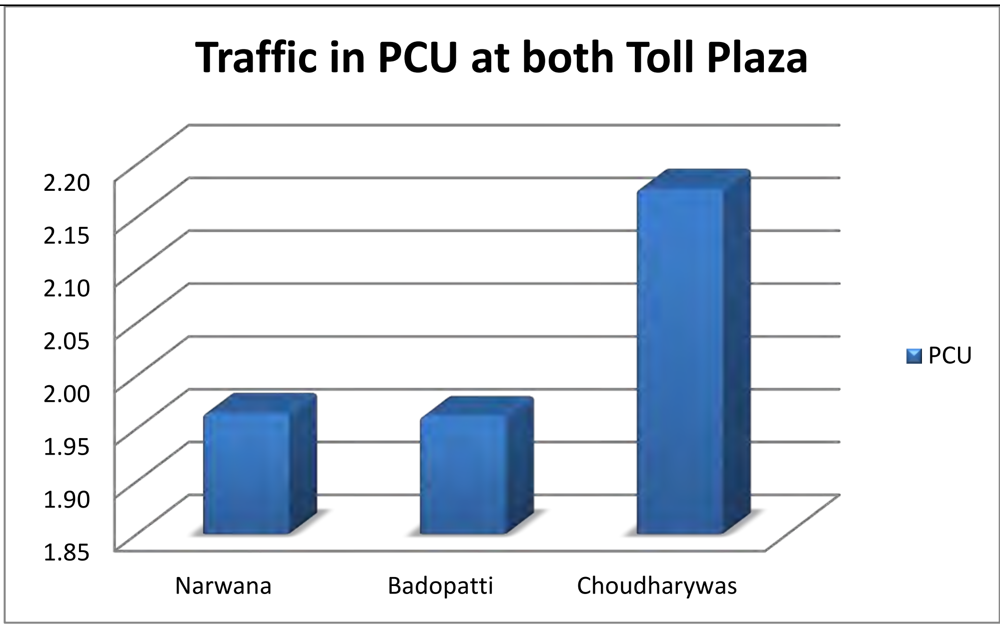

Figure 3-1 : Comparison of PCU Index

2.7.2 Components of Traffic

As discussed previously, components of traffic volume play an important role in determining project revenue. A larger component of commercial traffic with higher axle configuration adds to project revenue positively. Similarly, a larger component of local traffic affects the project revenue potential negatively.

It is observed that car traffic forms about 50%- 60% of total traffic at toll plaza locations while multi axle commercial vehicles are about 20% -35% of total traffic. Truck / Bus and LCV share about 12% and 5 % of traffic volume respectively.

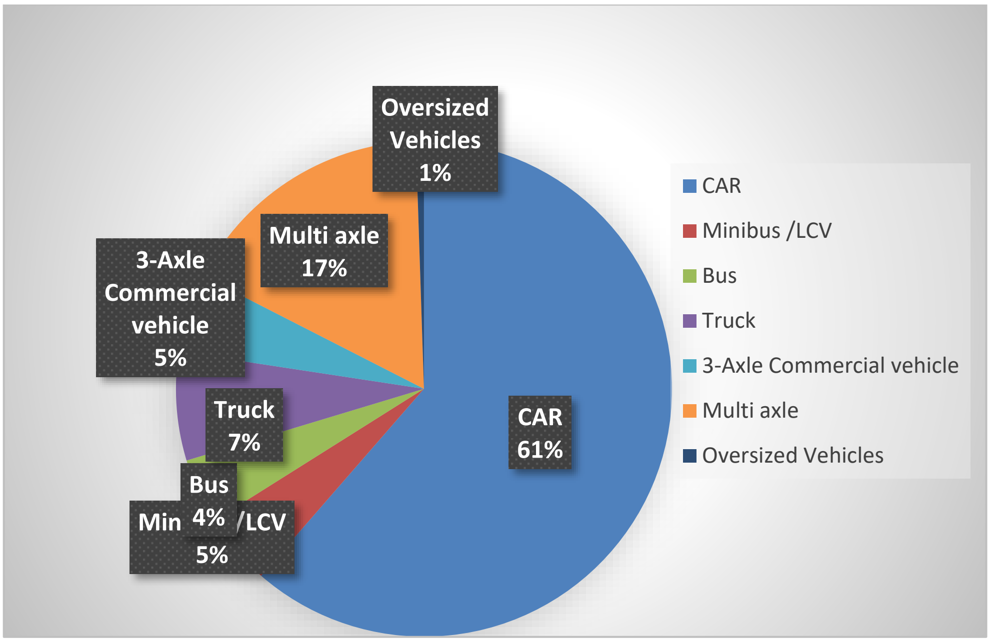

Figure 3-2 :Model Split of Tollable Vehicle-Km 125.790

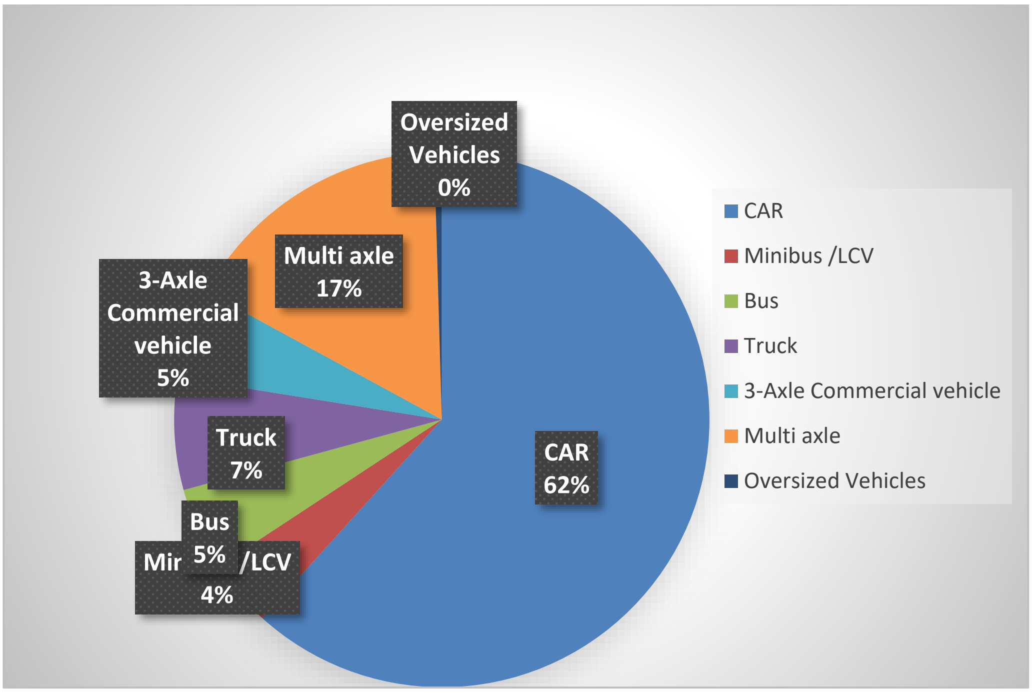

Figure 3-3 :Model Split of Tollable Vehicle-Km 171.58

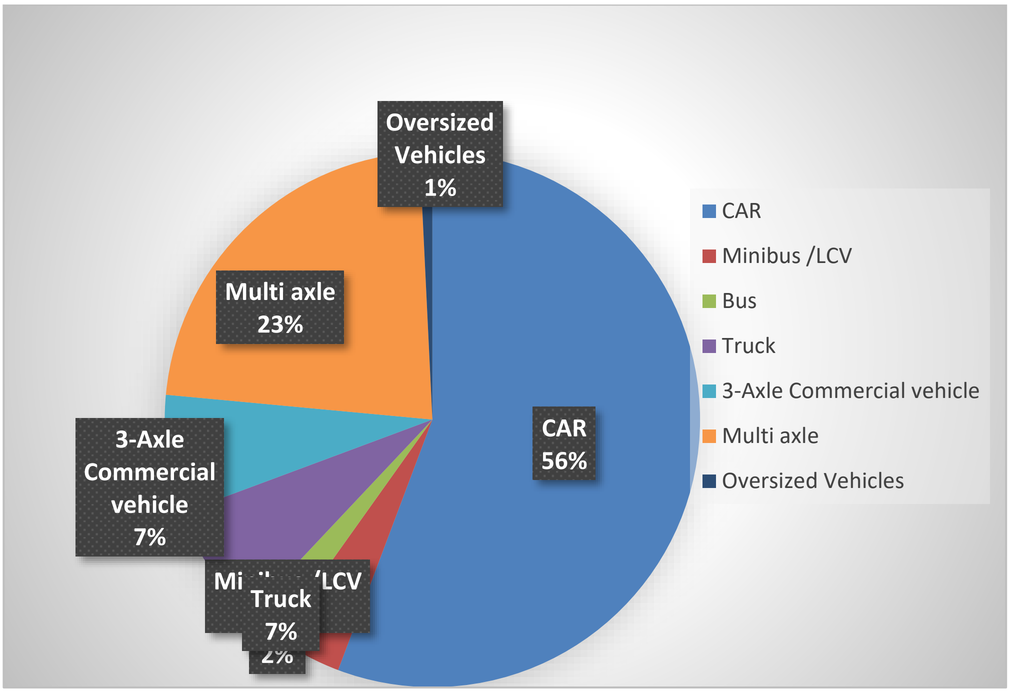

Figure 3-4 :Model Split of Tollable Vehicle-Km 212.400

Another important bifurcation of traffic is components of traffic with respect various type of toll ticketing like

1. Single Journey
2. Multi Journey
3. Monthly Pass (Local and General)

The following table provides numbers of vehicles falling in each of above category on base year 2019-20, 2020-21, 2021-22 & 2022-23

Table 3-8 : Journey Type Bifurcation of Traffic at Narwana TP-1 KM 125

Sr. No	Type	Traffic Volume (Nos.)2022-23
1	Single Journey	4071
2	Return Journey	2831
3	Local Commercial Single Journey	50
4	Monthly Pass Local	26
5	Monthly Pass	0

Most dominant part of the above is the single journey type followed by return journey at project stretch. Monthly pass commuters are a very low fraction of the total traffic on the project corridor.

The single journey component in total traffic numbers is a high as 58%. Return journey component is 41%. The number of monthly pass local is 0% and local commercial single Journey also 1% at Narwana toll plaza.

Following tables give the detail of journey distribution at Badopatti and Chaudhariwas toll plaza.

Table 3-9 : Journey Type Bifurcation of Traffic at Badopatti TP KM 171

Sr. No	Type	Traffic Volume (Nos.)2022-23
1	Single Journey	4226
2	Return Journey	3281
3	Local Commercial Single Journey	210
4	Monthly Pass Local	116
5	Monthly Pass	0

Table 3-10 : Journey Type Bifurcation of Traffic at Chaudhariwas TP KM 212

Sr. No	Type	Traffic Volume (Nos.)2022-23
1	Single Journey	4807
2	Return Journey	2784
3	Local Commercial Single Journey	101
4	Monthly Pass Local	36
5	Monthly Pass	0

Monthly local pass are very high in proportion at Badopatti toll plaza. At Other toll plazas single journey is dominating pattern of trip.

2.8 Secondary Data Collection

There are several other factors which have a substantial impact on traffic pattern and growth on any project corridor. Following are some of such important factors

- Industrial development around project corridor and its catchment
- Educational infrastructure along project corridor
- Demographic pattern
- Urban area development
- Tourism potential
- Upcoming major infrastructural or Industrial projects
- Special Industry in project corridor
- Overall trends of economic growth local as well as national / regional

Hence in addition to traffic details on project site, secondary data was also collected from various other sources. Typical secondary data includes the following:

1. Vehicle registration data of regional and national level.
2. Economic Data
   a) GDP
   b) NSDP
   c) Population Growth
   d) Per Capita Income growth
   e) Industrial Growth
   f) Special Industry Potential
   g) Regional and National development vision / plan

h) Any other relevant data

3. Competing road network

We have collected and utilized such underlying data in the study to estimate the growth and risk factors for traffic along the project corridor.

CHAPTER 4

INFLUENCE ZONE TRANSPORT NETWORK ANALYSIS

3.1 Introduction

Highway corridors behave like integrated circuit network and more often than not every road is connected to various networks having different origin and destinations. Traffic running on these networks behave like fluid and flow on network on alignment of least friction.

Following Factors can be considered as major contributors to friction on transportation network

- Travel Speed / Travel Time
- Geometric deficiencies like blind horizontal curves and steep vertical gradients etc,
- Configuration of road
- Riding quality
- Traffic delays,
- Length of road,
- Passing through built up or Urban Area,
- Terrain,
- Facilities,

3.2 Competing / Alternate route

Though project road has started collecting toll form mid of year 2017-18 but it was for partial completion of project stretch. Some critical location bypasses and ROBs were pending at beginning of toll. Also stretch from Ambala to Kaithal which is just before project stretch is under four laning. In this case project traffic can be considered as under settlement. Shifting of traffic depends on factors such as road length, type, geometry, riding quality and capacity. Competing road analysis was done at two levels. First at regional level and second at local level.

Project road forms an optimal route for the traffic between following zones.

Zone-1- J&K, Punjab (Ludhiana, Amritsar parts), Haryana, Himachal, Part of Uttarakhand
Zone-2 – Rajasthan, Gujarat (Kandla, Mundra), Maharashtra (Coastal), Southern States (Coastal).

As alternate routes converge at Ajmer, the Project Influence Area (PIA) is considered between Ambala and Ajmer only.

Following figures show the layout of competing routes between both these Zones

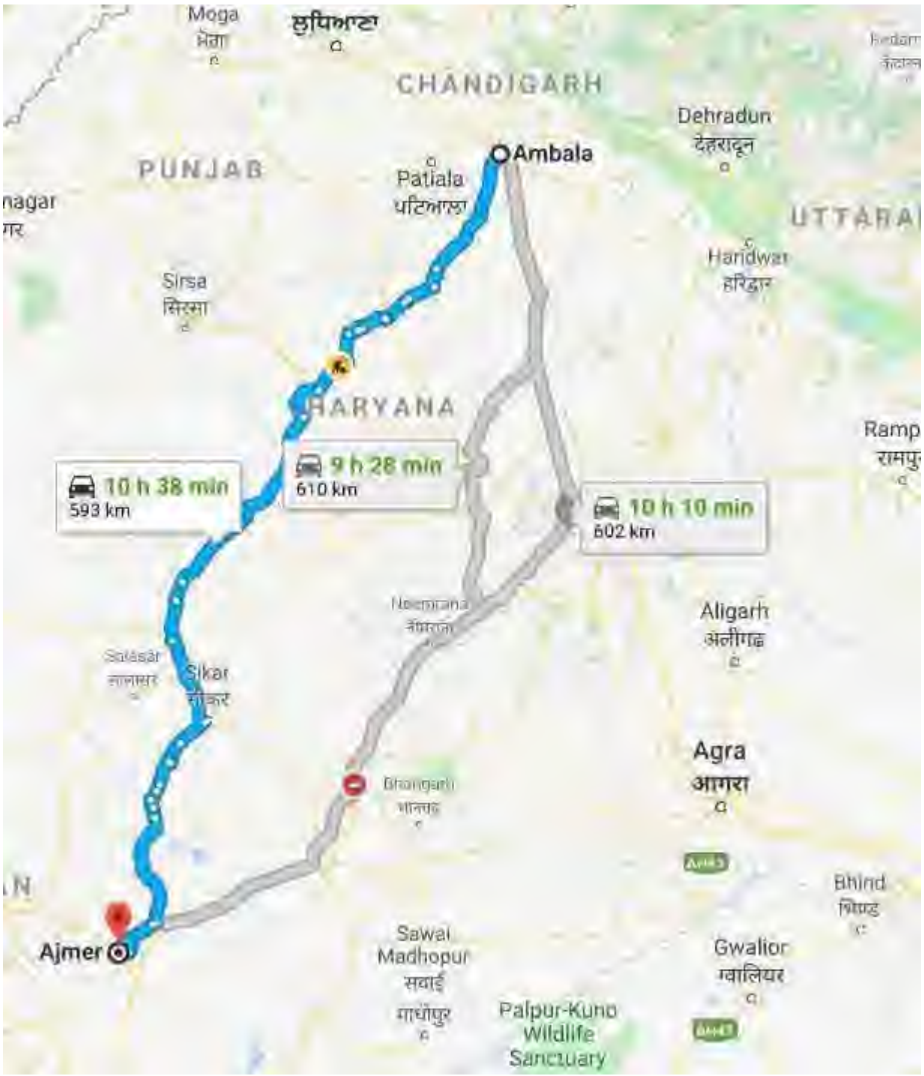

Figure 4-1 : Alternate route at regional level between Zones

Above figure depicts alternate route between Ambala and Ajmer. Following figure shows alternate routes between Ludhiana and Ajmer

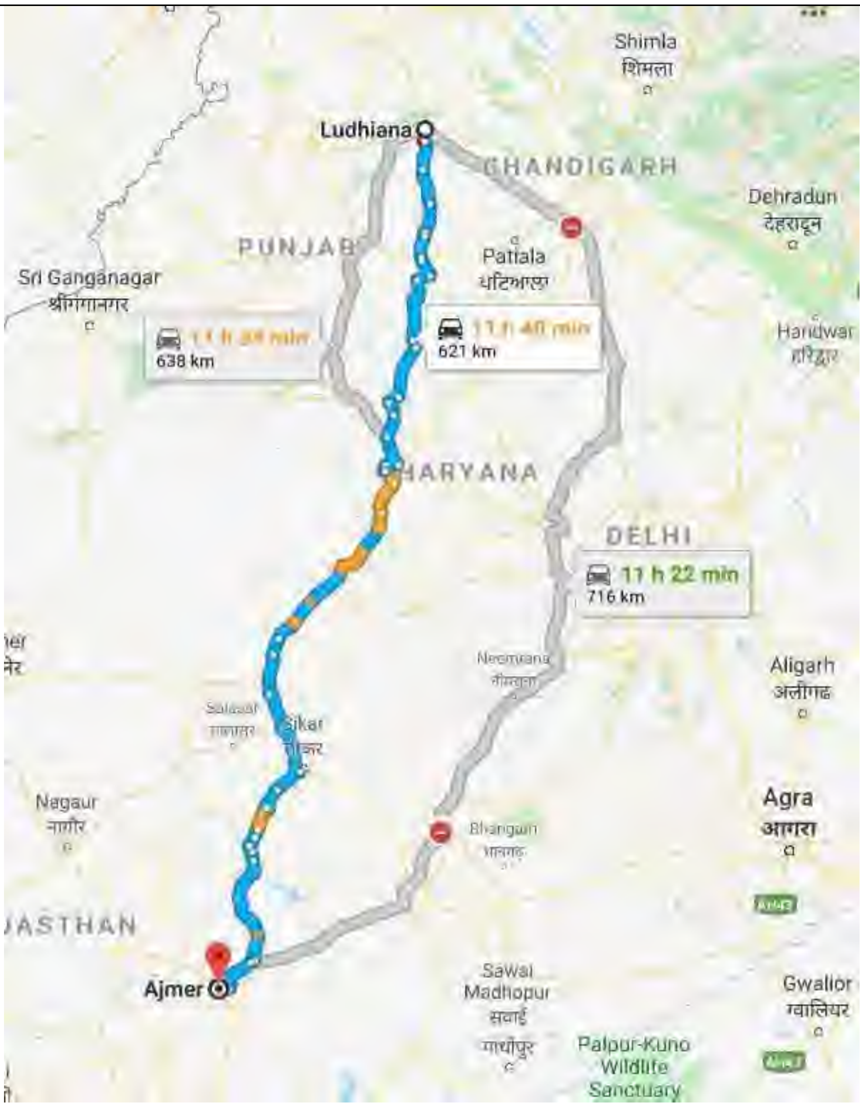

Figure 4-2 : Alternate route at regional level between Ludhiana & Ajmer

From above figures it can be seen that the route containing project alignment has least distance between these origin and destination zones.

Following facts improve probability of target traffic getting attracted to project road.

- Project corridor between Ambala to Rajasthan Border is expected to complete four laning with all bypasses and ROBs.
- Road from Ludhiana to Hisar is part of Bharatmala project and will be converted to four lane. Currently road from Hisar to Fatehabad only in four lane.

- Project Corridor is part of ambitious project of Bharatmala which will improve entire length of corridor in terms of capacity and traffic flow. The Government of India has identified the Ludhiana – Ajmer corridor as an optimal route which shall provide time and cost savings to traffic moving from western India to northern India. This will also allow traffic to avoid heavy traffic jams around New Delhi which it is facing on the present route.
- NH-1 and NH-8 which are currently major corridor for traffic between Zone1 and Zone2 will face capacity constraints in coming years. NH-1 for example is four lane road between Ambala and Panipat and runs about 80,000 PCU which is already above its capacity

At local level it was observed that there is no formidable local alternate route to bypass toll plaza. There can a combination of village roads to form alternate loop around toll plazas, but these are too long as compared to project road between said nodes. Thus no local diversion of traffic from project road is anticipated

Following table provide summary of analysis of alternate route/ roads discussed above.

Table 4-1 : Summary Network analysis

Sr. No	Route Details	Designation	Length (Km)	Avg. Speed (KMPH)	Time Taken (Min)	Observations
Regional Level						
1	Ambala-Panipat-Karnal-Rohtak-Ajmer	Alternate Route	610	64	9 Hr 28 Min	Alternate route is longer but has shorter travel time. With completion of Ambala - Kaithal four laning of Road induced traffic is expected onto project stretch
	Ambala-Kaithal-Hisar-Ajmer	Project Road	593	55	10 Hr 38 Min	
2	Ludhiana-Chandigarh Panipat-Karnal-Ajmer	Alternate Route	716	63	11 Hr 22 Min	Alternate route is longer but has shorted travel time. With completion of Ambala - Kaithal

	Ludhiana - Ambala-Kaithal-Hisar-Ajmer	Project Road	621	53	11 Hr 40 Min	four laning of Road induced traffic is expected onto project stretch

Table 4-2 : Competing Roads Details

Under these circumstances it is not envisaged that commercial or passenger traffic would switch to alternate roads from the project road.

CHAPTER 5

GROWTH OF TRAFFIC ON PROJECT HIGHWAY

5.1 Introduction

Traffic growth is a function of the interplay of a number of contributory factors such as National economy, Government policy, socio-economic conditions of the people, and changes in land uses along the project corridor precincts etc. As these factors have a number of uncertainties associated with them, forecasts of traffic are dependent on the projections of other factors such as population, gross domestic product (GDP), vehicle ownership, per capita income (PCI), agricultural output, fuel consumption etc. Future pattern of change in these factors can be estimated with only a reasonable degree of accuracy and hence the resultant traffic forecast levels may not be precise.

Traffic growth forecast for project corridor Kaithal – Rajasthan Border section of NH-152/65 has been done taking the above factors into consideration. "**IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**" is established best practice and has been used for traffic growth forecast.

5.2 Trend Analysis

One of the methods of estimation of future rate of growth is to assume the same rate of growth as in the past. Although such a method is more suitable to projects of short durations say 5-10 years, however for long term projections it would-be erroneous to assume that the past rate of growth will continue to prevail for a long time in future. Economic conditions, which are major influencing factors, are bound to change over a long period of time. Thus, it would be necessary to modify the past trends of growth suitably.

Elasticity model of growth projection is one of the most widely acceptable methods for traffic forecast. The same is recommended in **IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**.

In this method the past trend of vehicular data is paired with an economic indicator and a regression analysis is done to yield the economic model of growth. Growth of vehicle traffic varies for different type of vehicle. It is a proven fact that the growth pattern for passenger and goods vehicle is different. Traffic growth on any highway typically depends on number of economic parameters. Most important and direct parameters are given as under

- Per Capita Income
- Net State Domestic Product (NSDP)
- Population

It can be observed that the ownership of a car is more closely related to affordability; hence per capita is the index which closely fits the growth of car traffic among other criteria. In a similar fashion, the following can be pairs of vehicle type and independent variable for elasticity modeling of growth.

- Car / Jeep – Par Capita Income
- Bus / Minibus – Population
- Goods Vehicle – NSDP

5.3 Estimation of Traffic Demand Elasticity

Elasticity of traffic demand is defined as the rate at which traffic intensity varies due to a change in the corresponding indicator selected. Hence, In order to estimate the elasticity of traffic demand, it is necessary to establish relationship between the growth in number of given category of vehicles with the relevant economic variable considered, such as NSDP, per capita income and population growth. Latest available data for vehicle registration, per capita income, NSDP and population is used in analysis.

As per IRC: 108-1996 the model for estimating elasticity index for the project corridor is of the following form and is given as below:

$$Log (P) = k \times Log (EI) + A$$

Where,

P = *Number of Vehicles (Mode wise)*

EI = *Economic Indicator*

A = *Regression constant*

k = *Elasticity coefficient (Regression coefficient)*

The elasticity for car and bus (passenger vehicles) is calculated based on the Population and Per Capita Domestic Product (PCDP) and the elasticity for trucks is calculated based on the Net State Domestic Product (NSDP).

The project corridor spreads across state of Haryana. Toll plazas at Narwana, Badopatti and Choudhariwas are in the state of Haryana, but project stretch is under impact of Rajasthan state as well. In such circumstances for elasticity calculations, working data from above two states has been analyzed.

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Haryana State.

Table 5-1 : Per Capita Income Vs Car Haryana

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	106085	989519	5.03	6.00		
2013	111780	1134616	5.05	6.05	5%	
2014	119791	1278272	5.08	6.11	7%	
2015	125032	1420621	5.10	6.15	4%	
2016	137818	1711692	5.14	6.23	10%	
2017	150241	1851788	5.18	6.27	9%	7.23%

Regression analysis of same is given in figure below

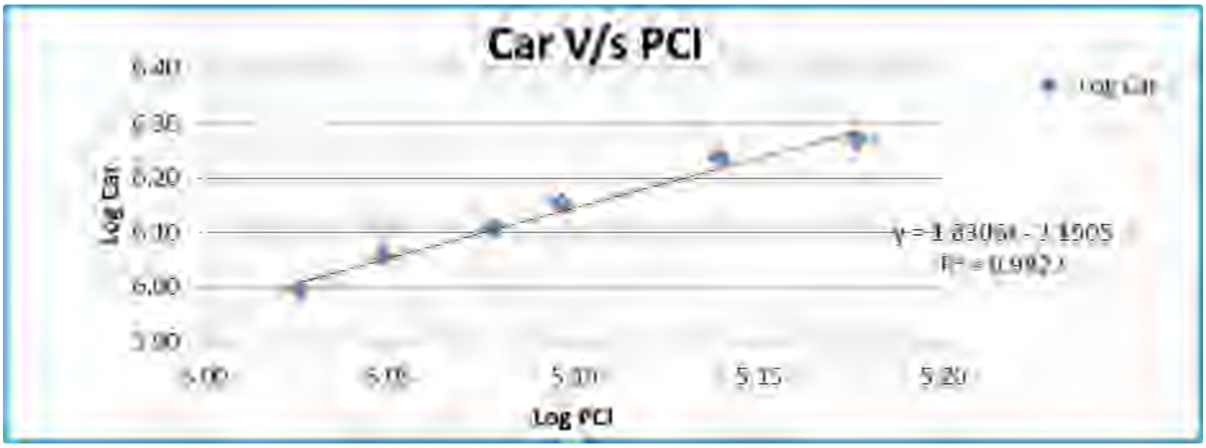

Figure 5-1 : Regression and Elasticity PCI vs. Car – Extrapolation Haryana

Table 5-2 : Population Vs Bus Haryana

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	25351462	39153	7.40	4.59		
2013	25751257	43456	7.41	4.64	2%	
2014	26149236	46558	7.42	4.67	2%	
2015	26545282	52640	7.42	4.72	2%	
2016	26939286	55781	7.43	4.75	1%	
2017	27331141	60129	7.44	4.78	1%	1.52%

Regression analysis of same is given in figure below

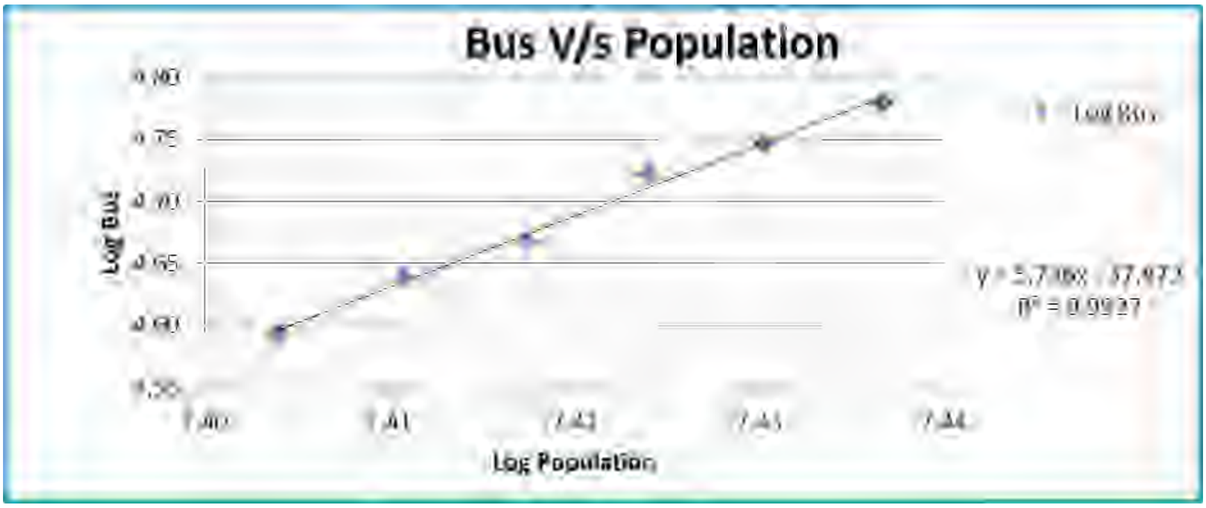

Figure 5-2 : Regression and Elasticity Population vs. Bus – Extrapolation Haryana

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-3 : LCV Traffic Vs NSDP Haryana

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth (5 Year)
2012	271152	124897	5.43	5.10		
2013	289756	137511	5.46	5.14	7%	
2014	314931	152069	5.50	5.18	9%	
2015	333359	167901	5.52	5.23	6%	
2016	372659	182776	5.57	5.26	12%	8.30%

Following figure depict regression analysis and extrapolation.

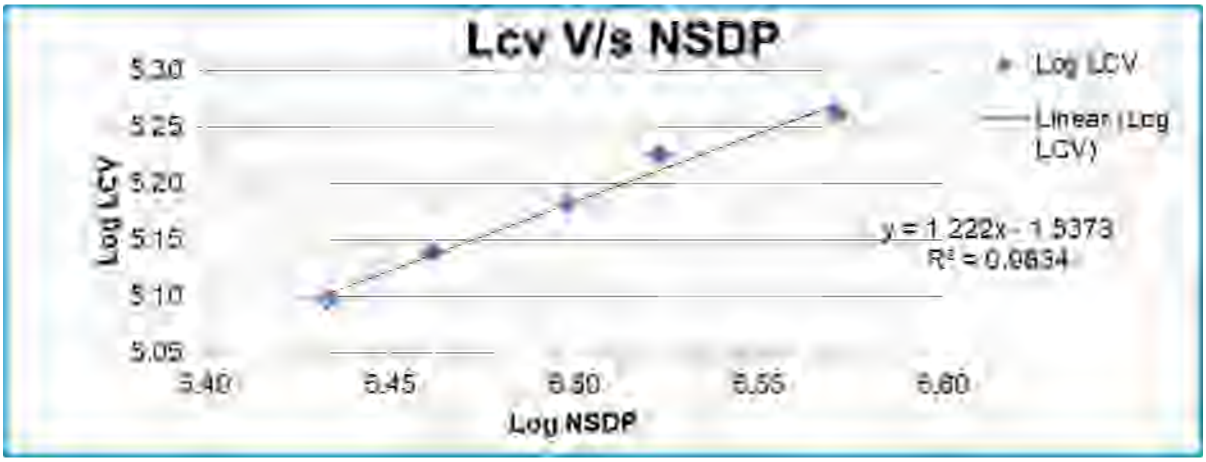

Figure 5-3 : Regression and Elasticity NSDP vs. LCV Traffic - extrapolation Haryana

Table 5-4 : Goods Traffic Vs NSDP Haryana

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	271152	292735	5.43	5.47		
2013	289756	307509	5.46	5.49	7%	
2014	314931	327882	5.50	5.52	9%	
2015	333359	348732	5.52	5.54	6%	
2016	372659	367730	5.57	5.57	12%	
2017	412006	390321	5.61	5.59	11%	8.75%

Following figure depict regression analysis and extrapolation.

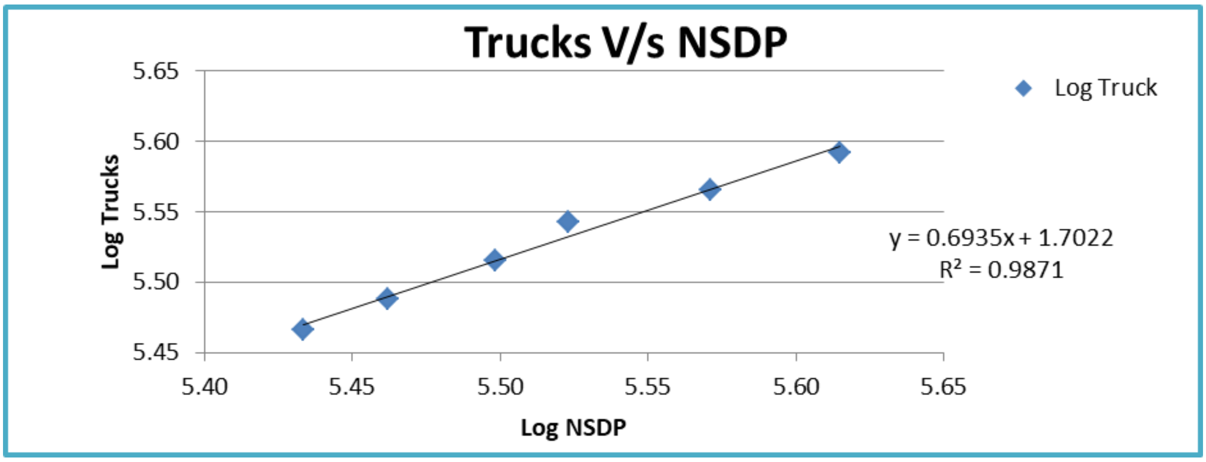

Figure 5-4 : Regression and Elasticity NSDP vs. Goods Traffic - extrapolation Haryana

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below

Table 5-5 : Summary Regression Analysis Haryana

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average IV Growth (5yrs)	Growth Elastic Model	Remarks
Haryana	Car/Jeep	PCI	y = 1.8306x + -3.1905	R^2 = 0.9823	1.8306	7.23%	13.24%	Good Regression
	Bus	Population	y = 5.736x - -37.8732	R^2 = 0.9927	5.7360	1.52%	8.69%	Good Regression
	LCV	NSDP	y = 1.222x - -1.5373	R^2 = 0.9834	1.2220	8.30%	10.14%	Good Regression
	Truck	NSDP	y = 0.6935x - 1.7022	R^2 = 0.9871	0.6935	8.75%	6.07%	Good Regression

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Rajasthan State.

Table 5-6 : Per Capita Income Vs Car Rajasthan

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	57192	591069	4.76	5.77		
2013	58441	659542	4.77	5.82	2%	
2014	61053	733916	4.79	5.87	4%	
2015	64496	814079	4.81	5.91	6%	
2016	68565	899307	4.84	5.95	6%	
2017	71394	988391	4.85	5.99	4%	4.55%

Regression analysis of same is given in figure below

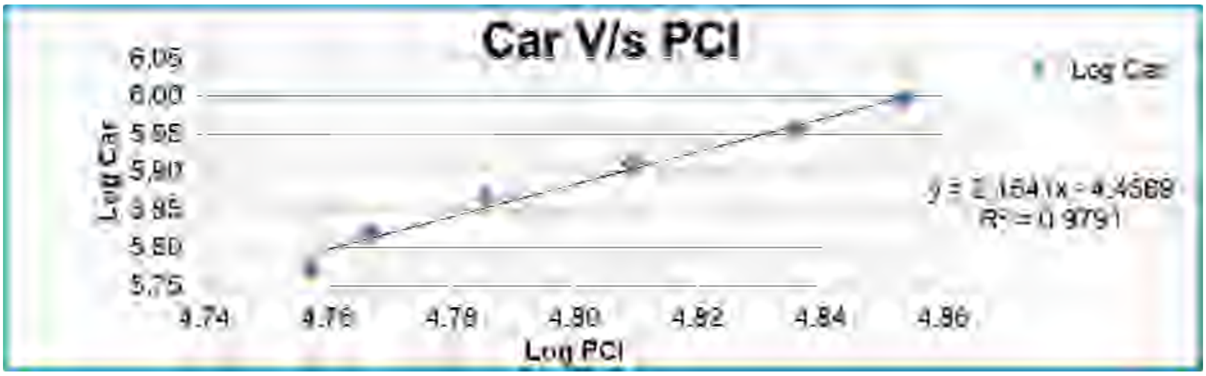

Figure 5-5 : Regression and Elasticity PCI vs. Car – Extrapolation Rajasthan

Table 5-7 : Population Vs Bus Rajasthan

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	68548437	83345	7.84	4.92		
2013	69783885	88616	7.84	4.95	2%	
2014	71016445	93892	7.85	4.97	2%	
2015	72245688	97650	7.86	4.99	2%	
2016	73471198	102818	7.87	5.01	2%	
2017	74692571	108680	7.87	5.04	2%	1.73%

Regression analysis of same is given in figure below

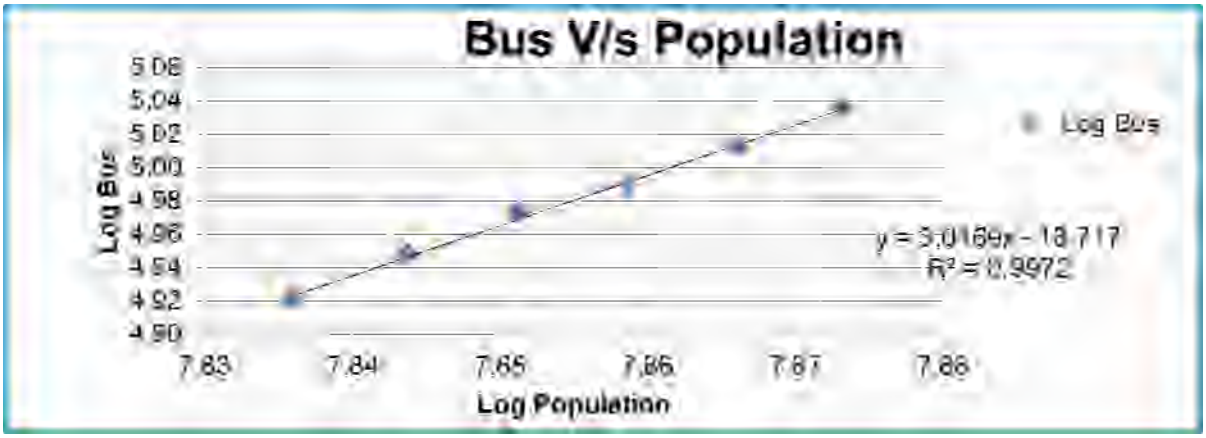

Figure 5-6 : Regression and Elasticity Population vs. Bus – Extrapolation Rajasthan

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-8 : LCV Traffic Vs NSDP Rajasthan

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth (5 Year)
2012	395331	69509	5.60	4.84		
2013	409802	76396	5.61	4.88	4%	
2014	434292	33379	5.64	4.52	6%	
2015	465408	91787	5.67	4.96	7%	
2016	501922	99763	5.70	5.00	8%	6.16%

Following figure depict regression analysis and extrapolation.

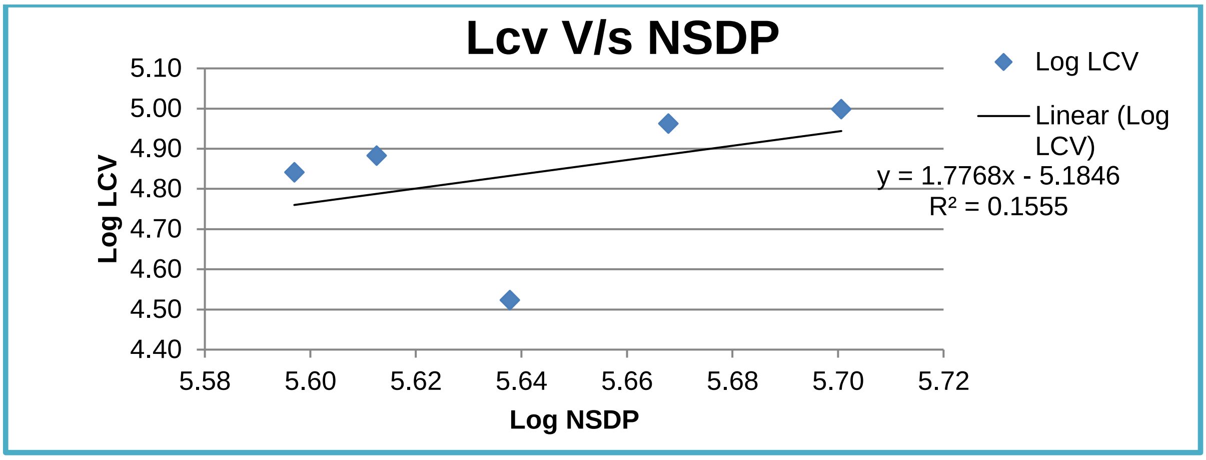

Figure 5-7 : Regression and Elasticity NSDP vs. LCV Traffic - extrapolation Rajasthan

Table 5-9 : Goods Traffic Vs NSDP Rajasthan

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	395331	362028	5.60	5.56		
2013	409802	401983	5.61	5.60	4%	
2014	434292	434379	5.64	5.64	6%	
2015	465408	472365	5.67	5.67	7%	
2016	501922	517604	5.70	5.71	8%	
2017	530172	561158	5.72	5.75	6%	6.06%

Following figure depict regression analysis and extrapolation.

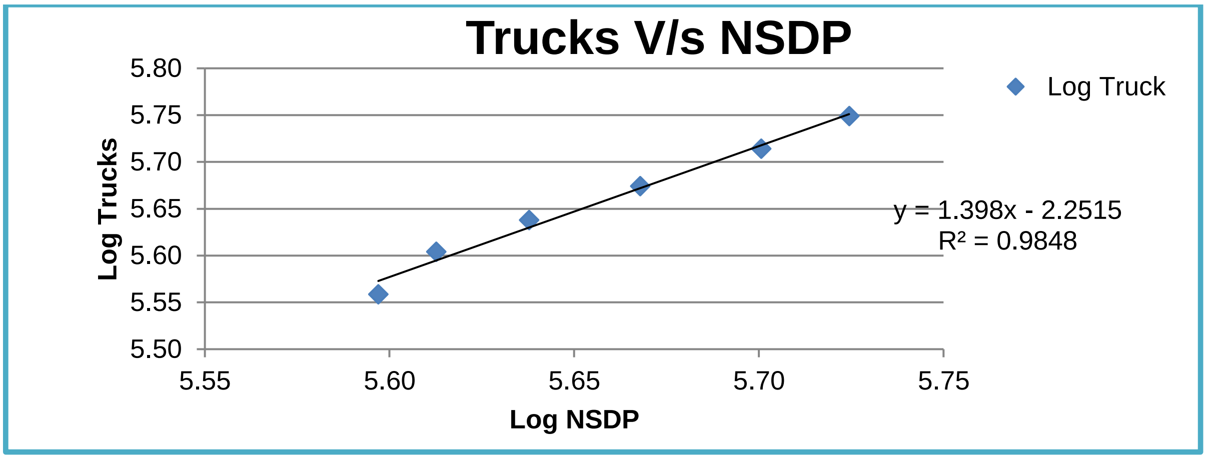

Figure 5-8 : Regression and Elasticity NSDP vs. Goods Traffic - extrapolation Rajasthan

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below

Table 5-10 : Summary Regression Analysis Rajasthan

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average IV Growth (5yrs)	Growth Elastic Model	Remarks
Rajasthan	Car/Jeep	PCI	y = 2.1541x + -4.4569	R^2 = 0.9791	2.1541	4.55%	9.79%	Good Regression
	Bus	Population	y = 3.0169x - -18.7174	R^2 = 0.9972	3.0169	1.73%	5.22%	Good Regression
	LCV	NSDP	y = 1.7768x - -5.1846	R^2 = 0.1555	1.7768	6.16%	10.95%	Good Regression
	Truck	NSDP	y = 1.398x - -2.2515	R^2 = 0.9848	1.3980	6.06%	8.46%	Good Regression

Economical model for predicting growth is good tool, however other local, regional, national factors should also be considered before finalizing growth factors. Considering factors such as proposed developments and other influencing economic factors, moderated growth should be considered. These factors are discussed in subsequent sections.

5.4 Analysis of Historic Traffic Data

Historical traffic data forms useful information for any highway project. It provides useful information for establishing past trend of growth. Project stretch of Kaithal to Rajasthan Border is under tolling operation with current concessionaire and has only two years of tolling history from 2018-19. After that traffic was affected due to COVID-19 pandemic. Thus sufficient data points to be able to establish a reliable past trend of traffic growth are not available. A minimum of about 5 -6 years' consistent traffic data is required for establishing a reliable past trend.

5.5 Other Factors Influencing Growth

There are many factors which have impact on traffic growth. As discussed previously these factors can be economical, social, educational, and industrial.

Potentiality of such factors for project highway is discussed as under.

ECONOMY

After witnessing a slowdown during 2011-12, the economy recovered in 2013-14, and a high growth rate of GDP was recorded in up to 2018-19. Pandemic of COVID-19 impacted all economies of world including India. Following figure show trend of GDP growth in India.

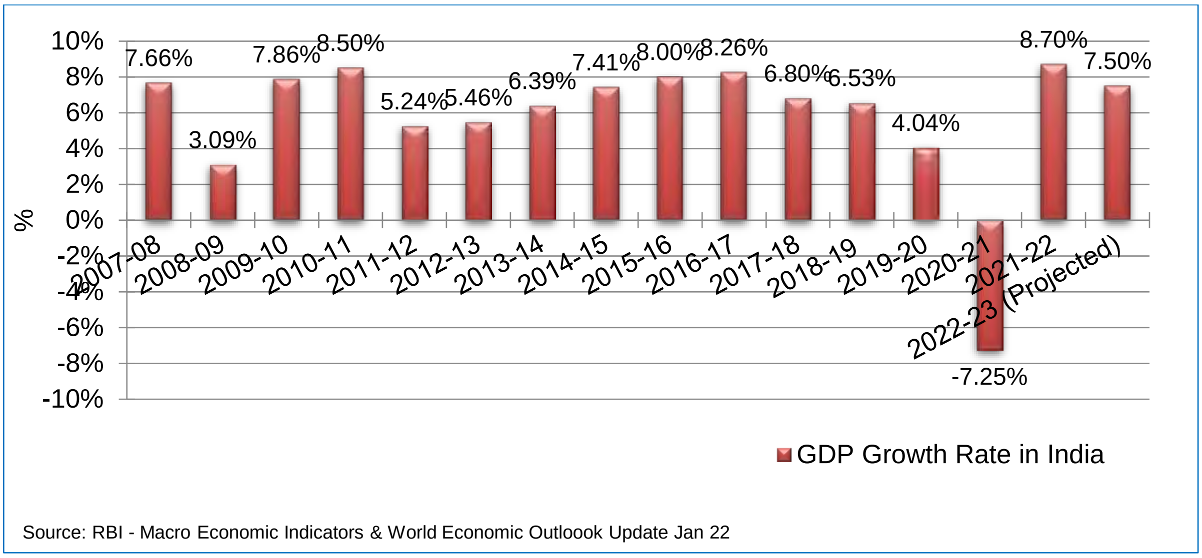

Figure 5-9 : Growth of GDP in India

FY 2017-18 recorded a growth of 6.7% which had slight impact of GST and demonetization. Indian economy appears on recovery path with estimated growth of 6.8% in FY 2018-19. Government took major policy decision including tax infrastructure reforming, banking sector improvement and ease of doing business.

Major economies of world collapsed due to pandemic COVID-19 including India. Indian economy is also registered negative growth in financial year 2020-21. After that Indian economy recovered handsomely and registered a growth of about 9% in Year 2021-22. This was partly due to low base of year 2020-21 as well.

Honorable Prime Minister has announced a major relief package of Rs. 20 lakh crores which is about 10% of GDP. This is aimed at turning this major crisis of COVID-19 into opportunity by providing major impetus to industrial production to the limit of becoming a self-reliant economy. With major thrust of this package being on **Make -In- India** it is expected that industry in India would grow at rapid pace and recover handsomely in post COVID-19 scenario. World Economic Outlook update also has predicted a growth rate of about 7.5 % in year 2022-23.

5.6 Developments along and around the Project Corridor & State

Project stretch falls in region of good development potential. The same is discussed as under.

Haryana is the largest recipient of investment per capita since 2000 in India, and among one of the wealthiest and most economically developed regions in South Asia. Haryana has the sixth highest per capita income among Indian states and union territories. Haryana is also boosted by 30 SEZs (mainly along DMIC, ADKIC and DWPE in NCR), 7% national agricultural exports, 60% of national Basmati rice export, 67% cars, 60% motorbikes, 50% tractors and 50% refrigerators produced in India. In services. Since Haryana surrounds the country's capital Delhi on three sides (north, west and south), consequently a large area of Haryana is included in the economically-important National Capital Region for the purposes of planning and development.

Major Cities of Haryana state & their characteristics are as below.

Faridabad is one of the biggest industrial city of Haryana as well as North India. Faridabad has been described as eighth fastest growing city in the world and third most in India by City Mayors Foundation survey. Faridabad is home to large-scale companies like Escorts Limited, India Yamaha Motor Pvt. Ltd., Havells India Limited, JCB India Limited, Indian Oil (R&D), Larsen & Toubro (L&T), Whirlpool India Ltd., ABB Group, Goodyear India Ltd., Bata India Ltd and Eicher Tractor Ltd. and Beebay Kidswear. Eyewear e-tailer Lenskart and healthcare startup Lybrate have their headquarters in Faridabad. More than
5,000 units of auto parts producers are based in Faridabad.

Many directorates of different union government ministries are headquartered in Faridabad including Central Ground Water Board, Department of Plant Quarantine and Central Insecticide Lab and Union Government Offices from Haryana including the Commissioner of Central Excise within Department of Revenue, Government of India, Department of Explosives, and Department of Labour. The Apex Central Training Institute of the Department of Revenue, Government of India, National Academy of Customs Excise & Narcotics is located at Sector 29. The National Power Training Institute, an autonomous body under Ministry of Power, Government of India has a corporate office in Faridabad. The city also hosts the National Institute of Financial Management, which serves as training academy for accounting and financial services. Also headquartered here is NHPC Limited which is a Central PSU under Ministry of Power, Government of India and the largest Hydro-power Company in India.

Hisar, city has been identified as a counter-magnet city for the National Capital Region to attract migrants and develop as an alternative center of growth to Delhi. With upcoming integrated industrial aerocity and aero MRO hub at Hisar Airport, it is a fast-developing city.

The city has a large steel industry and is known as the 'city of steel'. Hisar is India's largest manufacturer of galvanized iron. The Jindal Group is based in Hisar. Jindal Stainless Steel is also the world's largest producer of Stainless Steel strips for razor blades and India's largest producer of coin blanks. Textile and automobile industry is also a major contributor to the economy of the city. It also has a large number of livestock farms with the Central Livestock Farm, established in 1809 being one of the Asia's largest cattle farms.

Panipat city is famous in India by the name of "City of Weavers" and "Textile City". It is also known as the "cast-off capital" due to being "the global centre for recycling textiles. It is known for its woven modhas or round stools. Panipat has heavy industry, including a refinery operated by the Indian Oil Corporation, a urea manufacturing plant operated by National Fertilizers Limited and a National Thermal Power Corporation power plant. The IOCL refinery in Panipat is one of the major Industry in area which contributes to growth.

Gurugram : Witnessing rapid urbanisation, Gurgaon has become a leading financial and industrial hub with the third-highest per capita income in India. Gurgaon ranks number 1 in India in IT growth rate and existing technology infrastructure, and number 2 in startup ecosystem, innovation and livability.

The city's economic growth story started when the leading Indian automobile manufacturer Maruti Suzuki India Limited established a manufacturing plant in Gurgaon in the 1970s. Today, Gurgaon has local offices for more than 250 Fortune 500 companies. Various international companies, including Coca-Cola, Pepsi, BMW, Agilent Technologies, Hyundai have chosen Gurugram to be their Indian corporate headquarters.

IMT Minesar, Dundahera and Sohna are industrial and logistics hub, that also has National Security Guards, Indian Institute of Corporate Affairs, National

Brain Research Centre and National Bomb Data Centre. Retail is an important industry in Gurgaon, with the presence of 26 shopping malls

Ambala is connected to all the other major cities of north India including Delhi, Panipat, Chandigarh, Ludhiana, Amritsar and Shimla. It is a big interchange for various commuters for all neighboring states. The Ambala Cantt bus stand witnesses roughly 50,000 commuters daily.

National highway NH 1 popularly known as GT road passes through Ambala and connects it to National capital Delhi, Panipat, Ludhiana and Amritsar. NH 22 connects it to state capital Chandigarh and Shimla. National Highway 52 (new NH-165) connects it to Kaithal, Narwana and Hisar.

Being located in the Indo-Gangetic Plain, the land is generally fertile and conducive to agriculture.

Small scale industries form the bulk of the industrial landscape in the district. It is one of the largest producers of scientific and surgical instruments in the country and home to a large number of scientific instrument manufacturers. It produces microscopes and other instruments used in chemistry laboratories. Manufacture of submersible pumps and mixers and grinders is another industry that has traditionally flourished.

Ambala is also an important textile trading centre, besides Delhi and Ludhiana and has a well-known cloth market, which is famous in the region especially for those seeking bridal wear. It also produces rugs, known locally as Durries, and houses many suppliers to Indian defence forces

Punjab state is one of the most fertile regions in India. The region is ideal for wheat-growing. Rice, sugar cane, fruits and vegetables are also grown. Punjab is called the "Granary of India" or "India's bread-basket". It produces 10.26% of India's cotton, 19.5% of India's wheat, and 11% of India's rice. The Firozpur and Fazilka Districts are the largest producers of wheat and rice in the state. In worldwide terms, Indian Punjab produces 2% of the world's cotton, 2% of its wheat and 1% of its rice. The largest cultivated crop is wheat. Other important crops are rice, cotton, sugarcane, pearl millet, maize, barley and fruit.

Ludhiana is one of the City in India with best business environment. The riches are brought mostly by small-scale industrial units, which produce industrial goods, machine parts, auto parts, household appliances, hosiery, apparel, and garments. Ludhiana is Asia's largest hub for bicycle manufacturing and produces more than 50% of India's bicycle consumption of more than 10 million each year. Ludhiana produces 60% of India's tractor parts and a large portion of auto and two-wheeler parts. Many parts used in German cars are Mercedes and BMW exclusively produced in Ludhiana to satisfy the world requirement. It is one of the largest manufacturer of domestic sewing machines. Hand tools and industrial equipment are other specialties. The apparel industry of Ludhiana is famous all over India for its woollen sweaters and cotton T-shirts; most of the top Indian woollen apparel brands are based in Ludhiana. Ludhiana also has a growing IT sector with multiple software services and product companies having development centers in the city

Chandigarh has been rated as one of the "Wealthiest Towns" of India. The Reserve Bank of India ranked Chandigarh as the Third largest deposit centre and seventh largest credit centre nationwide.

Chandigarh is ranked 4th in the top 50 cities identified globally as "emerging outsourcing and IT services destinations" ahead of cities like Beijing. Chandigarh IT Park (also known as Rajiv Gandhi Chandigarh Technology Park) is the city's attempt to break into the information technology world. Major Indian firms and multinational corporations like Quark, Infosys, EVRY, Dell, IBM, TechMahindra, Airtel, Amadeus IT Group, DLF have set up base in the city and its suburbs.

Additionally, the government is a major employer in Chandigarh with three governments having their base here i.e. Chandigarh Administration, Punjab government and Haryana government.

Ordnance Cable Factory of the Ordnance Factories Board has been set up by the Government of India. There are about 15 medium to large industries including two in the Public sector. In addition Chandigarh has over 2500 units registered under small-scale sector. The important industries are paper manufacturing, basic metals and alloys and machinery. Other industries are relating to food products, sanitary ware, auto parts, machine tools, pharmaceuticals and electrical appliances.

Rajasthan state is a fast developing state. Last year Rajasthan was the leading investment destination in India after Maharashtra and Gujarat because of peaceful environment, relatively better law and order situation, excellent infrastructure, and investment friendly climate. Rajasthan is pre-eminent in quarrying and mining in India. The state is the second largest source of cement. It has rich salt deposits at Sambhar, copper mines at Khetri and zinc mines at Dariba and Zawar. Jaipur is the capital and largest city of Rajasthan. It is also known as Pink City of India and a famous travel destination.

There is large amount of information available on open platform including internet regarding this. Relevant information is compiled as under.

Delhi Mumbai Industrial Corridor (DMIC)

Rajasthan is strategically located along the Delhi-Mumbai section of the Golden Quadrilateral highway project, the proposed Dedicated Freight Corridor (DFC) and the Delhi Mumbai Industrial Corridor (DMIC).

Rajasthan has access to 46% of DMIC. It falls within major districts of Jaipur, Alwar, Kota and Bhilwara. Over 58% area of the state falls within the influence area of DMIC. The DMIC will provide high quality environment with state of the art infrastructure for new investors.

The state of Rajasthan has a rich agricultural and mineral base. Key industrial sectors in the state include Cement, Building Stones, Gypsum, Gems & Jewellery, Chemical, Food processing and Textiles. The emerging sectors include IT/ITES, Auto Component and Knowledge Hubs. Based on the strengths of specific regions across the state, five development nodes are identified in the influence area of DMIC. It includes two investment regions and three industrial areas.

Project road would act as feeder road for traffic destined for DMIC logistic hubs from northern states.

5.7 Recommended Growth Rates of Traffic

Based on the above analysis and after giving due consideration to the entire listed factors, the following overall growth rates are recommended for each category of vehicle as under. Rate of growth is moderated in light of overall regional trend. Growth of Multi-Axle is kept slightly higher as trend of technological advances in logistic industry favors multi-axle over 2/3 axle carriage. It is also expected that as the economy moves from developing to developed, rate of growth diminishes. Same growth rate is not sustainable for long Traffic growth is suitably stepped down for future years.

Growth rates are recommended for three scenarios for sensitivity analysis namely **Optimistic, Pessimistic** and **Most Likely** with a positive and negative variation 0.5% from Most Likely case for corridor in both states.

5.7.1 Recommended Growth Rates of Traffic for Project Stretch

Table 5-11 : Recommended Growth Rates Optimistic

Category / Year	2021-2022	2022-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
Car/Jeep/Van	9.91%	5.67%	5.45%	5.22%	5.00%	4.78%	4.56%
Bus	5.11%	3.21%	3.09%	2.72%	2.61%	2.50%	2.40%
LCV	4.82%	3.38%	3.17%	2.72%	2.53%	2.35%	2.17%
2- Axle	6.37%	3.96%	3.74%	3.23%	3.04%	2.86%	2.67%
3 - Axle	6.72%	3.96%	3.74%	3.23%	3.04%	2.86%	2.67%
4 to6 Axle	7.07%	3.96%	3.74%	3.53%	3.32%	3.12%	2.91%
7 and Above Axle	7.07%	3.96%	3.74%	3.53%	3.32%	3.12%	2.91%

Table 5-12 : Recommended Growth Rates Pessimistic

Category / Year	2021-2022	2022-2026	2026-2031	2031-2036	2036-2040	2041-2046	2046-2051
Car/Jeep/Van	9.41%	5.17%	4.95%	4.72%	4.50%	4.28%	4.06%
Bus	4.61%	2.71%	2.59%	2.22%	2.11%	2.00%	1.90%
LCV	4.32%	2.88%	2.67%	2.22%	2.03%	1.85%	1.67%
2- Axle	5.87%	3.46%	3.24%	2.73%	2.54%	2.36%	2.17%
3 - Axle	6.22%	3.46%	3.24%	2.73%	2.54%	2.36%	2.17%
4 to6 Axle	6.57%	3.46%	3.24%	3.03%	2.82%	2.62%	2.41%
7 and Above Axle	6.57%	3.46%	3.24%	3.03%	2.82%	2.62%	2.41%

Table 5-13 : Recommended Growth Rates Most Likely

Category / Year	2021-2026	2022-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
Car/Jeep/Van	9.66%	5.42%	5.20%	4.97%	4.75%	4.53%	4.31%
Bus	4.86%	2.96%	2.84%	2.47%	2.36%	2.25%	2.15%
LCV	4.57%	3.13%	2.92%	2.47%	2.28%	2.10%	1.92%
2- Axle	6.12%	3.71%	3.49%	2.98%	2.79%	2.61%	2.42%
3 - Axle	6.47%	3.71%	3.49%	2.98%	2.79%	2.61%	2.42%
4 to6 Axle	6.82%	3.71%	3.49%	3.28%	3.07%	2.87%	2.66%
7 and Above Axle	6.82%	3.71%	3.49%	3.28%	3.07%	2.87%	2.66%

Traffic and revenue has been worked out on the basis of above growths and same is presented in subsequent chapter of report.

5.8 COVID-19 Impact

All social and economic activities had been completely disrupted due worldwide pandemic of Corona Virus. This had affected traffic on project stretch as well. Traffic was severely affected form March-2020 due to lockdown and then in second wave and third waves.

Government has announced a mega economic stimulate and package of Rs. 20 Lakh Crore to bring the economy back on track and recover the losses. Traffic has shown impressive recovery post lockdown period and has recovered to normal level.

CHAPTER 6

TRAFFIC FORECAST

6.1 Traffic Projections

Growth rates recommended in previous section of report are used to arrive at traffic projections for future years. Toll plaza wise futuristic traffic projection is given in tables below.

These projections have been done for following three cases of growth up to concession period

1. Optimistic Scenario
2. Pessimistic Scenario
3. Most Likely Scenario

Table 6-1 : Total Tollable Traffic @ Toll Plaza 1- Narwana 125.00 KM (Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	4284	325	298	494	357	1183	37	6977	13706
2023-24	4527	336	308	513	371	1230	38	7323	14313
2024-25	4783	347	318	533	386	1279	39	7685	14946
2025-26	5043	358	328	553	400	1327	40	8049	15575
2026-27	5317	369	338	574	415	1377	41	8431	16233
2027-28	5605	380	349	595	430	1428	42	8829	16912
2028-29	5909	392	360	617	446	1481	44	9249	17629
2029-30	6230	404	371	640	462	1537	46	9690	18379
2030-31	6554	415	381	661	477	1592	48	10128	19114
2031-32	6897	426	392	682	492	1648	50	10587	19875
2032-33	7257	437	403	704	508	1706	52	11067	20669
2033-34	7636	449	414	727	524	1766	54	11570	21495
2034-35	8035	461	425	751	541	1829	56	12098	22360
2035-36	8437	472	436	774	557	1889	58	12623	23208
2036-37	8859	484	447	798	574	1952	60	13174	24096
2037-38	9301	496	459	822	591	2017	62	13748	25017
2038-39	9765	508	471	847	609	2084	64	14348	25974
2039-40	10253	520	483	872	627	2154	66	14975	26969
2040-41	10743	532	495	897	645	2221	68	15601	27953
2041-42	11255	544	507	922	663	2291	70	16252	28972
2042-43	11793	556	519	949	681	2362	72	16932	30027
2043-44	12357	568	532	976	701	2435	74	17643	31127
2044-45	12948	581	545	1004	721	2511	76	18386	32271
2045-46	13539	593	558	1031	741	2584	78	19124	33398
2046-47	14157	605	571	1059	761	2659	80	19892	34563
2047-48	14803	617	584	1087	782	2737	82	20692	35773
2048-49	15478	630	598	1116	803	2817	84	21526	37029

Table 6-2 : Total Tollable Traffic @ Toll Plaza 2- Badopatti 171.00 KM

(Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	4834	316	393	530	423	1302	36	7834	15366
2023-24	5108	327	406	551	439	1352	37	8220	16037
2024-25	5398	339	420	572	456	1406	38	8629	16749
2025-26	5692	350	434	593	473	1458	39	9039	17454
2026-27	6001	362	448	615	490	1513	40	9469	18192
2027-28	6328	374	462	637	508	1570	41	9920	18960
2028-29	6672	386	476	660	527	1629	42	10392	19760
2029-30	7036	398	491	684	546	1690	44	10889	20599
2030-31	7404	409	505	706	563	1750	46	11383	21422
2031-32	7791	421	519	728	581	1811	48	11899	22272
2032-33	8198	433	533	751	599	1874	50	12438	23155
2033-34	8626	445	548	775	618	1940	52	13004	24081
2034-35	9076	457	563	799	638	2009	54	13596	25045
2035-36	9529	469	578	823	657	2076	56	14188	26001
2036-37	10006	481	593	847	677	2145	58	14807	26992
2037-38	10507	493	608	873	697	2216	60	15454	28023
2038-39	11033	505	624	899	718	2289	62	16130	29093
2039-40	11584	517	640	926	739	2364	64	16834	30201
2040-41	12137	529	656	952	760	2437	66	17537	31298
2041-42	12718	541	672	979	781	2512	68	18271	32436
2042-43	13326	553	688	1007	803	2590	70	19037	33620
2043-44	13962	566	706	1035	825	2671	72	19837	34853
2044-45	14630	579	724	1064	848	2754	74	20673	36133
2045-46	15298	591	742	1092	870	2834	76	21503	37392
2046-47	15996	604	760	1121	893	2916	78	22368	38697
2047-48	16726	617	778	1150	916	3000	80	23267	40044
2048-49	17489	630	797	1180	940	3087	82	24205	41446

Table 6-3 : Total Tollable Traffic @ Toll Plaza 3- Chainage 212.00 KM
(Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	4306	318	168	564	553	1759	59	7728	16820
2023-24	4550	328	174	586	574	1828	61	8101	17545
2024-25	4807	339	179	609	597	1901	63	8495	18309
2025-26	5068	350	184	632	620	1973	65	8892	19072
2026-27	5345	361	189	656	644	2047	67	9309	19867
2027-28	5637	372	195	680	668	2124	70	9746	20697
2028-29	5945	383	201	705	693	2203	73	10203	21559
2029-30	6269	395	207	731	719	2286	76	10683	22462
2030-31	6596	406	212	755	743	2366	79	11157	23338
2031-32	6941	417	218	779	767	2450	82	11654	24253
2032-33	7303	428	224	804	792	2537	85	12173	25204
2033-34	7685	439	230	830	818	2626	88	12716	26191
2034-35	8086	450	236	856	845	2719	91	13283	27217
2035-36	8490	461	242	882	871	2809	94	13849	28230
2036-37	8914	472	248	909	898	2903	97	14441	29287
2037-38	9359	484	254	936	925	3000	100	15058	30380
2038-39	9827	496	260	964	953	3099	103	15702	31511
2039-40	10319	508	266	994	982	3202	106	16377	32693
2040-41	10813	520	272	1022	1010	3302	109	17048	33855
2041-42	11330	532	278	1052	1039	3405	112	17748	35062
2042-43	11872	544	285	1082	1069	3511	115	18478	36313
2043-44	12439	556	292	1113	1099	3620	119	19238	37611
2044-45	13034	568	299	1145	1130	3732	123	20031	38956
2045-46	13629	580	306	1176	1160	3841	127	20819	40281
2046-47	14250	592	313	1208	1191	3953	131	21638	41652
2047-48	14901	604	320	1240	1223	4069	135	22492	43074
2048-49	15582	616	327	1273	1255	4188	139	23380	44543

Table 6-4 : Total Tollable Traffic @ Toll Plaza 1- Chainage 125.000 KM
(Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	4284	325	298	494	357	1183	37	6977	13706
2023-24	4505	335	306	510	369	1224	38	7287	14242
2024-25	4737	344	314	528	382	1266	39	7610	14798
2025-26	4971	353	322	545	395	1307	40	7933	15348
2026-27	5217	362	330	563	408	1349	41	8270	15918
2027-28	5475	371	338	581	421	1393	42	8621	16509
2028-29	5745	380	346	599	435	1438	43	8986	17120
2029-30	6029	389	354	619	449	1484	44	9368	17755
2030-31	6313	397	362	636	462	1529	45	9744	18372
2031-32	6611	406	370	653	475	1575	46	10136	19009
2032-33	6923	415	378	671	488	1623	47	10545	19672
2033-34	7249	424	386	689	501	1672	48	10969	20353
2034-35	7591	433	394	707	515	1723	49	11412	21063

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2035-36	7932	442	402	725	528	1772	50	11851	21759
2036-37	8288	451	410	743	542	1822	51	12307	22478
2037-38	8661	460	418	761	556	1873	52	12781	23219
2038-39	9051	469	426	781	570	1926	53	13276	23991
2039-40	9458	478	435	801	584	1981	54	13791	24793
2040-41	9863	487	443	819	598	2033	55	14298	25570
2041-42	10285	496	451	839	612	2086	56	14825	26374
2042-43	10725	505	460	859	626	2141	57	15373	27209
2043-44	11184	514	469	879	641	2197	58	15942	28070
2044-45	11662	523	478	900	656	2254	59	16532	28957
2045-46	12136	532	487	920	670	2309	60	17114	29826
2046-47	12629	541	496	940	685	2365	61	17717	30721
2047-48	13141	550	505	961	700	2422	62	18341	31642
2048-49	13675	559	514	982	715	2480	63	18988	32590

Table 6-5 : Total Tollable Traffic @ Toll Plaza 2- Chainage 171.00 KM (Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	4834	316	393	530	423	1302	36	7834	15366
2023-24	5083	325	404	549	437	1347	36	8181	15964
2024-25	5346	335	415	567	452	1394	37	8546	16590
2025-26	5610	343	426	585	467	1440	38	8909	17210
2026-27	5888	351	437	603	482	1487	39	9287	17848
2027-28	6179	361	448	622	497	1535	40	9682	18509
2028-29	6484	371	459	642	513	1585	41	10095	19200
2029-30	6805	381	471	663	529	1636	42	10527	19917
2030-31	7127	389	482	681	543	1686	43	10951	20609
2031-32	7463	397	493	699	558	1737	44	11391	21323
2032-33	7815	405	504	717	573	1789	45	11848	22058
2033-34	8185	413	515	736	589	1844	46	12328	22830
2034-35	8572	421	526	756	605	1900	47	12827	23626
2035-36	8957	429	537	775	620	1954	48	13320	24406
2036-37	9361	437	548	794	636	2009	49	13834	25212
2037-38	9782	445	559	814	652	2066	50	14368	26047
2038-39	10222	453	571	835	668	2124	51	14924	26911
2039-40	10682	462	583	856	685	2184	52	15504	27809
2040-41	11140	470	595	876	701	2241	53	16076	28684
2041-42	11617	478	607	897	717	2300	54	16670	29590
2042-43	12115	486	619	918	734	2360	55	17287	30525
2043-44	12633	494	631	940	751	2421	56	17926	31487
2044-45	13173	502	643	962	768	2484	57	18589	32480
2045-46	13708	510	655	983	785	2544	58	19243	33451
2046-47	14265	518	667	1004	802	2605	59	19920	34449
2047-48	14846	526	679	1026	819	2667	60	20623	35479
2048-49	15449	534	692	1048	837	2731	61	21352	36545

Table 6-6 : Total Tollable Traffic @ Toll Plaza 3- Chainage 212.00 KM (Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	4306	318	168	564	553	1759	59	7728	16820
2023-24	4529	327	173	584	572	1819	61	8065	17467
2024-25	4763	336	178	604	591	1882	63	8417	18139
2025-26	4998	345	183	623	610	1943	65	8767	18800
2026-27	5245	354	188	643	629	2006	67	9132	19485
2027-28	5504	363	193	664	649	2071	69	9513	20197
2028-29	5776	372	198	686	670	2138	71	9911	20937
2029-30	6062	381	203	708	691	2207	73	10325	21700
2030-31	6348	390	208	727	710	2274	75	10732	22439
2031-32	6648	399	213	746	729	2343	77	11155	23201
2032-33	6962	408	218	766	749	2415	79	11597	23996
2033-34	7291	417	223	787	769	2488	81	12056	24814
2034-35	7636	426	228	809	790	2563	83	12535	25663
2035-36	7979	435	233	830	810	2636	85	13008	26495
2036-37	8338	444	238	851	830	2711	87	13499	27352
2037-38	8713	453	243	873	851	2787	89	14009	28236
2038-39	9104	462	248	895	872	2865	92	14538	29149
2039-40	9513	471	253	918	894	2945	95	15089	30095
2040-41	9920	480	258	940	915	3022	97	15632	31015
2041-42	10344	489	263	962	936	3101	100	16195	31965
2042-43	10787	498	268	985	958	3182	103	16781	32950
2043-44	11249	507	273	1008	980	3266	106	17389	33967
2044-45	11731	516	278	1032	1003	3352	109	18021	35019
2045-46	12208	525	283	1055	1024	3432	112	18639	36030
2046-47	12705	534	288	1078	1046	3515	115	19281	37077
2047-48	13221	543	293	1101	1068	3600	118	19944	38153
2048-49	13759	552	298	1125	1091	3687	121	20633	39265

Traffic projections for Most Likely scenario are given as under

Table 6-7 : Total Tollable Traffic @ Toll Plaza 1- Chainage 125.000 KM (Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	4284	325	298	494	357	1183	37	6977	13706
2023-24	4515	335	307	511	370	1227	38	7303	14274
2024-25	4759	345	316	529	384	1272	39	7644	14863
2025-26	5005	354	324	547	398	1316	40	7984	15445
2026-27	5265	364	333	567	412	1362	41	8344	16061
2027-28	5538	374	342	587	426	1410	42	8719	16698
2028-29	5826	385	351	608	441	1459	43	9113	17363
2029-30	6128	396	360	629	456	1510	44	9523	18050
2030-31	6432	405	368	647	470	1560	45	9927	18717
2031-32	6751	414	377	667	484	1611	46	10350	19413
2032-33	7086	424	386	687	498	1663	47	10791	20130
2033-34	7438	434	395	708	513	1718	49	11255	20889

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2034-35	7808	445	404	729	528	1774	51	11739	21671
2035-36	8179	455	413	749	543	1829	53	12221	22446
2036-37	8568	465	422	770	558	1885	55	12723	23246
2037-38	8975	475	431	791	573	1943	57	13245	24073
2038-39	9401	486	441	813	589	2002	59	13791	24934
2039-40	9847	497	451	836	605	2064	61	14361	25831
2040-41	10293	507	461	857	621	2123	63	14925	26708
2041-42	10759	517	471	879	637	2183	65	15511	27612
2042-43	11246	528	481	902	653	2246	67	16123	28555
2043-44	11755	539	491	926	670	2310	69	16760	29530
2044-45	12287	550	501	950	687	2376	71	17422	30538
2045-46	12817	560	511	973	703	2439	73	18076	31522
2046-47	13369	571	521	997	720	2504	75	18757	32545
2047-48	13945	582	532	1021	737	2570	77	19464	33600
2048-49	14546	593	543	1046	754	2639	79	20200	34696

Table 6-8 : Total Tollable Traffic @ Toll Plaza 2- Chainage 171.00 KM (Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	4834	316	393	530	423	1302	36	7834	15366
2023-24	5095	325	405	550	438	1350	37	8200	16003
2024-25	5372	335	417	570	454	1400	38	8586	16669
2025-26	5651	345	429	590	470	1449	39	8973	17332
2026-27	5944	355	441	611	486	1499	40	9376	18016
2027-28	6253	365	454	632	503	1551	41	9799	18732
2028-29	6578	375	467	654	520	1606	42	10242	19480
2029-30	6919	385	481	676	538	1662	43	10704	20254
2030-31	7262	395	493	696	554	1717	44	11161	21008
2031-32	7624	405	505	717	570	1774	45	11640	21793
2032-33	8004	415	518	738	587	1832	46	12140	22607
2033-34	8402	425	531	760	604	1892	47	12661	23450
2034-35	8820	435	545	782	622	1954	49	13207	24333
2035-36	9239	445	558	804	639	2014	50	13749	25198
2036-37	9678	455	572	826	657	2076	52	14316	26102
2037-38	10138	465	586	849	675	2139	54	14906	27034
2038-39	10620	475	600	872	694	2205	56	15522	28005
2039-40	11124	485	614	896	713	2273	58	16163	29010
2040-41	11628	495	628	919	731	2339	60	16800	30000
2041-42	12155	505	642	942	750	2406	62	17462	31021
2042-43	12705	515	657	966	769	2475	64	18151	32079
2043-44	13281	525	672	991	789	2546	66	18870	33179
2044-45	13882	536	687	1017	809	2619	68	19618	34317
2045-46	14480	546	702	1041	828	2689	70	20356	35428
2046-47	15105	556	717	1066	848	2760	72	21124	36576
2047-48	15756	566	732	1092	868	2833	74	21921	37763
2048-49	16436	576	747	1118	889	2908	76	22750	38990

Table 6-9 : Total Tollable Traffic @ Toll Plaza 3- Chainage 212.00 KM (Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	4306	318	168	564	553	1759	59	7728	16820
2023-24	4539	328	174	585	573	1824	61	8084	17510
2024-25	4785	339	179	607	594	1891	63	8458	18227
2025-26	5033	349	184	629	614	1957	65	8831	18937
2026-27	5294	360	189	651	635	2025	67	9221	19673
2027-28	5569	371	194	674	657	2095	69	9629	20439
2028-29	5859	382	199	698	680	2168	71	10057	21239
2029-30	6164	393	204	722	704	2244	73	10504	22070
2030-31	6470	403	209	744	725	2318	75	10944	22877
2031-32	6791	413	214	766	746	2394	77	11401	23708
2032-33	7129	424	219	789	768	2472	80	11881	24577
2033-34	7483	435	224	813	790	2553	83	12381	25479
2034-35	7855	446	229	837	814	2637	86	12904	26418
2035-36	8228	457	234	860	836	2718	89	13422	27335
2036-37	8619	468	239	884	860	2802	92	13964	28293
2037-38	9028	479	244	909	884	2888	95	14527	29281
2038-39	9456	490	250	934	909	2977	98	15114	30308
2039-40	9905	501	256	960	935	3068	101	15726	31370
2040-41	10354	512	262	985	960	3156	104	16333	32413
2041-42	10823	523	268	1010	985	3246	107	16962	33485
2042-43	11313	534	274	1036	1011	3340	110	17618	34602
2043-44	11825	545	280	1063	1038	3436	113	18300	35756
2044-45	12361	556	286	1090	1065	3534	116	19008	36943
2045-46	12895	567	292	1116	1091	3629	119	19709	38109
2046-47	13451	578	298	1143	1118	3726	122	20436	39311
2047-48	14031	589	304	1170	1145	3825	125	21189	40547
2048-49	14635	600	310	1198	1173	3927	128	21971	41826

6.2 Modification in Concession Period

As per Article 29 of the concession agreement, if actual traffic on the project falls short or exceeds Target Traffic on project highway on defined date, concession period shall be modified subject to calculation stipulated therein. For Kaithal – Rajasthan Border project, the Target Date and Target Traffic are defined as under:

Target Date - 1st April 2023

Target Traffic - 21919 in PCU

It was observed that as per traffic projections, average traffic volume falls short of target traffic in all scenarios. Probable extension of concession period is estimated according to article 29 of concession agreement which comes to about 5 years.

Traffic forecast and revenue projections are done for probable extended period accordingly.

Most Likely

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2023	21919	15937	-27%	41%	20%	27	5.4

Optimistic

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2023	21919	15977	-27%	41%	20%	27	5.4

Pessimistic

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2023	21919	15899	-27%	41%	20%	27	5.4

CHAPTER 7

FORECAST OF TOLL REVENUE

7.1 General

This chapter presents the tolling rate calculations, categories and toll revenue of the project.

7.2 Discount Categories

As per the Toll Notification (Schedule - R) the discounts and special provisions have been considered. In addition to discounts as per Fee Notification concessionaire has declared special category rates also. Salient features of toll rate structure are given as under

1. Monthly Pass: For frequent users monthly pass would be issued at fee 50 time the single journey fee.
2. Multiple Journeys (for Return Trip): Will be charged at 1.5 times single journey.
3. Single Journey: Full single journey toll would be charged to this category of vehicles who are infrequent travelers or whose frequency does not yield any discount from the above categories.
4. Local Discounts: Local Car Jeep Van - Rs. 275 per month (for locals residing within a radius of 20 kms from toll plaza) and local commercial and 50% rate of single trip.

Building of inflation and escalation of rate on the basis of WPI are done as per toll notification (Schedule G) as given under as extract from concession agreement.

The formula for determining the applicable rate of fee shall be as follows:-

$$\text{Applicable rate of fee} = \text{base rate} + \text{base rate} \times \left\{ \frac{\text{WPI A} - \text{WPI B}}{\text{WPI B}} \right\} \times 0.4$$

Factor of inflation / growth has been incorporated as per Schedule R. WPI numbers (2011-12 series) are available up to 2018-19. A moderate growth in Wholesale Price

Index (WPI) has been assumed after that. The following graph provides historical rate of inflation (WPI) in India. Data has been sourced from the Office of Economic Advisor web site (www.eaindustry.nic.in) WPI for year 2017-18 and 2018-2019 is worked back by applying a correlation factor for 2004-05 series as 2017-18 and 2018-2019 data is available in 2011-12 series only. Ratio of WPI for year 2016-17 for both series is used for conversion of WPI in 2004-05 series

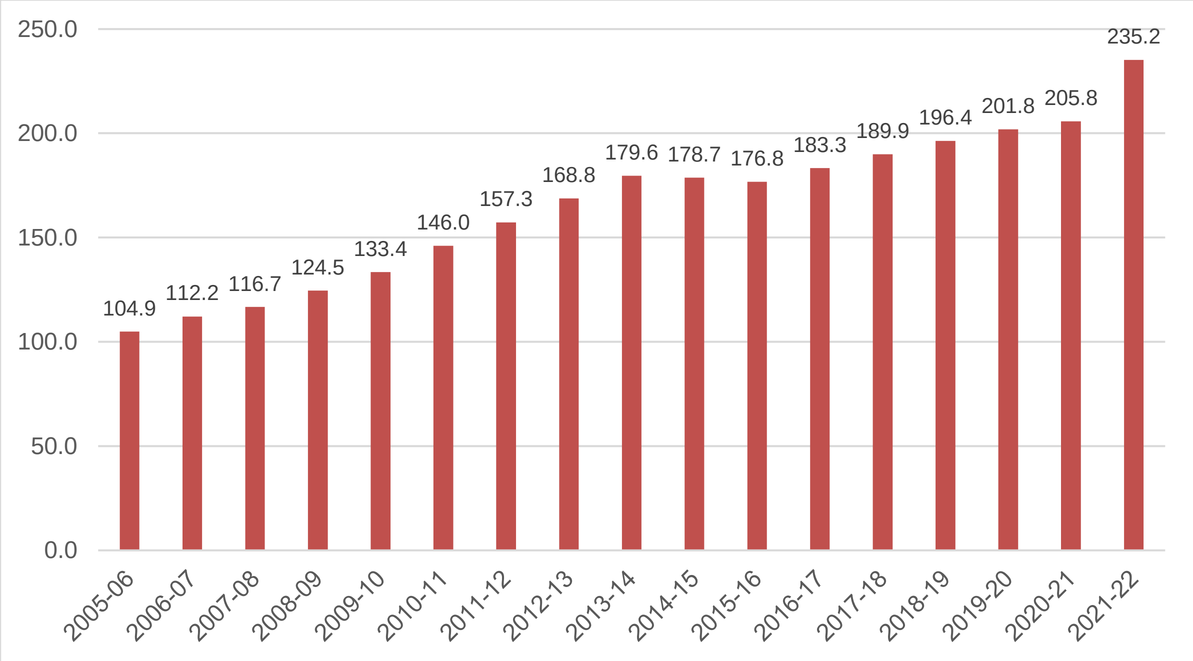

Figure 7-1 : Historical Rate of WPI Inflation in India

Average inflation in WPI in last few years is steadily growing. It grew in range of 4% - 5% in previous years. For future years initially it is takes 5% and Suitably Stepped down for future years.

7.3 Estimation of Toll Rates

As per the applicable MORTH notification and Schedule R of contract agreement, the following Base rate of fee for the categories mentioned in the table stands true in the National Highways Fee Rules applicable for contract.

Table 7-1 : Base Toll Rates June 2007-08

Type of Vehicle	Base Rate of Fee / Km (in Rs.)
Car, Jeep, Van or Light Motor Vehicle	0.65
Light Commercial Vehicle, Light Goods Vehicle or Mini Bus	1.05
Bus or Truck (Two Axles)	2.20

Three Axle Commercial Vehicles	2,40
Heavy Construction Machinery (HCM) or Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 axles)	3.45
Oversized Vehicles (7 or more Axles)	4.20

Toll rates are calculated as per guidelines provided in schedule R (rounded to nearest Rs.) for the concession period and are given below.

Thus worked out rates for various categories of vehicle and discounts are given as under

Table 7-2 : Toll Rates for Single Journey @ Km 125.000

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	85	135	285	285	310
2023-24	90	140	295	295	325
2024-25	90	150	310	310	340
2025-26	95	155	330	330	360
2026-27	100	165	345	345	375
2027-28	105	170	360	360	395
2028-29	110	180	380	380	415
2029-30	115	190	395	395	435
2030-31	125	200	415	415	455
2031-32	130	210	435	435	475
2032-33	135	220	460	460	500
2033-34	140	230	480	480	525
2034-35	150	240	505	505	550
2035-36	155	250	530	530	575
2036-37	165	265	555	555	605
2037-38	170	275	580	580	635
2038-39	180	290	610	610	665
2039-40	190	305	640	640	700
2040-41	200	320	670	670	735
2041-42	210	335	705	705	770
2042-43	220	355	740	740	810
2043-44	230	370	780	780	850
2044-45	240	390	815	815	890
2045-46	255	410	860	860	935
2046-47	265	430	900	900	985
2047-48	280	450	945	945	1030
2048-49	295	475	995	995	1085

Table 7-3 : Toll Rates for Single Journey @ Km 171.00

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	115	180	380	380	415
2023-24	120	190	400	400	440
2024-25	125	200	420	420	460
2025-26	130	210	445	445	485
2026-27	140	220	465	465	510
2027-28	145	235	490	490	535
2028-29	150	245	510	510	560
2029-30	160	255	535	535	585
2030-31	165	270	565	565	615
2031-32	175	280	590	590	645
2032-33	185	295	620	620	675
2033-34	190	310	650	650	710
2034-35	200	325	680	680	740
2035-36	210	340	715	715	780
2036-37	220	355	750	750	815
2037-38	230	375	785	785	855
2038-39	245	395	825	825	900
2039-40	255	415	865	865	945
2040-41	270	435	910	910	990
2041-42	280	455	955	955	1040
2042-43	295	480	1000	1000	1090
2043-44	310	500	1050	1050	1145
2044-45	325	525	1105	1105	1205
2045-46	345	555	1160	1160	1265
2046-47	360	580	1220	1220	1330
2047-48	380	610	1280	1280	1395
2048-49	395	640	1345	1345	1465

Table 7-4 : Toll Rates for Single Journey @ Km 212.00

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	65	105	220	220	240
2023-24	70	110	235	235	255
2024-25	70	115	245	245	265
2025-26	75	125	255	255	280
2026-27	80	130	270	270	295
2027-28	85	135	285	285	310
2028-29	90	140	295	295	325
2029-30	90	150	310	310	340
2030-31	95	155	325	325	355
2031-32	100	165	340	340	375
2032-33	105	170	360	360	390
2033-34	110	180	375	375	410
2034-35	115	190	395	395	430
2035-36	120	195	415	415	450
2036-37	130	205	435	435	475
2037-38	135	215	455	455	495
2038-39	140	230	480	480	520
2039-40	150	240	500	500	545

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2040-41	155	250	525	525	575
2041-42	165	265	555	555	605
2042-43	170	275	580	580	635
2043-44	180	290	610	610	665
2044-45	190	305	640	640	700
2045-46	200	320	670	670	735
2046-47	210	335	705	705	770
2047-48	220	355	740	740	810
2048-49	230	370	780	780	850

Table 7-5 : Toll Rates for Return Journey @ Km 125.000

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	125	200	425	425	465
2023-24	130	215	445	445	485
2024-25	140	225	470	470	510
2025-26	145	235	490	490	535
2026-27	155	245	515	515	565
2027-28	160	260	540	540	590
2028-29	170	270	570	570	620
2029-30	175	285	595	595	650
2030-31	185	300	625	625	680
2031-32	195	310	655	655	715
2032-33	205	330	685	685	750
2033-34	215	345	720	720	785
2034-35	225	360	755	755	825
2035-36	235	380	790	790	865
2036-37	245	395	830	830	905
2037-38	260	415	870	870	950
2038-39	270	435	915	915	1000
2039-40	285	460	960	960	1045
2040-41	300	480	1010	1010	1100
2041-42	315	505	1060	1060	1155
2042-43	330	530	1110	1110	1210
2043-44	345	555	1165	1165	1270
2044-45	360	585	1225	1225	1335
2045-46	380	615	1285	1285	1405
2046-47	400	645	1350	1350	1475
2047-48	420	680	1420	1420	1550
2048-49	440	710	1490	1490	1625

Table 7-6 : Toll Rates for Return Journey @ Km 171.00

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	170	275	575	575	625
2023-24	180	285	600	600	655
2024-25	185	300	635	635	690
2025-26	195	315	665	665	725
2026-27	205	335	700	700	765
2027-28	215	350	735	735	800
2028-29	225	365	770	770	840
2029-30	240	385	805	805	880
2030-31	250	405	845	845	920
2031-32	260	420	885	885	965
2032-33	275	445	930	930	1010
2033-34	285	465	975	975	1060
2034-35	300	485	1020	1020	1115
2035-36	315	510	1070	1070	1170
2036-37	330	535	1125	1125	1225
2037-38	350	560	1180	1180	1285
2038-39	365	590	1235	1235	1350
2039-40	385	620	1300	1300	1415
2040-41	405	650	1360	1360	1485
2041-42	425	685	1430	1430	1560
2042-43	445	715	1500	1500	1640
2043-44	465	755	1575	1575	1720
2044-45	490	790	1655	1655	1805
2045-46	515	830	1740	1740	1895
2046-47	540	870	1825	1825	1995
2047-48	565	915	1920	1920	2095
2048-49	595	960	2015	2015	2200

Table 7-7 : Toll Rates for Return Journey @ Km 212.00

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	100	160	330	330	360
2023-24	105	165	350	350	380
2024-25	110	175	365	365	400
2025-26	115	185	385	385	420
2026-27	120	195	405	405	440
2027-28	125	205	425	425	465
2028-29	130	210	445	445	485
2029-30	140	225	465	465	510
2030-31	145	235	490	490	535
2031-32	150	245	515	515	560
2032-33	160	255	540	540	585
2033-34	165	270	565	565	615
2034-35	175	280	590	590	645
2035-36	185	295	620	620	675
2036-37	190	310	650	650	710

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2037-38	200	325	685	685	745
2038-39	210	340	715	715	780
2039-40	220	360	750	750	820
2040-41	235	375	790	790	860
2041-42	245	395	830	830	905
2042-43	255	415	870	870	950
2043-44	270	435	915	915	995
2044-45	285	460	960	960	1045
2045-46	300	480	1010	1010	1100
2046-47	315	505	1060	1060	1155
2047-48	330	530	1110	1110	1215
2048-49	345	560	1170	1170	1275

Table 7-8 : Toll Rates for Monthly Pass Local @ Km125.000

Year	Car	Mini Bus /LCV
2022-23	315	315
2023-24	330	330
2024-25	345	345
2025-26	365	365
2026-27	385	385
2027-28	400	400
2028-29	420	420
2029-30	440	440
2030-31	460	460
2031-32	485	485
2032-33	510	510
2033-34	535	535
2034-35	560	560
2035-36	585	585
2036-37	615	615
2037-38	645	645
2038-39	675	675
2039-40	710	710
2040-41	745	745
2041-42	785	785
2042-43	825	825
2043-44	865	865
2044-45	905	905
2045-46	955	955
2046-47	1000	1000
2047-48	1050	1050
2048-49	1105	1105

Table 7-9 : Toll Rates for Monthly Pass Local @ Km171.000

Year	Car	Mini Bus /LCV
2022-23	315	315
2023-24	330	330
2024-25	345	345
2025-26	365	365
2026-27	385	385
2027-28	400	400
2028-29	420	420
2029-30	440	440
2030-31	460	460
2031-32	485	485
2032-33	510	510
2033-34	535	535
2034-35	560	560
2035-36	585	585
2036-37	615	615
2037-38	645	645
2038-39	675	675
2039-40	710	710
2040-41	745	745
2041-42	785	785
2042-43	825	825
2043-44	865	865
2044-45	905	905
2045-46	955	955
2046-47	1000	1000
2047-48	1050	1050
2048-49	1105	1105

Table 7-10 : Toll Rates for Monthly Pass Local @ Km212.000

Year	Car	Mini Bus /LCV
2022-23	315	315
2023-24	330	330
2024-25	345	345
2025-26	365	365
2026-27	385	385
2027-28	400	400
2028-29	420	420
2029-30	440	440
2030-31	460	460
2031-32	485	485
2032-33	510	510
2033-34	535	535
2034-35	560	560

Year	Car	Mini Bus /LCV
2035-36	585	585
2036-37	615	615
2037-38	645	645
2038-39	675	675
2039-40	710	710
2040-41	745	745
2041-42	785	785
2042-43	825	825
2043-44	865	865
2044-45	905	905
2045-46	955	955
2046-47	1000	1000
2047-48	1050	1050
2048-49	1105	1105

Table 7-11 : Toll Rates for Monthly Pass @ Km125.000

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2022-23	2785	4500	9425	9425	10280
2023-24	2925	4725	9900	9900	10800
2024-25	3075	4965	10405	10405	11350
2025-26	3230	5220	10930	10930	11925
2026-27	3395	5485	11490	11490	12535
2027-28	3560	5750	12045	12045	13135
2028-29	3730	6025	12620	12620	13770
2029-30	3910	6315	13230	13230	14435
2030-31	4100	6620	13870	13870	15130
2031-32	4295	6940	14545	14545	15865
2032-33	4505	7280	15250	15250	16635
2033-34	4725	7635	15995	15995	17450
2034-35	4955	8005	16775	16775	18300
2035-36	5200	8400	17595	17595	19195
2036-37	5455	8810	18460	18460	20140
2037-38	5725	9245	19370	19370	21130
2038-39	6005	9700	20330	20330	22175
2039-40	6305	10180	21335	21335	23275
2040-41	6615	10690	22395	22395	24430
2041-42	6945	11220	23510	23510	25645
2042-43	7295	11780	24685	24685	26925
2043-44	7660	12370	25920	25920	28275
2044-45	8040	12990	27220	27220	29695
2045-46	8445	13645	28590	28590	31185
2046-47	8870	14330	30030	30030	32760
2047-48	9320	15055	31545	31545	34415
2048-49	9795	15820	33145	33145	36160

Table 7-12 : Toll Rates for Monthly Pass @ Km 171.00

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2022-23	3765	6080	12740	12740	13900
2023-24	3955	6390	13385	13385	14605
2024-25	4155	6710	14065	14065	15345
2025-26	4365	7055	14780	14780	16125
2026-27	4590	7415	15535	15535	16945
2027-28	4810	7770	16280	16280	17760
2028-29	5040	8145	17065	17065	18615
2029-30	5285	8535	17890	17890	19515
2030-31	5540	8950	18755	18755	20460
2031-32	5810	9385	19660	19660	21450
2032-33	6090	9840	20620	20620	22490
2033-34	6390	10320	21625	21625	23590
2034-35	6700	10825	22680	22680	24740
2035-36	7030	11355	23790	23790	25955
2036-37	7375	11910	24960	24960	27230
2037-38	7735	12500	26190	26190	28570
2038-39	8120	13115	27480	27480	29980
2039-40	8520	13765	28845	28845	31465
2040-41	8945	14450	30275	30275	33030
2041-42	9390	15170	31785	31785	34670
2042-43	9860	15925	33370	33370	36405
2043-44	10355	16725	35040	35040	38225
2044-45	10870	17565	36800	36800	40145
2045-46	11420	18445	38650	38650	42165
2046-47	11995	19375	40600	40600	44290
2047-48	12600	20355	42650	42650	46525
2048-49	13240	21385	44810	44810	48885

Table 7-13 : Toll Rates for Monthly Pass @ Km 212.00

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2022-23	2180	3525	7385	7385	8055
2023-24	2290	3700	7755	7755	8460
2024-25	2410	3890	8150	8150	8890
2025-26	2530	4090	8565	8565	9345
2026-27	2660	4295	9000	9000	9820
2027-28	2790	4505	9435	9435	10290
2028-29	2920	4720	9890	9890	10790
2029-30	3065	4945	10365	10365	11310
2030-31	3210	5185	10865	10865	11855
2031-32	3365	5440	11395	11395	12430
2032-33	3530	5705	11950	11950	13035
2033-34	3700	5980	12530	12530	13670
2034-35	3885	6275	13145	13145	14335

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2035-36	4075	6580	13785	13785	15040
2036-37	4275	6905	14465	14465	15780
2037-38	4485	7245	15175	15175	16555
2038-39	4705	7600	15925	15925	17375
2039-40	4940	7975	16715	16715	18235
2040-41	5185	8375	17545	17545	19140
2041-42	5440	8790	18420	18420	20090
2042-43	5715	9230	19340	19340	21095
2043-44	6000	9690	20305	20305	22150
2044-45	6300	10180	21325	21325	23265
2045-46	6615	10690	22395	22395	24435
2046-47	6950	11230	23525	23525	25665
2047-48	7300	11795	24715	24715	26960
2048-49	7670	12395	25970	25970	28330

7.4 Toll Revenue

As indicated earlier, toll revenue on the Project Road has been calculated in all three scenarios based on above rates and projected traffic. The estimates of toll revenue under ***Optimistic***, ***Pessimistic*** and ***Most Likely*** growth scenarios are presented in the following section.

7.5 Toll Revenue at all toll plazas under Scenarios

Toll Revenue estimates under most likely scenario at each of the toll plaza up to 2048-49 starting from the year 2022-23 are shown in tables below.

Table 7-14 : Toll Revenue Optimistic Scenario (Rs. Crores)

Year	TP-1	TP2	TP3	Total
2022-23	43.07	64.34	42.54	**149.95**
2023-24	47.15	70.75	47.14	**165.04**
2024-25	51.37	76.92	51.19	**179.48**
2025-26	56.19	84.24	56.12	**196.54**
2026-27	61.52	92.45	61.43	**215.40**
2027-28	67.17	101.09	67.28	**235.54**
2028-29	73.51	109.87	73.03	**256.41**
2029-30	79.84	120.33	79.70	**279.87**
2030-31	87.88	130.77	86.37	**305.02**
2031-32	95.79	142.96	94.29	**333.03**
2032-33	103.87	155.75	102.48	**362.09**
2033-34	112.94	168.79	111.55	**393.28**
2034-35	123.74	184.00	121.71	**429.45**
2035-36	134.58	201.11	132.62	**468.30**
2036-37	146.33	218.06	143.96	**508.34**
2037-38	158.69	237.36	156.40	**552.45**

Year	TP-1	TP2	TP3	Total
2038-39	172.92	259.09	169.96	**601.98**
2039-40	189.41	282.40	185.53	**657.33**
2040-41	205.60	306.76	201.22	**713.58**
2041-42	223.40	332.70	218.90	**775.00**
2042-43	242.73	361.62	237.02	**841.37**
2043-44	264.47	394.09	258.76	**917.32**
2044-45	285.99	427.47	281.13	**994.59**
2045-46	311.65	465.25	305.09	**1081.99**
2046-47	338.01	504.40	330.60	**1173.00**
2047-48	368.32	547.69	307.96	**1223.97**
2048-49	399.25	594.50	334.40	**1328.14**

Table 7-15 : Toll Revenue Pessimistic Scenario

(Rs. Crores)

Year	TP-1	TP2	TP3	Total
2022-23	43.07	64.34	42.54	**149.95**
2023-24	46.93	70.43	46.92	**164.28**
2024-25	50.90	76.24	50.72	**177.86**
2025-26	55.40	83.15	55.35	**193.90**
2026-27	60.38	90.84	60.32	**211.53**
2027-28	65.63	98.88	65.75	**230.26**
2028-29	71.46	106.98	71.02	**249.46**
2029-30	77.21	116.54	77.09	**270.84**
2030-31	84.52	126.05	83.15	**293.71**
2031-32	91.67	137.12	90.34	**319.13**
2032-33	98.91	148.64	97.72	**345.27**
2033-34	106.99	160.33	105.85	**373.17**
2034-35	116.64	173.88	114.92	**405.43**
2035-36	126.24	189.11	124.63	**439.97**
2036-37	136.58	204.04	134.60	**475.22**
2037-38	147.44	220.97	145.51	**513.92**
2038-39	159.89	239.98	157.36	**557.23**
2039-40	174.26	260.32	170.95	**605.53**
2040-41	188.22	281.37	184.48	**654.08**
2041-42	203.56	303.71	199.74	**707.00**
2042-43	220.12	328.52	215.28	**763.92**
2043-44	238.71	356.24	233.92	**828.87**
2044-45	256.91	384.61	252.96	**894.48**
2045-46	278.65	416.62	273.17	**968.44**
2046-47	300.80	449.46	294.56	**1044.82**
2047-48	326.21	485.77	273.04	**1085.02**
2048-49	351.87	524.74	295.08	**1171.68**

Table 7-16 : Toll Revenue Most Likely Scenario

(Rs. Crores)

Year	TP-1	TP2	TP3	Total
2022-23	43.07	64.34	42.54	**149.95**
2023-24	47.02	70.62	47.02	**164.66**
2024-25	51.11	76.59	50.94	**178.64**
2025-26	55.78	83.69	55.72	**195.19**
2026-27	60.95	91.61	60.85	**213.41**
2027-28	66.38	99.97	66.48	**232.83**
2028-29	72.42	108.41	71.97	**252.80**
2029-30	78.41	118.36	78.30	**275.07**
2030-31	86.05	128.27	84.64	**298.96**
2031-32	93.55	139.84	92.14	**325.53**
2032-33	101.18	151.97	99.93	**353.08**
2033-34	109.81	164.27	108.57	**382.64**
2034-35	120.00	178.70	118.18	**416.88**
2035-36	130.23	194.82	128.51	**453.56**
2036-37	141.25	210.83	139.17	**491.25**
2037-38	152.83	228.98	150.84	**532.65**
2038-39	166.07	249.40	163.51	**578.98**
2039-40	181.41	271.27	178.02	**630.69**
2040-41	196.38	294.03	192.56	**682.98**
2041-42	212.82	318.20	208.93	**739.94**
2042-43	230.65	345.08	225.65	**801.38**
2043-44	250.71	375.21	245.73	**871.65**
2044-45	270.54	406.02	266.26	**942.81**
2045-46	294.06	440.93	288.19	**1023.17**
2046-47	318.19	476.84	311.45	**1106.48**
2047-48	345.90	516.55	289.34	**1151.79**
2048-49	374.12	559.23	313.44	**1246.79**

CHAPTER 8

CONCLUSION & RECOMMENDATIONS

8.1 Conclusion & Recommendations

Project stretch of Kaithal to Rajasthan Border section of NH-152/65 in state of Haryana from km 33.250 to km 241.580 has been widened to four lane. The road is in sound condition and serves healthy traffic volumes. Project corridor has potential to develop as main link for traffic from Punjab, Haryana, and parts of Himachal to Rajasthan and south. There are large number of townships, industrial corridors and other business establishment coming up along project corridor. As Indian economy is poised to grow at 7%+ post COVID-19, the project corridor is expected to pick up the same trend in terms of traffic flow. All these developments have potential to give positive impact to traffic flow on project. The following can be considered as major outcomes of the study

a) There is good amount of tollable traffic running on project

b) Project corridor has potential to witness traffic growth @ 6-8% annually in near future due to various development in area and overall development of economy

c) Project corridor has committed traffic as long route traffic and does not run a risk of traffic leakage due to quality competing road

Based on above it can be considered a stable healthy project from traffic and revenue point of view.

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IRB
INFRASTRUCTURE TRUST

PALSIT TO DANKUNI SECTION OF NH 19 IN THE STATE OF WEST BENGAL (KM 588.870 TO KM 652.700)

TTRAFFIC STUDY & REVENUE PROJECTION REPORT (FINAL)

JANUARY 2023

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CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

AADT	-	Annual Average Daily Traffic	**NHAI**	-	National Highway Authority of India
BOT	-	Build Operate Transfer	**NHDP**	-	National Highways Development Project
CAGR	-	Compound Annual Growth Rate	**NSDP**	-	Net State Domestic Product
CTV	-	Classified traffic volume	**O&M**	-	Operation & Maintenance
DBFOT	-	Design, Build, Finance, Operate & Transfer	**PCDP**	-	Per Capita Domestic Product
EME	-	Earth Moving Equipment	**PCI**	-	Per Capita Income
GDP	-	Gross Domestic Product	**PCU**	-	Passenger Car Unit
GSDP	-	Gross State Domestic Product	**PSC**	-	Pre-stressed Concrete
HCM	-	Heavy Construction Machinery	**RCC**	-	Reinforced cement concrete
HCV	-	Heavy Commercial Vehicle	**RHS**	-	Right Hand Side
HTMS	-	Highway Traffic Management System	**SH**	-	State Highway
IRC	-	Indian Road Congress	**TP**	-	Toll Plaza
IRR	-	Internal Rate of Return	**WPI**	-	Wholesale Price Index
LCV	-	Light Commercial Vehicle	**SIR**	-	Special Investment Region
LHS	-	Left Hand Side	**c.**	-	Circa
LGV	-	Light Goods Vehicle	**ROB**	-	Railway Over Bridge
MAV	-	Multi Axle Vehicle	**MDR**	-	Major District Road
MORTH	-	Ministry of Road Transport and Highways	**ODR**	-	Other District Road
NH	-	National Highway	**CA**	-	Concession Agreement
PCC	-	Plain Cement Concrete	**RMT**	-	Running Meter
CR	-	Coarse Rubble			

CHAPTER 1

INTRODUCTION

1.1 Background

The Government of India through National Highway Authority of India (NHAI) embarked upon a program to enhance the traffic capacity and safety for efficient transportation of goods as well as passenger traffic on National Highway Sections under NHDP Phase V. Under Phase V NHAI has planned to convert 6,500 km of existing 4-lane National Highways into 6-lane National Highway. Sections envisaged under 6-laning comprise the Golden Quadrilateral section (5,700 km) and some other sections which are 800 km in length.

The project under consideration, **Palsit** to **Dankuni** section of NH-19 from km 588.870 to km 652.700 is one such road project NHAI intended to implement on a BOT basis in the DBFOT format. *M/s Palsit Dankuni Tollway. Ltd*. (Concessionaire) has been awarded the Project for a concession period of 17 years starting from 2nd April 2022. The Project has been commissioned and is currently under construction for six laning. Six laning of project is underway and expected to complete soon.

Project stretch from Palsit to Dankuni is part of new NH-19 Which was previously referred as Delhi -Kolkata. During renumbering of National Highway, Delhi to Agra route was numbered as NH-44 and Agra to Kolkata has been assigned as NH-19. From transportation point of view it is Delhi – Kolkata corridor.

New NH-19 connects industrial cities like Agra, Kanpur, Allahabad, Varanasi, Dhanbad, Durgapur, Bardhman and terminates at Dankuni near Kolkata. Close proximity to Kolkata and Howrah has given impetus to industrial development around project highway at various locations.

Old Delhi road (GT Road) lies on east of project highway from Palsit onwards. Project stretch is developed at new alignment between Palsit and Dankuni and is known as Durgapur Expressway. Following figure shows the alignment of project stretch.

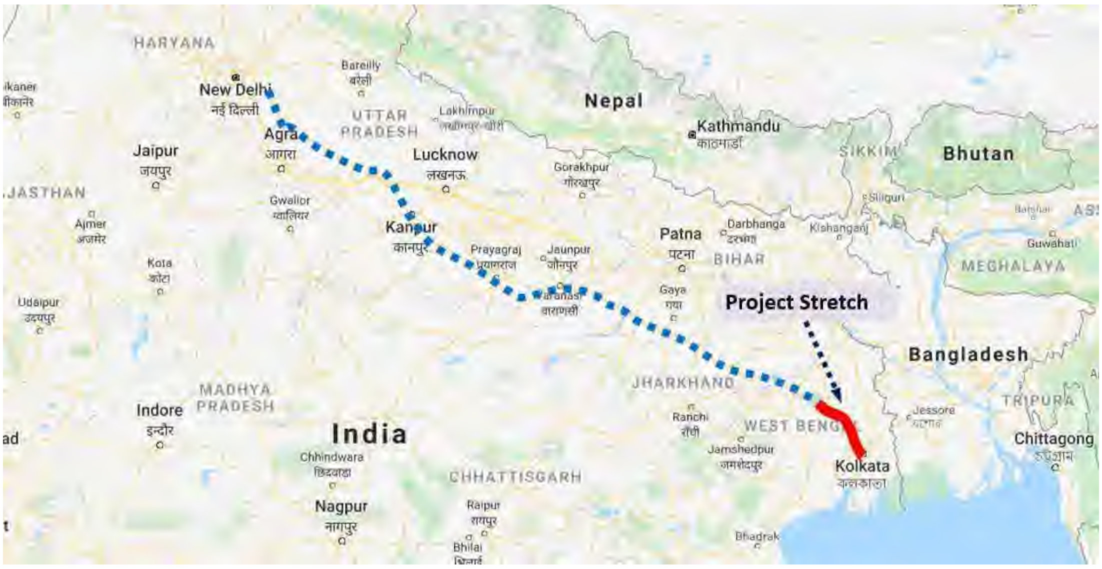


Figure 1-1: Alignment of Project Stretch

1.2 Objective of the Study

M/s IRB INFRASTRUCTURE TRUST has engaged *GMD Consultants* to assess the future traffic and toll potential of project stretch.

This report named as **"Traffic Study &*Toll Revenue Projection Report*"** mainly focuses on traffic and revenue aspects of the project. Other parameters like competing road, area developments etc. have been considered from a traffic development point of view.

1.2.1 Scope of Services

The broad scope of work covered in the assignment is as follows

a) Analysis of Traffic Growth

b) Toll Rate Growth

c) Revenue Forecasting

The Concessionaire has provided basic traffic data and other project details on the basis of which the above analysis has been carried out.

CHAPTER 2

PROJECT DETAILS

2.1 Project Corridor

National Highway 2 (NH 2) which is now renumbered as NH-19 is oldest highway in India and connects state of Delhi, Haryana, Uttar Pradesh, Bihar, Jharkhand and West Bengal. It constitutes a major portion of historical grand truck road.

It connects the national capital Delhi to the Kolkata, as well as important cities Mathura, Agra, Kanpur, Allahabad, Varanasi, Dhanbad, Asansol, Durgapur and Bardhman. The highway is part of the Golden Quadrilateral project undertaken by National Highways Authority of India (NHAI).

The project road is final link on Kolkata side between Palsit and Dankuni in the state of West Bengal. Dankuni is just out the outskirt of Kolkata on northern side. The main project influence area of the project road consists of Dhanbad, Durgapur and Kolkata.

2.2 Project Stretch Description

Section of NH-19 from Palsit to Dankuni is part of major transportation link in the area connecting industrial cities of Dhanbad, Asansol, Durgapur and Kolkata. Project stretch is basically and gateway link to Kolkata from northern India. Being just on outskirt of major metro city Kolkata large number of ware houses and logistic hubs are established on project road. This also contributes to sustainable traffic and growth on project highway.

There is one operative toll plaza at project stretch which is at Dankuni at km 646.005. Following figure show project alignment and toll plaza location.

Figure 2-1: Project Alignment with Toll Plaza

2.3 Project Corridor Illustration

Four lane project is under operation. Six laning has commenced on corridor. Following photographs illustrate project section along the corridor.

Figure 2-2: Photographs showing Project Corridor

CHAPTER 3

TRAFFIC SURVEYS AND ANALYSIS

3.1 Traffic Surveys

The Consultants have collected the required information for project corridor to understand the general traffic and travel characteristics on the corridor.

The following traffic data has been collected from client for project.

- Classified traffic volume counts at toll plaza location on Palsit - Dankuni section of NH-19 for Yr.2022-23 (Six-Monthly traffic data from April 2022 to September)2022.
- Local Component of traffic
- Component of Return Journey
- Component of Monthly Pass Journey

The main objective of the traffic data analysis is to:

- Determine the existing traffic movement characteristics of the project
- Establish base year traffic
- Identification of travel patterns and modal split of project traffic
- Deriving growth factors for traffic forecasting
- Estimation of corridor traffic including traffic diversion if any
- Preparation of revenue model and projection of revenue as per toll policy for various scenarios

Table 3-1below lists provides details of locations from where traffic details have been collected.

Table 3-1 : Traffic Data Details

SR. NO	LOCATION	CTV	Single Journey Traffic	Daily Return Journey	Monthly Pass	Local Pass

1	Toll Plaza Dankuni at km 646.005	AADT for Yr.2022-23 (Six Monthly Data from April 22 to September 22)	AADT for Yr.2022-23 (Six Monthly Data from April 22 to September 22)	AADT for Yr.2022-23 (Six Monthly Data from April 22 to September 22)	AADT for Yr.2022-23 (Six Monthly Data from April 22 to September 22)	AADT for Yr.2022-23 (Six Monthly Data from April 22 to September 22)

3.2 Classified Traffic Volume

The objective of conducting a Classified Traffic Volume Count is to understand the traffic flow pattern including modal split on a roadway. The Classified Traffic Volume Count survey has been provided by the concessionaire of project highway from actual traffic data gathered at toll plaza locations based on monthly data shared with NHAI.

The vehicles can broadly be classified into fast moving / motorized and slow moving / non-motorized vehicles, which can be further classified into specific categories of vehicles. The groupings of vehicles are further segregated to capture the tollable vehicle categories specifically and toll exempted vehicles are counted separately. The detailed vehicle classification system as per IRC: 64-1990 is given in table below

Table 3-2 : Vehicle Classification System

Vehicle Type	
Auto Rickshaw	
Passenger Car	Car, Jeep, Taxi & Van (Old / new technology)
Bus	Mini Bus
	Standard Bus
Truck	Light Goods Vehicle (LCV)
	2 – Axle Truck
	3 Axle Truck (HCV)
	Multi Axle Truck (4-6 Axle)
	Oversized Vehicles (7 or more axles)

Other Vehicles	Agriculture Tractor, Tractor & Trailer

Source - IRC: 64 – 1990

However, since project highway is currently under toll operation, the data collected is corresponding to category of tollable vehicles. Following are the type of vehicles as per concession agreement.

- Car / Jeep / van
- Min Bus /LCV
- Bus
- Truck
- 3-Axle
- Multi Axle

3.3 Traffic Characteristic

Toll revenue of project highway does not solely depend on traffic volume. There are certain characteristics of traffic which have substantial potential to affect toll collection. Component of local traffic, component of passenger and commercial traffic, portion of return journey traffic, % of monthly pass traffic are some of such characteristics of traffic. These will be discussed in subsequent sections of report.

3.3.1 Traffic Data

Project concessionaire has provided Traffic data for base Year 2022-23 (from April 2022 to September 2022) as under for both toll plazas–

Table 3-3 : Traffic Data at Dankuni Toll Plaza at Km 646.005

Sr. No	Type of Vehicle	Average Daily Traffic April-2022 to Sept 2022
1	CAR	10378
2	LCV	1504
3	BUS	776
4	Truck	4147
5	3-Axle	3403

6	Multi Axle	8626
7	Oversize Vehicle	3
	Total	**28836**

Pandemic of COVID-19 (Corona Virus) has impacted entire world. Taking precaution, government of India announced a complete lockdown in last of March 2020 and traffic on highways was stopped which was eased out progressively later. Traffic on project corridor is recovering at good rate but still traffic numbers had effect of Pandemic. There after India was hit by Covid-19 second and third wave in February 21 to July -21 and December 21 to March-22. Recovering traffic pattern was somewhat again disturbed due to second and third wave of Covid-19. Traffic has almost recovered from Covid -19 impact as of now.

This data was then bifurcated to various components like through local, monthly, return journey etc category. Same is discussed in detail in following section.

3.4 Data Analysis

3.4.1 Analysis of Traffic Volume Count

Understanding the character of existing traffic forms the basis of the traffic forecast. The various vehicle types having different sizes and characteristics can be converted into a single unit called Passenger Car Unit (PCU). Passenger Car equivalents for various vehicles are adopted based on recommendations of Indian Road Congress prescribed in "IRC-64-1990: Guidelines for Capacity of Roads in Rural areas". The adopted passenger car unit values (PCU) are presented in ***Table* 3-4.**

Table 3-4 : PCU Factors Adopted for Study

Vehicle Type	PCUs
Car	1.0
Mini Bus	1.5
Standard Bus	3.0
LCV/LGV	1.5
2 Axle Truck	3.0
3 – 6 Axle Truck	4.5

MAV	4.5
Auto Rickshaw	1.0
Van/Tempo	1.0
Agriculture Tractor with Trailer	4.5
Agriculture Tractor without Trailer	1.5

Source: IRC: 64-1990

Traffic volume at each toll plaza was converted to PCU and same is presented as under

Table 3-5 : Traffic in PCU at Project Stretch Base Year 2022-23

Year	Toll Plaza Location (Km)	Traffic No	PCU	PCU Index
2022-2023	Dankuni Km 646.005	28836	76440	2.65

It can be observed from above that project traffic has PCU index More than 2.5 at Dankuni which is an indicator of high proportion of commercial traffic in traffic mix.

3.4.2 Components of Traffic

As discussed previously, components of traffic volume play an important role in determining project revenue. A larger component of commercial traffic with higher axle configuration adds to project revenue positively. Similarly, a larger component of local traffic affects the project revenue potential negatively.

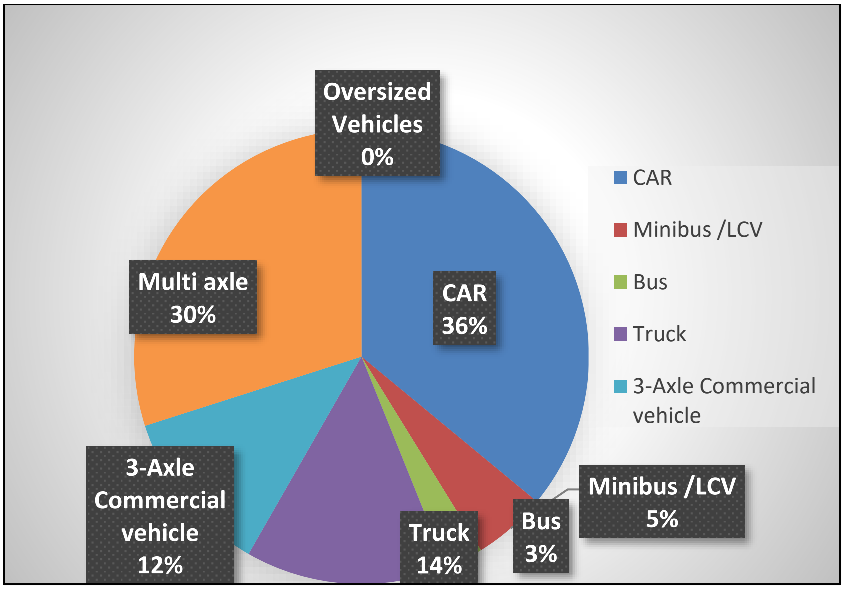


Figure 3-1 :Model Split of Tollable Vehicle-Dankuni Km 646.005

It is observed that car traffic forms about 36% of total traffic at Dankuni toll plaza location while multi axle commercial vehicles and trucks are about 64% of total traffic.

Another important bifurcation of traffic is components of traffic with respect various type of toll ticketing like

1. Single Journey
2. Multi Journey
3. Monthly Pass (Local and General)

The following table provides numbers of vehicles falling in each of above category on base year 2022-23

Table 3-6 : Journey Type Bifurcation of Traffic at Dankuni Toll Plaza KM 646.005

Sr. No	Type	Traffic Volume (Nos.)
		2022-23
1	Single Journey	14092
2	Return Journey	14740
3	Local Commercial Single Journey	0
4	Monthly Pass Local	5
5	Monthly Pass	0

Most dominant part of the above is the single journey type followed by return journey at project stretch. Monthly pass commuters are a very low fraction of the total traffic on the project corridor.

The single journey component in total traffic numbers is a high as 49%. Return journey component is 51%. The number of monthly pass is 0% at Dankuni toll plaza. This indicates higher share of long traffic.

It is observed that the project corridor demonstrates a similar pattern of single journey dominated mix of traffic across the entire stretch which is typical of major national highways.

3.5 Secondary Data Collection

There are several other factors which have a substantial impact on traffic pattern and growth on any project corridor. Following are some of such important factors

- Industrial development around project corridor and its catchment
- Educational infrastructure along project corridor
- Demographic pattern
- Urban area development
- Tourism potential
- Upcoming major infrastructural or Industrial projects
- Special Industry in project corridor
- Overall trends of economic growth local as well as national / regional

Hence in addition to traffic details on project site, secondary data was also collected from various other sources. Typical secondary data includes the following:

1. Vehicle registration data of regional and national level.
2. Economic Data
   a) GDP
   b) NSDP
   c) Population Growth
   d) Per Capita Income growth
   e) Industrial Growth
   f) Special Industry Potential
   g) Regional and National development vision / plan
   h) Any other relevant data
3. Competing road network

We have collected and utilized such underlying data in the study to estimate the growth and risk factors for traffic along the project corridor.

CHAPTER 4

INFLUENCE ZONE TRANSPORT NETWORK ANALYSIS

4.1 Introduction

Highway corridors behave like integrated circuit network and more often than not every road is connected to various networks having different origin and destinations. Traffic running on these networks behave like fluid and flow on network on alignment of least friction.

Following Factors can be considered as major contributors to friction on transportation network

- Travel Speed / Travel Time
- Geometric deficiencies like blind horizontal curves and steep vertical gradients etc.,
- Configuration of road
- Riding quality
- Traffic delays,
- Length of road,
- Passing through built up or Urban Area,
- Terrain,
- Facilities,

4.2 Competing / Alternate route

Project stretch from Palsit to Dankuni is part of Golden Quadrilateral connecting four metros of India which has been widened to four lane in year 2005. Part of stretch, from Palsit to Dankuni, known as Durgapur Expressway, was constructed at different alignment to the east of old NH-2. Old NH-2, still known as GT road passes through congested built up areas like Memari, Boinchi, Saptagram etc. It has number of level rail crossings as well. Thus, traffic at project stretch is settled and as such has not much scope of diversion.

There are few alternate routes to project stretch. These are discussed in subsequent sections including their potential impact on project traffic.

Old NH-2 (GT Road)

Between Palsit and Dankuni old NH-2 is an available alternate route to project stretch (Durgapur Expressway). Following figure show both Durgapur Expressway and GT road.

Figure 4-1 Project stretch and alternate GT Road

GT road passes through congested locations and is two lane currently in most of the stretch.

Following figure shows typical condition of GT road as compared to project stretch.

Figure 4-2 Project stretch and alternate GT Road Condition

There are as many as 5 level crossings on GT road which cause traffic congestion. Following figure show one such typical crossing.

Figure 4-3 Railway level crossing at GT road

Following table shows comparison of length and travel time via both project stretch and old GT road between Bardhman and Dankuni.

Table 4-1 Project Road and GT road comparison

Route	Distance (Km)	Time (Min)	Remarks
Bardhman -Kolkata Via Old NH-2 GT Road	102	141	Road is two lane in most places and passes through congested built up areas (Alikhoja, Memari, Boinchi, Saptagram) and 7 level crossings.
Bardhman -Kolkata Via Project Road	**84**	**79**	**Preferred Route**

Project road is quite short and saves lot of time. It such case any material shift of traffic from project stretch to old GT road is not envisaged.

B. Toll Plaza Local Leakage Roads

As such leakage roads are not there at toll plazas but there can be a longer detour to avoid toll plaza. Following figure show location and alignment of these roads at Dankuni Toll plaza.

Figure 4-4 Local roads bypassing toll plaza

At **Dankuni Toll Plaza,** there can be one alternate route via Singur- Baidyavati (Tarkeshwar) – Dankuni. Link from Singur to old Delhi road is intermediate/ two lane. It's quite congested and geometrically very poor. Moreover, this road is used by pilgrims to reach famous Tarkeshwar temple of Lord Shiva. Almost all through the year people walk in large groups on the way to Tarkeshwar. Major concentration of this Yatra is in month of February to March and July- August. Following figure show typical condition of this link.

Old GT Road from Tarkeshwar to Dankuni in under widening to four lane. There is one ROB under construction. Toll plaza is also under construction at GT Road. Following figures show under construction ROB and Toll Plaza at GT Road.

Figure 4-5 ROB & Toll Plaza under construction

Following table provides comparison between project road and this alternate route around Dankuni toll plaza.

Table 4-2 Length time comparison of alternate route at Dankuni Toll

Route	Distance (Km)	Time (Min)	Remarks
Via Singur - Delhi Road (Old NH02)	27	41	From Singur to NH-2 road is intermediate lane and congested. Delhi road under four laning. Toll plaza under construction

Via Project road (Dankuni)	**21.4**	**24**	**Preferred Route**

Between Singur and Kolkata- Road from Singur to Old NH-2 is two lane and quite congested. Currently part of NH-2 is under 4 laning and there is no toll as of now. Already passenger vehicles are using. Heavy commercial traffic is not allowed on existing bridge. Hence when ROB will be opened to traffic, certain amount of commercial traffic may divert to alternate route of Singur- NH-2.

Part of alternate route is congested and there is habitation on both sides. Progress on ROB at GT road has been very slow which is further impacted by pandemic COVI-19. As the route is existing since long and traffic is settled on both project stretch and GT road, it is unlikely that any further diversion of passenger traffic would take place. After completion of six laning of project stretch some passenger traffic may also divert to project stretch due to better traffic conditions at project stretch. However same is ignored for current analysis and projections.

At present heavy commercial traffic is not allowed on existing ROB on NH-2 however light commercial traffic is using the same. Hence some part of above diversion has already taken place.

Geometrics and condition of road from Singur to GT road is not good but still some amount of commercial traffic may divert to old GT road after ROB at GT road is competed. Following table shows potential diversion of traffic commercial traffic is taken into consideration for projection of traffic. Considering the above facts following diversion of commercial traffic has been assumed for traffic projections in 2025-26.

- Optimistic Case- 5%
- Most Likely Case- 10%
- Pessimistic Case- 15%

CHAPTER 5

GROWTH OF TRAFFIC ON PROJECT HIGHWAY

5.1 Introduction

Traffic growth is a function of the interplay of a number of contributory factors such as National economy, Government policy, socio-economic conditions of the people, and changes in land uses along the project corridor precincts etc. As these factors have a number of uncertainties associated with them, forecasts of traffic are dependent on the projections of other factors such as population, gross domestic product (GDP), vehicle ownership, per capita income (PCI), agricultural output, fuel consumption etc. Future pattern of change in these factors can be estimated with only a reasonable degree of accuracy and hence the resultant traffic forecast levels may not be precise.

Traffic growth forecast for project corridor Surat- Dahisar section of NH-8has been done taking the above factors into consideration. "**IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**" is established best practice and has been used for traffic growth forecast.

5.2 Trend Analysis

One of the methods of estimation of future rate of growth is to assume the same rate of growth as in the past. Although such a method is more suitable to projects of short durations say 5-10 years, however for long term projections it would-be erroneous to assume that the past rate of growth will continue to prevail for a long time in future. Economic conditions, which are major influencing factors, are bound to change over a long period of time. Thus, it would be necessary to modify the past trends of growth suitably.

Elasticity model of growth projection is one of the most widely acceptable methods for traffic forecast. The same is recommended in **IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**.

In this method the past trend of vehicular data is paired with an economic indicator and a regression analysis is done to yield the economic model of growth. Growth of vehicle traffic varies for different type of vehicle. It is a proven fact that the growth pattern for passenger and goods vehicle is different. Traffic growth on any highway

typically depends on number of economic parameters. Most important and direct parameters are given as under

- Per Capita Income
- Net State Domestic Product (NSDP)
- Population

It can be observed that the ownership of a car is more closely related to affordability; hence per capita is the index which closely fits the growth of car traffic among other criteria. In a similar fashion, the following can be pairs of vehicle type and independent variable for elasticity modeling of growth.

- Car / Jeep – Par Capita Income
- Bus / Minibus – Population
- Goods Vehicle – NSDP

5.3 Estimation of Traffic Demand Elasticity

Elasticity of traffic demand is defined as the rate at which traffic intensity varies due to a change in the corresponding indicator selected. Hence, in order to estimate the elasticity of traffic demand, it is necessary to establish relationship between the growth in number of given category of vehicles with the relevant economic variable considered, such as NSDP, per capita income and population growth. Latest available data for vehicle registration, per capita income, NSDP and population is used in analysis.

As per IRC: 108-1996 the model for estimating elasticity index for the project corridor is of the following form and is given as below:

$Log (P) = k \times Log (EI) + A$

Where,

P = *Number of Vehicles (Mode wise)*

EI = *Economic Indicator*

A = *Regression constant*

k = *Elasticity coefficient (Regression coefficient)*

The elasticity for car and bus (passenger vehicles) is calculated based on the Population and Per Capita Domestic Product (PCDP) and the elasticity for trucks is calculated based on the Net State Domestic Product (NSDP).

As observed in OD analysis, project stretch has share of traffic from mainly three states of West Bengal, Jharkhand and Bihar and some traffic from Uttar Pradesh and

Delhi. Hence regression of dependent variable and traffic has been done for these three states. Following tables and graphs present summary of elasticity model of growth for project corridor.

Table 5-1 : Per Capita Income Vs. Car- West Bengal

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2011	31314	610218	4.50	5.79		
2012	32164	695463	4.51	5.84	3%	
2013	34177	791069	4.53	5.90	6%	
2014	36293	829478	4.56	5.92	6%	
2015	38624	916475	4.59	5.96	6%	5.40%

Regression analysis of above is given in following figure

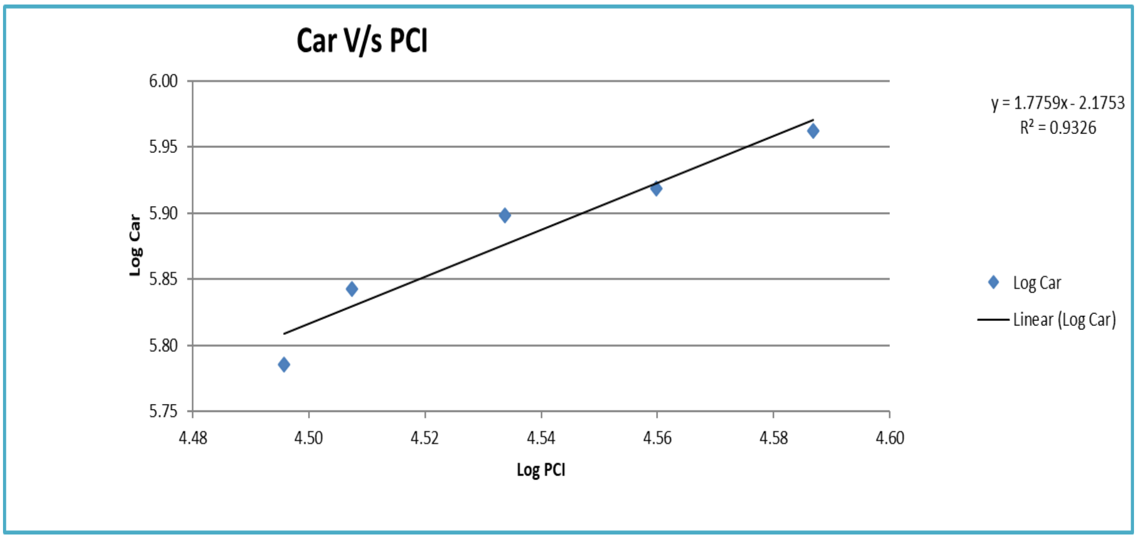


Figure 5-1 : Regression Analysis Car Vs. PCI West Bengal

Table 5-2 : NSDP Vs. Truck- West Bengal

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2011	27919100	285733	7.45	5.46		
2012	28943200	318573	7.46	5.50	4%	
2013	31033800	344816	7.49	5.54	7%	
2014	33242500	350565	7.52	5.54	7%	
2015	35684500	377636	7.55	5.58	7%	6.34%

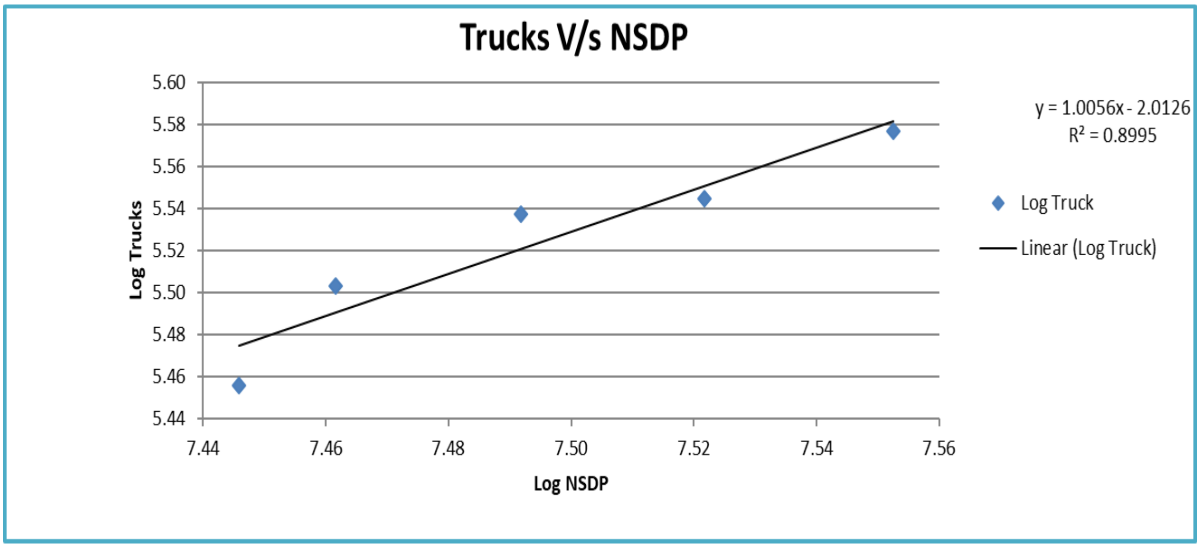


Figure 5-2 : Regression Analysis NSDP Vs. Truck West Bengal

Summary of regression analysis for elasticity and growth estimation for West Bengal are given in following table

Table 5-3 : Summary Regression Analysis- West Bengal

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average IV Growth (5yrs)	Growth Elastic Model	Remarks
West Bengal	Car/Jeep	PCI	y = 1.7759x - - 2.1753	R^2 = 0.9326	1.7759	5.40%	9.58%	Good Regression
	Bus	Population	y = 0.5092x - 0.5636	R^2 = 0.0364	0.5092	0.89%	0.46%	Poor Regression
	Truck	NSDP	y = 1.0056x - - 2.0126	R^2 = 0.8995	1.0056	6.34%	6.37%	Good Regression

Similarly, regression tables and graphs of economic model for Jharkhand are given as under.

Table 5-4 : Per Capita Income Vs. Car- Jharkhand

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2011	24330	317931	4.39	5.50		
2012	25265	360662	4.40	5.56	4%	
2013	27010	408016	4.43	5.61	7%	
2014	28882	461587	4.46	5.66	7%	
2015	30950	522192	4.49	5.72	7%	6.2%

Regression analysis of above is given in following figure

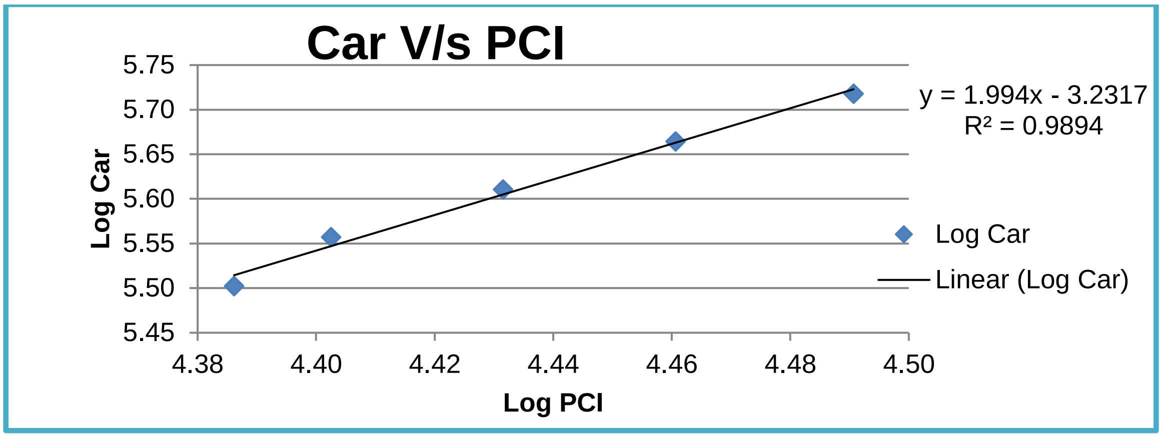


Figure 5-3 : Regression Analysis Car Vs. PCI Jharkhand

Table 5-5 : Population Vs. Bus- Jharkhand

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2011	31292000	12847	7.50	4.11		
2012	31726000	13561	7.50	4.13	1%	
2013	32159000	14189	7.51	4.15	1%	
2014	32588000	14846	7.51	4.17	1%	
2015	33020000	15534	7.52	4.19	1%	1.35%

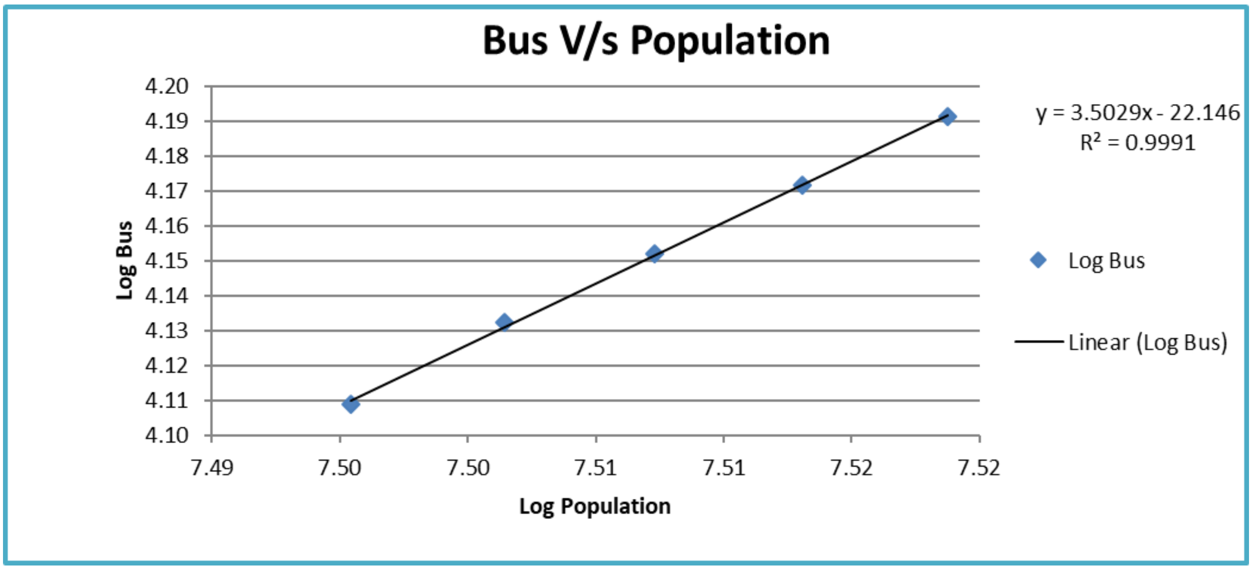


Figure 5-4 : Regression Analysis Population Vs. Bus Jharkhand

Table 5-6 : NSDP Vs. Truck- Jharkhand

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2011	76134	100257	4.88	5.00		
2012	80157	107769	4.90	5.03	5%	
2013	86861	114903	4.94	5.06	8%	
2014	94121	121031	4.97	5.08	8%	
2015	102196	127374	5.01	5.11	9%	7.65%

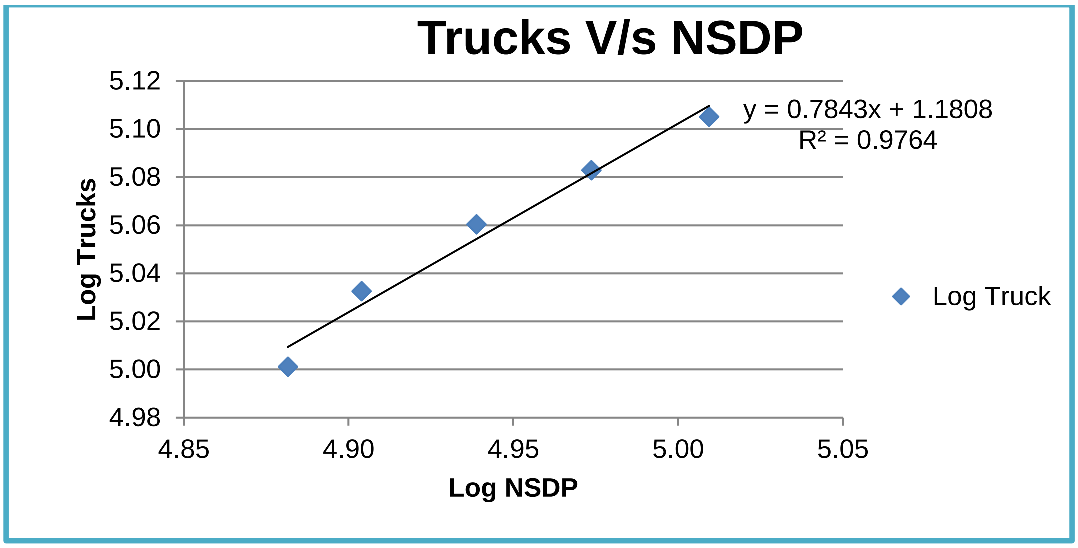


Figure 5-5 : Regression Analysis NSDP Vs. Jharkhand

Summary of regression analysis for elasticity and growth estimation for Jharkhand are given in following table

Table 5-7 : Summary Regression Analysis- Jharkhand

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average IV Growth (5yrs)	Growth Elastic Model	Remarks
JHARKHAND	Car/Jeep	PCI	y = 1.994x - -3.2317	R^2 = 0.9894	1.9940	6.21%	12.38%	Good Regression
	Bus	Population	y = 3.5029x - -22.1461	R^2 = 0.9991	3.5029	1.35%	4.74%	Good Regression
	Truck	NSDP	y = 0.7843x - 1.1808	R^2 = 0.9764	0.7843	7.65%	6.00%	Good Regression

Similar analysis for state of Bihar is presented in table and regression graphs given below.

Table 5-8 : Per Capita Income Vs. Car- Bihar

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2011	12090	136845	4.08	5.14		
2012	13149	160340	4.12	5.21	9%	
2013	14356	184792	4.16	5.27	9%	
2014	15506	208205	4.19	5.32	8%	
2015	16801	235762	4.23	5.37	8%	8.6%

Regression analysis of above is given in following figure

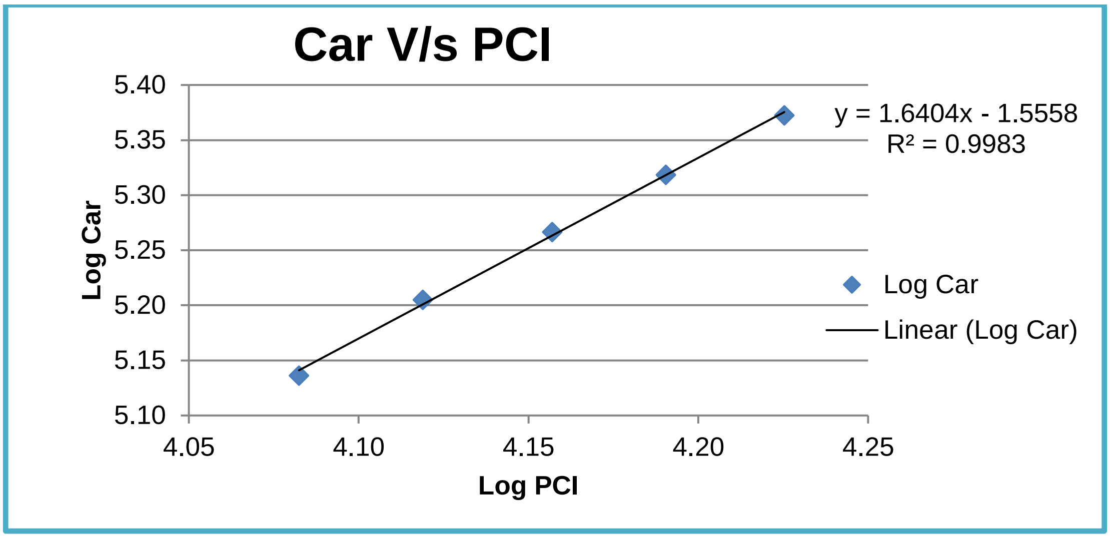


Figure 5-6 : Regression Analysis Car Vs. PCI Bihar

Table 5-9 : Population Vs. Bus- Bihar

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2011	104099452	22703	8.02	4.36		
2012	106763632	24097	8.03	4.38	3%	
2013	109441349	25992	8.04	4.41	3%	
2014	112131327	27638	8.05	4.44	2%	
2015	114832300	29384	8.06	4.47	2%	2%

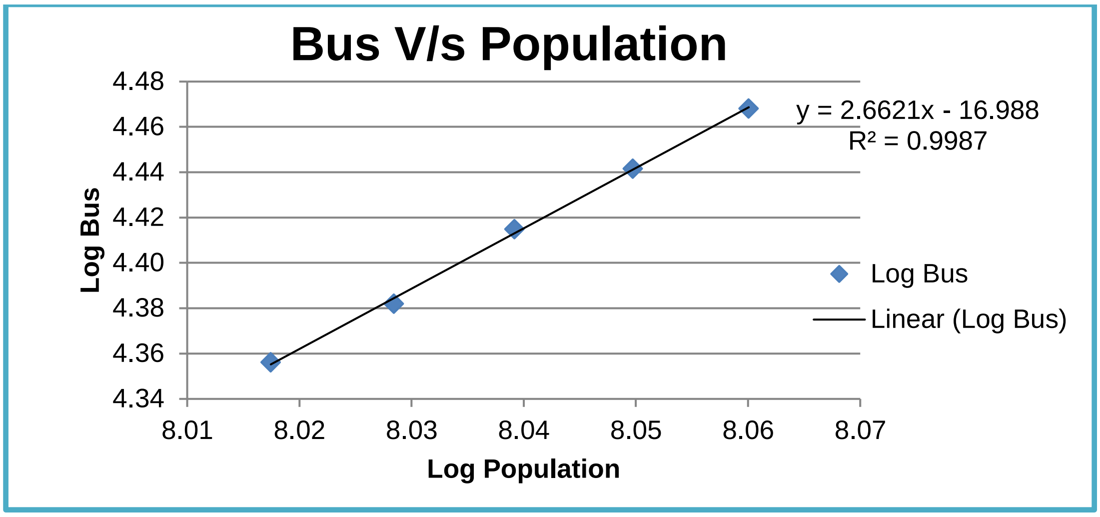


Figure 5-7 : Regression Analysis Population Vs. Bus Bihar

Table 5-10 : NSDP Vs. Truck- Bihar

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2011	11750314	73472	7.07	4.87		
2012	12952142	83191	7.11	4.92	10%	
2013	14324962	103211	7.16	5.01	11%	
2014	15667055	109010	7.19	5.04	9%	
2015	17180244	123744	7.24	5.09	10%	10%

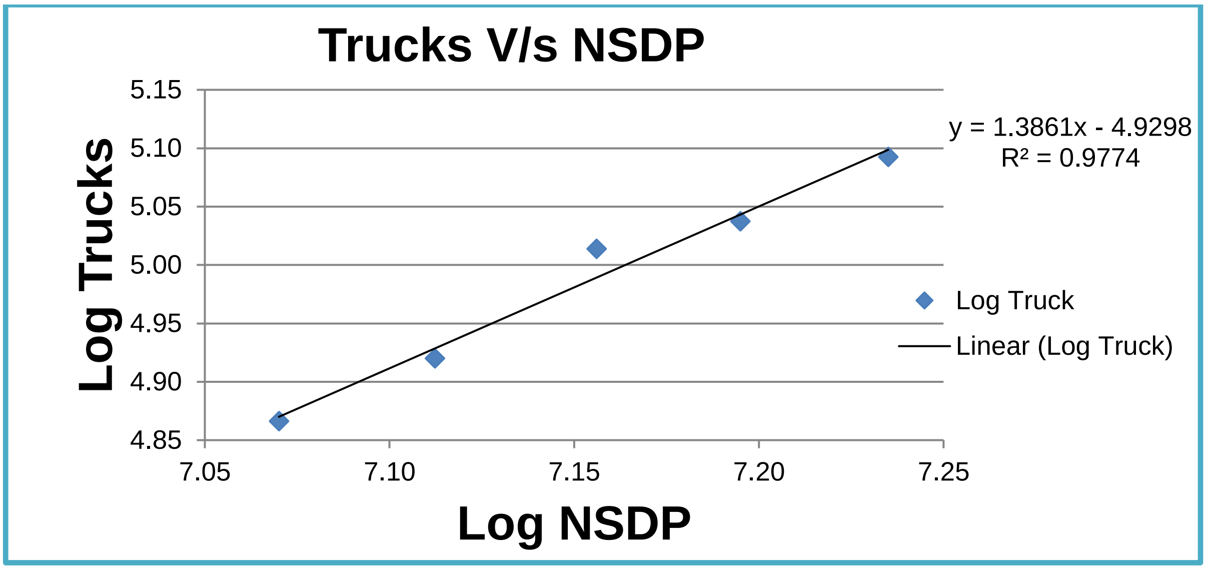


Figure 5-8 : Regression Analysis NSDP Vs. Truck Bihar

Summary of regression analysis for elasticity and growth estimation for Biharis given in following table

Table 5-11 : Summary Regression Analysis- Bihar

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average IV Growth (5yrs)	Growth Elastic Model	Remarks
BIHAR	Car/Jeep	PCI	y = 1.6404x - - 1.5558	R^2 = 0.9983	1.6404	8.58%	14.07%	Good Regression
	Bus	Population	y = 2.6621x - - 16.988	R^2 = 0.9987	2.6621	2.48%	6.61%	Good Regression
	Truck	NSDP	y = 1.3861x - - 4.9298	R^2 = 0.9774	1.3861	9.96%	13.81%	Good Regression

Table 5-12 : Per Capita Income Vs. Car- Uttar Pradesh

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2011	17388	984937	4.24	5.99		
2012	18014	1108100	4.26	6.04	4%	
2013	18635	1205374	4.27	6.08	3%	
2014	19233	1423020	4.28	6.15	3%	
2015	20057	1572217	4.30	6.20	4%	4%

Regression analysis of above is given in following figure

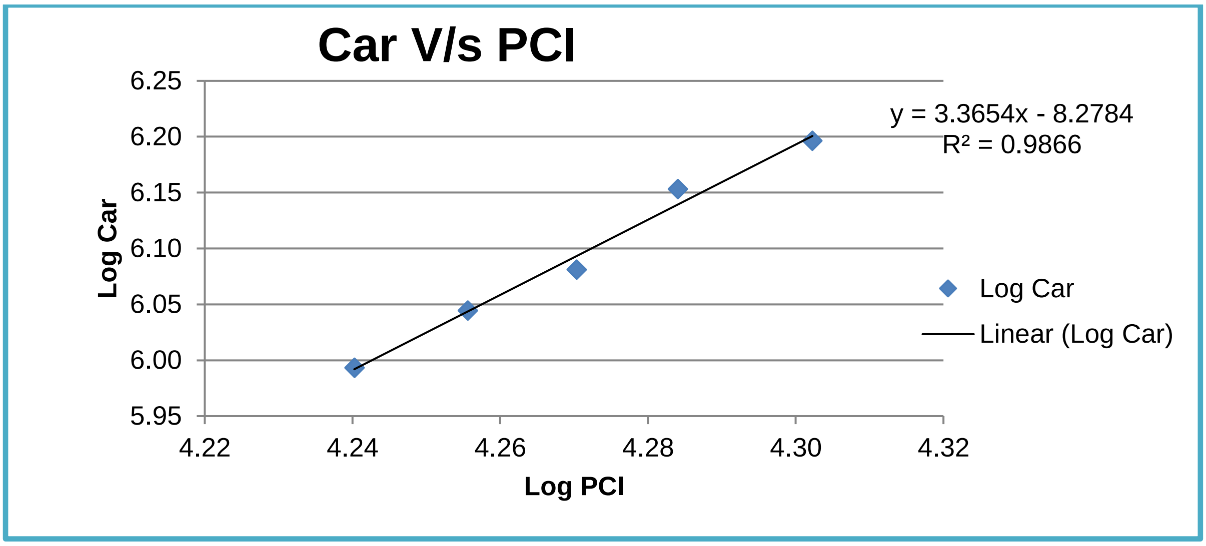


Figure 5-9 : Regression Analysis Car Vs. PCI Uttar Pradesh

Table 5-13 : Population Vs. Bus- Uttar Pradesh

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2011	199812341	31922	8.30	4.50		
2012	203382046	34428	8.31	4.54	2%	
2013	206942855	40501	8.32	4.61	2%	
2014	210493544	45607	8.32	4.66	2%	
2015	214032922	51866	8.33	4.71	2%	2%

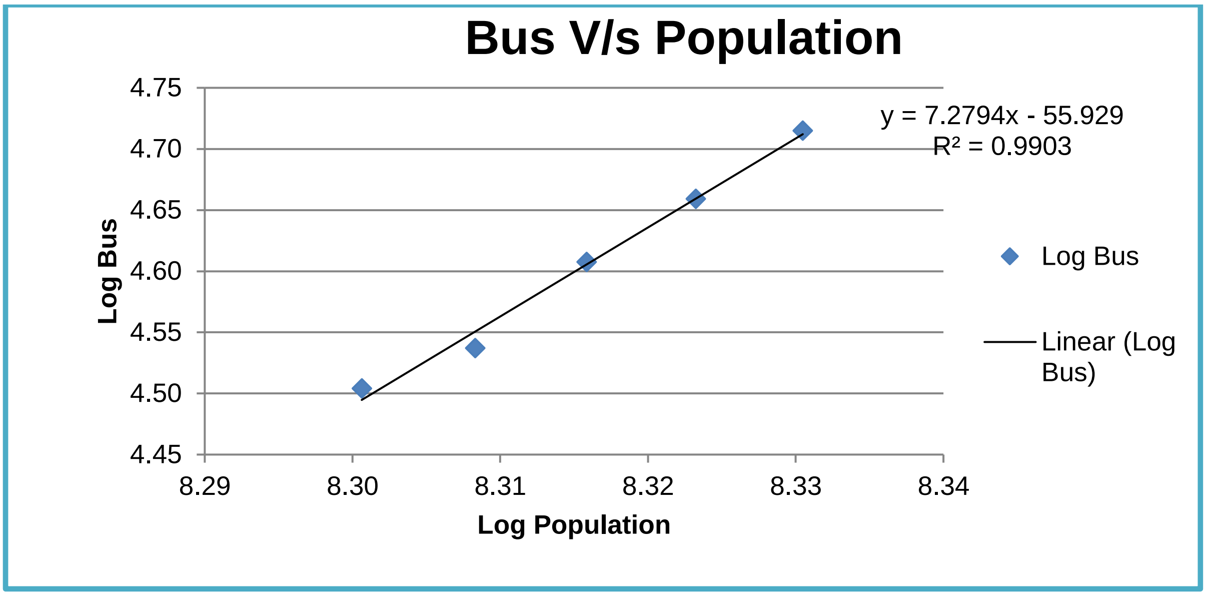


Figure 5-10 : Regression Analysis Population Vs. Bus Uttar Pradesh

Table 5-14 : NSDP Vs. Truck- Uttar Pradesh

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2011	34662085	307058	7.54	5.49		
2012	36537453	338977	7.56	5.53	5%	
2013	38445814	400061	7.58	5.60	5%	
2014	40350882	467786	7.61	5.67	5%	
2015	42775892	511631	7.63	5.71	6%	5%

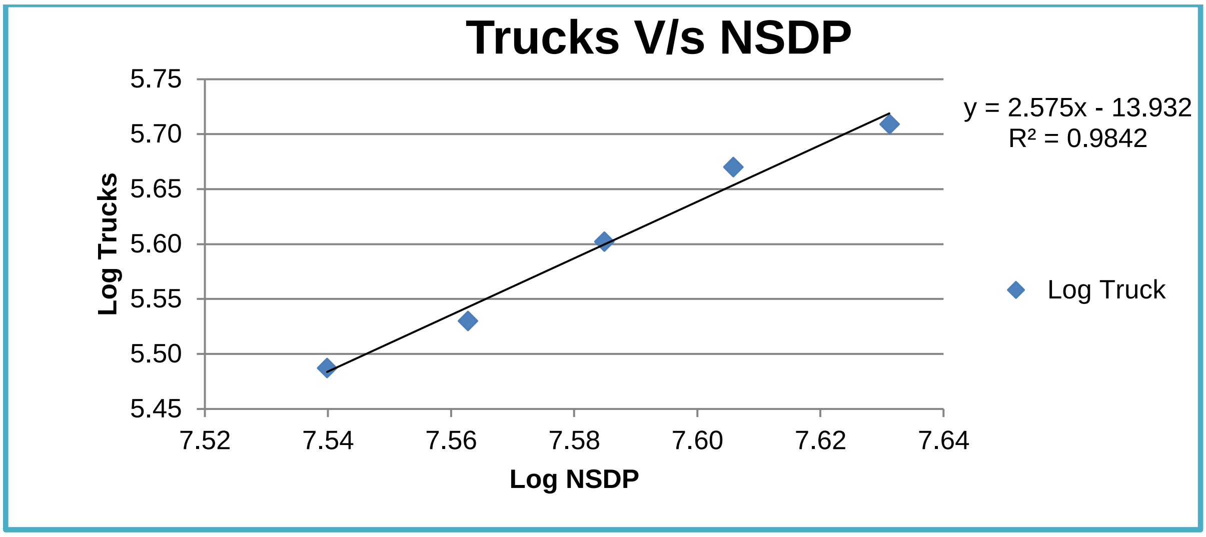


Figure 5-11 : Regression Analysis NSDP Vs. Truck Uttar Pradesh

Summary of regression analysis for elasticity and growth estimation for Uttar Pradesh are given in following table

Table 5-15 : Summary Regression Analysis- Uttar Pradesh

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average IV Growth (5yrs)	Growth Elastic Model	Remarks
Uttar Pradesh	Car/Jeep	PCI	y = 3.3654x - -8.2784	R^2 = 0.9866	3.3654	3.64%	12.23%	Good Regression
	Bus	Population	y = 7.2794x - -55.9289	R^2 = 0.9903	7.2794	1.73%	12.62%	Good Regression
	Truck	NSDP	y = 2.575x - -13.9315	R^2 = 0.9842	2.5750	5.40%	13.90%	Good Regression

Table 5-16 : Per Capita Income Vs. Car- Delhi

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2011	103619	2258434	5.02	6.35		
2012	106677	2303052	5.03	6.36	3%	
2013	112441	2497167	5.05	6.40	5%	
2014	118411	2691282	5.07	6.43	5%	
2015	124698	2859620	5.10	6.46	5%	5%

Regression analysis of above is given in following figure

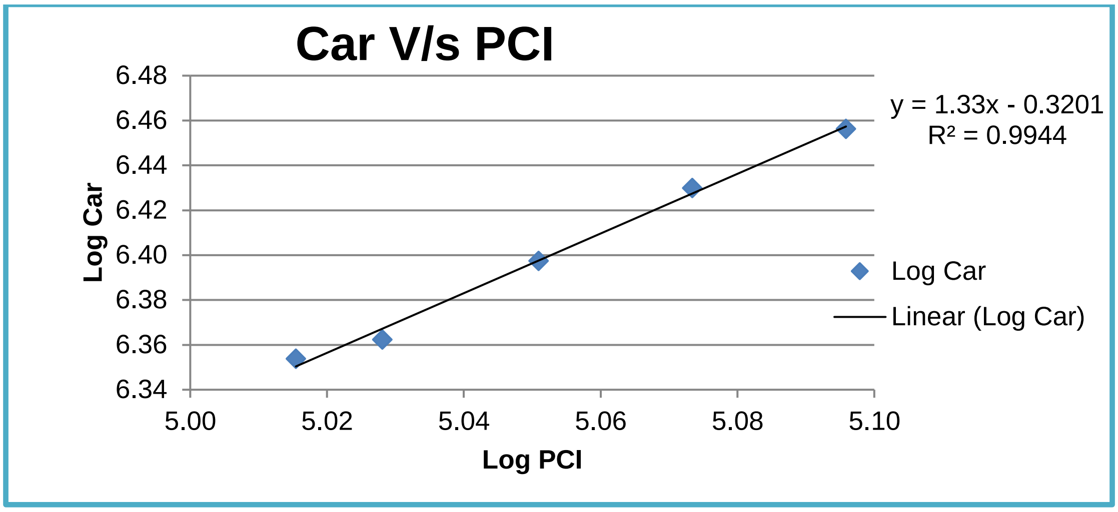


Figure 5-12 : Regression Analysis Car Vs. PCI Delhi

Table 5-17 : Population Vs. Bus- Delhi

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2011	16622000	135125	7.22	5.13		
2012	16941000	137310	7.23	5.14	2%	
2013	17266000	139495	7.24	5.14	2%	
2014	17597000	141680	7.25	5.15	2%	
2015	17934000	143865	7.25	5.16	2%	1.92%

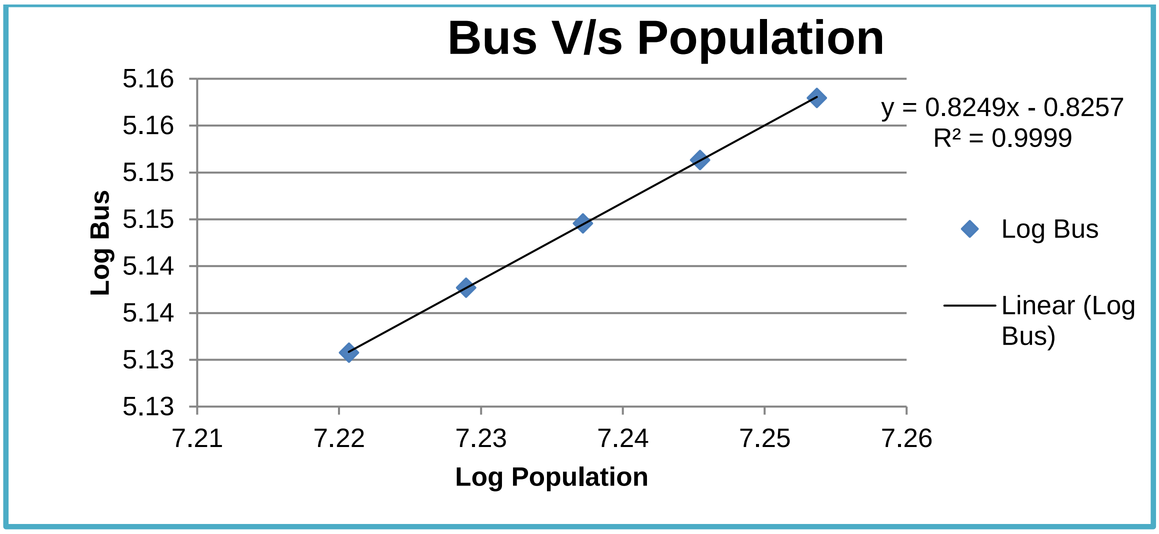


Figure 5-13 : Regression Analysis Population Vs. Bus Delhi

Table 5-18 : NSDP Vs. Truck- Delhi

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2011	17223524	86301	7.24	4.94		
2012	18072223	87166	7.26	4.94	5%	
2013	19414032	88031	7.29	4.94	7%	
2014	20836819	88896	7.32	4.95	7%	
2015	22562961	89761	7.35	4.95	8%	7%

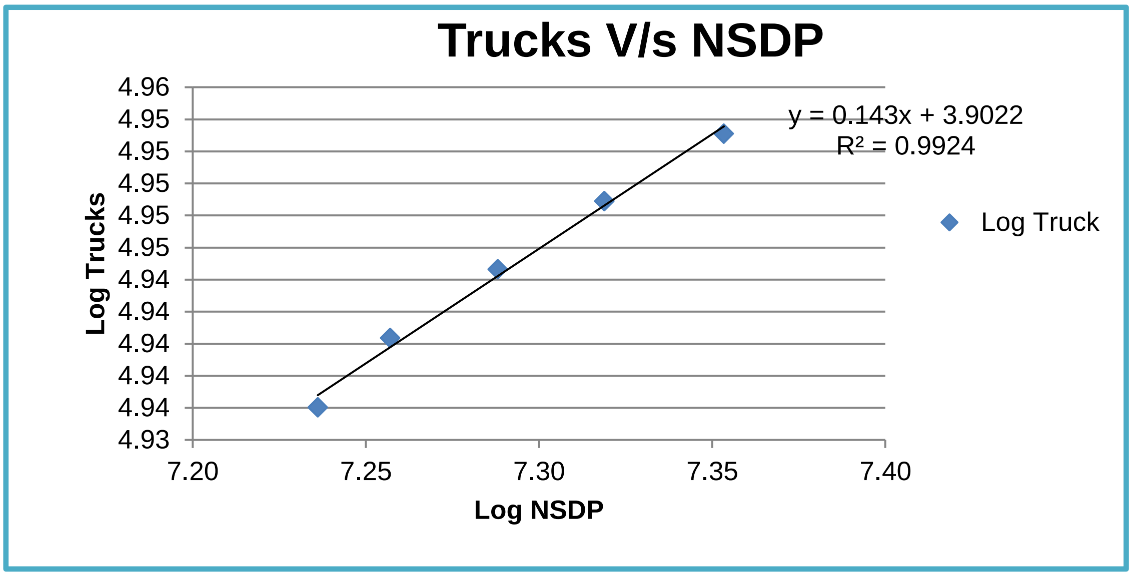


Figure 5-14 : Regression Analysis NSDP Vs. Truck Delhi

Summary of regression analysis for elasticity and growth estimation for Delhi are given in following table.

Table 5-19 : Summary Regression Analysis- Delhi

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average IV Growth (5yrs)	Growth Elastic Model	Remarks
Delhi	Car/Jeep	PCI	y = 1.33x - - 0.3201	R^2 = 0.9944	1.3300	4.74%	6.31%	Good Regression
	Bus	Population	y = 0.8249x - -0.8257	R^2 = 0.9999	0.8249	1.92%	1.58%	Good Regression
	Truck	NSDP	y = 0.143x - 3.9022	R^2 = 0.9924	0.1430	6.99%	1.00%	Good Regression

Since most of the passenger traffic is from West Bengal and Jharkhand only hence growth from economical model is considered only from these states.

For commercial traffic weighted impact of these states in ratio of their respective share is considered

5.4 Analysis of Historic Traffic Data

Historical traffic data forms useful information for any highway project. It provides useful information for establishing past trend of growth. Project stretch of Agra to Etawah has recently been commissioned and is under tolling operation since 2022 with concessionaire. Hence, we do not have sufficient data points to be able to establish a reliable past trend of traffic growth. Moreover part two years traffic is affected by COVID-19 impact. A minimum of about 5 -6 years' traffic data is required for establishing a reliable past trend.

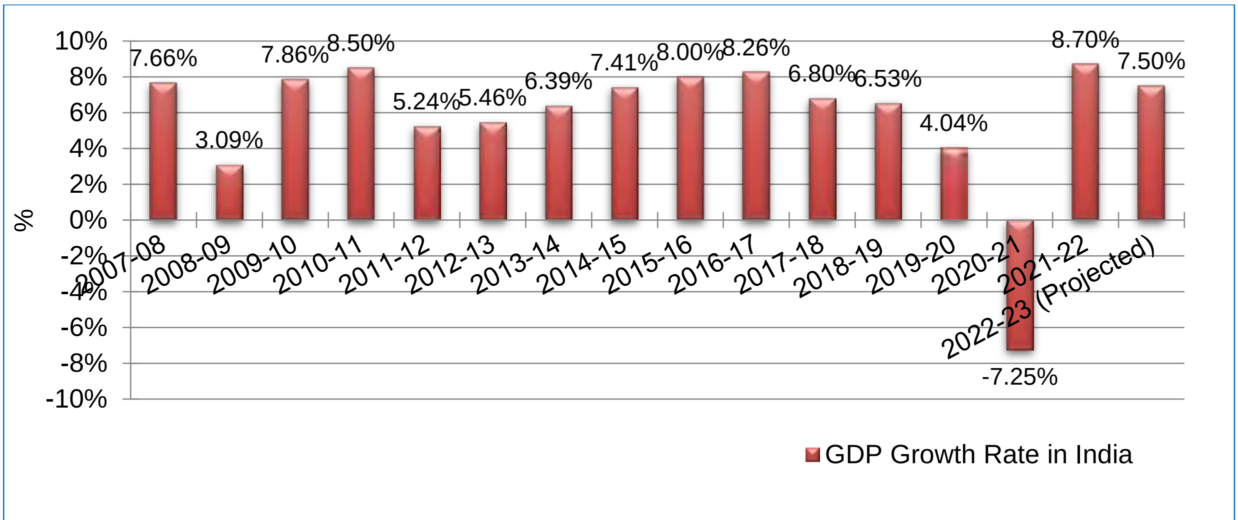
5.5 Other Factors Influencing Growth

There There are many factors which have impact on traffic growth. As discussed previously these factors can be economic, social, educational, and industrial.

Potentiality of such factors for project highway is discussed as under.

ECONOMY

After witnessing a slowdown during 2011-12, the economy recovered in 2013-14, and a high growth rate of GDP was recorded in up to 2018-19. Pandemic of COVID-19 impacted all economies of world including India. Following figure show trend of GDP growth in India.



Source: RBI - Macro Economic Indicators & World Economic Outloook Update Jan 22

Figure 5-15 : Growth of GDP in India

FY 2017-18 recorded a growth of 6.7% which had slight impact of GST and demonetization. Indian economy appears on recovery path with estimated growth of

6.8% in FY 2018-19. Government took major policy decision including tax infrastructure reforming, banking sector improvement and ease of doing business.

Major economies of world collapsed due to pandemic COVID-19 including India. Indian economy is also registered negative growth in financial year 2020-21. After that Indian economy recovered handsomely and registered a growth of about 9% in Year 2021-22. This was partly due to low base of year 2020-21 as well.

Honorable Prime Minister has announced a major relief package of Rs. 20 lakh crores which is about 10% of GDP. This is aimed at turning this major crisis of COVID-19 into opportunity by providing major impetus to industrial production to the limit of becoming a self-reliant economy. With major thrust of this package being on **Make -In- India** it is expected that industry in India would grow at rapid pace and recover handsomely in post COVID-19 scenario. World Economic Outlook update also has predicted a growth rate of about 7.5 % in next year 2022-23

5.6 Developments along and around the Project Corridor & State

Project stretch falls in one of the most mineral rich area of India. Major Industries are developed for extraction of minerals and related manufacturing. Following are some major industrial establishments and areas in PIA

Howrah - Often termed as Sheffield of the East, Howrah is known as an engineering hub, mainly in the area of light engineering industry. In 1823, Bishop Reginald Heber described Howrah as the place "chiefly inhabited by shipbuilders". There are small engineering firms all over Howrah, particularly around Belilios Road area near Howrah station. There are many foundries in Liluah area.

Burn Standard Company, a major company in heavy engineering industry, has its oldest manufacturing unit located in Howrah. The Howrah plant of Shalimar Paints (established in 1902) was the first large-scale paint manufacturing plant to be set up not only in India but in entire South East Asia. The jute industry suffered during the Partition of Bengal (1947), when the larger jute production area became part of East Pakistan (now Bangladesh). The foundry industry saw a decline in demand due to growth in steel industry. Still Howrah us major industrial hub in area and Howrah being major terminal on Delhi – Kolkata rail attracts lot of goods movement.

Bardhman - Burdwan was one of the premier districts in India in terms of minerals. The Raniganj coalfield was the birthplace of the Indian coal industry. Besides coal, important minerals found in the district are iron ores, calcium carbonate, abrasives, silica bricks and molding sands, glass sands, building materials, manganese, bauxite, laterite etc. Chittaranjan Locomotives, Bengal Iron Works, IISCO- India Iron and Steel Co are some of major industrial establishments in district.

Dhanbad - Dhanbad have one of the oldest markets of region and is also a hotbed of large-scale industries. It is famous for its coal mines and industrial establishments; the city is surrounded by about 112 coal mines with a total production of 27.5 million tonnes and an annual income of 7000 million rupees through coal business. There are a number of coal washeries present there. BCCL have it headquarter in Dhanbad and SAIL, Tata Steel and Eastern Coalfields (at Mugma) also operates their mines. Om Besco Rail Products.Ltd, a public limited rail wagon manufacturing company at Mugma, Hindustan Zinc Ltd (now Vendanta Resources) had a lead smelting pilot plant at Tundu, MaithonPower.Ltda J.V of Tata Power & DVC (first PPP project of India), HindusthanMalleables& Forgings Ltd, etc. are also operational in and around Dhanbad. Fertilizers Corporation of India (closed), Projects & Development IndiaLtd and ACC.Ltd at Sindri are also available and being one of the 5 divisions of South Eastern Railway zone, Indian Railways is also a big employer in Dhanbad. Also, Kandra Industrial Area at Gobindpur houses some small & middle scale industries

Durgapur- Durgapur is one of the biggest industrial hubs of India and was planned as an integrated industrial town. It lays on the banks of DamodarRiver and coalfields of Raniganj. Durgapur was a dream of former prime minister of India, Jawaharlal Nehru and chief minister of West Bengal, Bidhan Chandra Roy. The first project in Durgapur was Damodar Valley Corporation's Durgapur Barrage which attracted many public sector units. Durgapur Steel Plant was the first PSU established in the region in 1955 with the help of U.K which was later undertook by SAIL.

Durgapur Steel plant

Durgapur Steel Plant set up in late fifties is a leading producer of long products &only producer of Forged Railway Wheels & Axles in the country. Plant started production with an initial crude steel capacity of 1 MPTA (million ton per annum) in 1959, which has been progressively increased to 1.8 MTPA during the modernization in nineties and further to 2.2 MTPA during recently completed Modernization & Expansion Plan (MEP). The present Plant capacity is about 2.12 MTPA saleable steel.

Durgapur is also an emerging I.T and real estate hub has many proposed residential areas like DLF's Durgapur Township.

Kolkata - is the capital of the Indian state of West Bengal. According to the 2011 Indian census, it is the seventh most populous city in India; the city had a population of 4.5 million, while the suburb population brought the total to 14.1 million, making it the third-most populous metropolitan area in India. Kolkata Megalopolis is the area surrounding Kolkata Metropolitan city with additional population. Located on the east bank of the Hooghly River approximately 80 kilometres west of the border with Bangladesh, it is the principal commercial, cultural, and educational centre of East India, while the Port of Kolkata is India's oldest operating port and its sole major riverine port. The city nicknamed the "City of Joy" is widely regarded as the "cultural capital" of India and as of 2019, six Nobel Laureates have been associated with the city. Recent estimates of Kolkata Metropolitan Area's economy have ranged from $60 to $150 billion (GDP adjusted for purchasing power parity) making it the third most-productive metropolitan area in India, after Mumbai and Delhi. One end of project stretch at Dankuni is major gate to city from northern part of India.

Logistics and Warehousing–It is observed that as project stretch is the main connectivity between Kolkata and rest of India (specially north), there are large number of logistic and warehousing establishments on project stretch between Dankuni and Bardhman. Most computer companies have warehouses in Dankuni. As per a recent report an investment of Rs.4300 cr is expected in West Bengal by 2020 (May be delayed now due to COVID-19.)

5.7 Recommended Growth Rates of Traffic

Based on the above analysis and after giving due consideration to the entire listed factors, the following overall growth rates are recommended for each category of vehicle as under. Rate of growth is moderated in light of overall regional trend.

Growth of Multi-Axle is kept slightly higher as trend of technological advances in logistic industry favors multi-axle over 2/3 axle carriage. It is also expected that as the economy moves from developing to developed, rate of growth diminishes. Same growth rate is not sustainable for long. Traffic growth is suitably stepped down for future years.

Growth rates are recommended for three scenarios for sensitivity analysis namely **Optimistic, Pessimistic** and **Most Likely** with a positive and negative variation 0.5% from Most Likely case for corridor in both states.

5.7.1 Recommended Growth Rates of Traffic for Project Stretch

Table 5-20 : Recommended Growth Rates Optimistic

Category / Year	2020-2025	2025-2030	2030-2035	2035-2040	2039-2044	2044-2049
Car/Jeep/Van	9.39%	8.58%	5.99%	6.35%	5.18%	4.05%
Bus	5.69%	5.26%	4.81%	4.53%	4.21%	3.93%
Minibus	5.69%	5.26%	4.81%	4.53%	4.21%	3.93%
LCV	2.32%	2.11%	1.71%	1.32%	0.93%	0.55%
2- Axle	3.69%	3.34%	2.68%	2.03%	1.38%	0.75%
3 - Axle	5.41%	4.89%	3.89%	2.91%	1.95%	0.99%
4 to 6 Axle	6.45%	5.82%	4.62%	3.45%	2.29%	1.14%
7 and Above Axle	6.45%	5.82%	4.62%	3.45%	2.29%	1.14%

Table 5-21 : Recommended Growth Rates Pessimistic

Category / Year	2020-2025	2025-2030	2030-2035	2035-2040	2039-2044	2044-2049
Car/Jeep/Van	8.89%	8.08%	5.49%	5.85%	4.68%	3.55%
Bus	5.19%	4.76%	4.31%	4.03%	3.71%	3.43%
Minibus	5.19%	4.76%	4.31%	4.03%	3.71%	3.43%
LCV	1.82%	1.61%	1.21%	0.82%	0.43%	0.05%
2- Axle	3.19%	2.84%	2.18%	1.53%	0.88%	0.25%
3 - Axle	4.91%	4.39%	3.39%	2.41%	1.45%	0.49%
4 to 6 Axle	5.95%	5.32%	4.12%	2.95%	1.79%	0.64%

7 and Above Axle	5.95%	5.32%	4.12%	2.95%	1.79%	0.64%

Table 5-22 : Recommended Growth Rates Most Likely

Category / Year	2020-2025	2025-2030	2030-2035	2035-2040	2039-2044	2044-2049
Car/Jeep/Van	9.14%	8.33%	5.74%	6.10%	4.93%	3.80%
Bus	5.44%	5.01%	4.56%	4.28%	3.96%	3.68%
Minibus	5.44%	5.01%	4.56%	4.28%	3.96%	3.68%
LCV	2.07%	1.86%	1.46%	1.07%	0.68%	0.30%
2- Axle	3.44%	3.09%	2.43%	1.78%	1.13%	0.50%
3 - Axle	5.16%	4.64%	3.64%	2.66%	1.70%	0.74%
4 to 6 Axle	6.20%	5.57%	4.37%	3.20%	2.04%	0.89%
7 and Above Axle	6.20%	5.57%	4.37%	3.20%	2.04%	0.89%

Traffic and revenue have been worked out on the basis of above growths and same is presented in subsequent chapter of report.

5.8 COVID-19 Impact

All social and economic activities had been completely disrupted due worldwide pandemic of Corona Virus. This had affected traffic on project stretch as well. Traffic was severely affected form March-2020 due to lockdown and then in second wave and third waves.

Government has announced a mega economic stimulate and package of Rs. 20 Lakh Crore to bring the economy back on track and recover the losses. Traffic has shown impressive recovery post lockdown period and has recovered to normal level.

CHAPTER 6

TRAFFIC FORECAST

6.1 Traffic Projections

Growth rates recommended in previous section of report are used to arrive at traffic projections for future years. Toll plaza wise futuristic traffic projection is given in tables below.

These projections have been done for following three cases of growth up to concession period

1. Optimistic Scenario
2. Pessimistic Scenario
3. Most Likely Scenario

Table 6-1 : Total Tollable Traffic @ Toll Plaza Dankuni- Chainage 646.005 KM (Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2022-23	10378	1504	776	4147	3403	8626	3	28836	76440
2023-24	11352	1540	821	4300	3587	9182	3	30785	81119
2024-25	12418	1576	867	4125	3497	9041	3	31527	80946
2025-26	13483	1610	913	4263	3669	9567	3	33508	85498
2026-27	14639	1644	961	4405	3848	10124	3	35624	90319
2027-28	15894	1678	1012	4553	4036	10714	3	37890	95441
2028-29	17257	1714	1065	4705	4233	11338	3	40315	100872
2029-30	18737	1750	1121	4862	4440	11998	3	42911	106636
2030-31	19860	1780	1174	4993	4613	12553	3	44976	111372
2031-32	21049	1810	1231	5127	4792	13134	3	47146	116331
2032-33	22309	1841	1290	5264	4979	13742	3	49428	121522
2033-34	23645	1873	1352	5405	5173	14377	3	51828	126955
2034-35	25061	1905	1417	5549	5375	15041	3	54351	132640
2035-36	26652	1930	1481	5661	5532	15560	3	56819	137603
2036-37	28344	1955	1548	5775	5693	16096	3	59414	142770

Table 6-2 : Total Tollable Traffic @ Toll Plaza Dankuni- Chainage 646.005 KM (Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversize d Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2022-23	10378	1504	776	4147	3403	8626	3	28836	76440
2023-24	11300	1532	816	4279	3571	9139	3	30640	80735
2024-25	12304	1560	858	4085	3466	8956	3	31231	80184
2025-26	13298	1585	899	4201	3618	9432	3	33036	84287
2026-27	14371	1610	942	4321	3776	9933	3	34956	88615
2027-28	15532	1636	987	4444	3942	10461	3	37005	93193
2028-29	16787	1662	1034	4571	4115	11018	3	39190	98035
2029-30	18143	1689	1084	4701	4296	11604	3	41520	103151
2030-31	19139	1710	1130	4804	4441	12083	3	43310	107216
2031-32	20189	1731	1179	4909	4592	12582	3	45185	111458
2032-33	21297	1752	1230	5016	4748	13101	3	47147	115875
2033-34	22466	1773	1283	5125	4909	13642	3	49201	120479
2034-35	23699	1794	1339	5237	5075	14205	3	51352	125279
2035-36	25085	1809	1393	5317	5197	14624	3	53428	129341
2036-37	26552	1824	1449	5398	5322	15054	3	55602	133552

Traffic projections for Most Likely scenario are given as under

Table 6-3 : Total Tollable Traffic @ Toll Plaza Dankuni- Chainage 646.005 KM (Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2022-23	10378	1504	776	4147	3403	8626	3	28836	76440
2023-24	11326	1536	819	4290	3579	9161	3	30714	80932
2024-25	12361	1568	864	4105	3481	8999	3	31381	80572
2025-26	13390	1597	908	4232	3642	9500	3	33272	84895
2026-27	14505	1627	953	4363	3811	10030	3	35292	89475
2027-28	15712	1657	1000	4498	3988	10589	3	37447	94320
2028-29	17020	1688	1050	4637	4173	11179	3	39750	99451
2029-30	18437	1720	1102	4781	4367	11802	3	42212	104890
2030-31	19495	1745	1152	4897	4526	12318	3	44136	109282
2031-32	20614	1770	1204	5016	4691	12857	3	46155	113872
2032-33	21797	1796	1259	5138	4862	13420	3	48275	118672
2033-34	23049	1822	1316	5263	5039	14007	3	50499	123681
2034-35	24372	1849	1376	5390	5223	14619	3	52832	128912
2035-36	25859	1868	1434	5486	5362	15086	3	55098	133408
2036-37	27436	1888	1495	5583	5505	15569	3	57479	138091

6.2 Modification in Concession Period

As per Article 29 of the concession agreement, if actual traffic on the project falls short or exceeds Target Traffic on project highway on defined date, concession period shall be modified subject to calculation stipulated therein. For Palsit - Dankuni project three target traffic have been defined in Article 29.

Target Date - 1st May 2026 Target Traffic 65830

Target Date - 1st May 2031 Target Traffic 100822

Target Date - 1st May 2036 Target Traffic 130452

It was observed that as per traffic projections, average traffic volume exceeds target traffic in first two target points. Probable shortening of concession period is estimated according to Article 29 of concession agreement for all cases which comes to about 3 years.

Pessimistic

Sr. No	Target Date	Target Traffic	Actual Traffic	Variation in CP as per CA %	Change in CP (Days	Total Variation in CP Years
1	01-May-26	65830	84287	-20.00%	-944	**-2.7**
2	01-May-31	100822	107216	-1.34%	-39	
3	01-May-36	130452	129341	0.00%	0	

Optimistic

Sr. No	Target Date	Target Traffic	Actual Traffic	Variation in CP as per CA %	Change in CP (Days	Total Variation in CP Years
1	01-May-26	65830	85498	-20.00%	-944	**-3.0**
2	01-May-31	100822	111372	-5.46%	-158	
3	01-May-36	135758	137603	0.00%	0	

Most Likely

Sr. No	Target Date	Target Traffic	Actual Traffic	Variation in CP as per CA %	Change in CP (Days	Total Variation in CP Years
1	01-May-26	65830	84895	-20.00%	-944	**-2.9**
2	01-May-31	100822	109282	-3.39%	-98	
3	01-May-36	133090	133408	0.00%	0	

CHAPTER 7

FORECAST OF TOLL REVENUE

7.1 General

This chapter presents the tolling rate calculations, categories, and toll revenue of the project.

7.2 Discount Categories

The fee schedule in the CA of Surat-Dahisar section of NH-8 is based on the old toll policy. As per the Toll Notification (Schedule -G) the discounts and special provisions have been considered. In addition to discounts as per Fee Notification concessionaire has declared special category rates also. Salient features of toll rate structure are given as under

1. Monthly Pass: For frequent user's monthly pass would be issued at fee 50 time the single journey fee at 2/3rd Rate.
2. Multiple Journeys (for Return Trip): Will be charged at 1.5 times single journey.
3. Single Journey: Full single journey toll would be charged to this category of vehicles who are infrequent travelers or whose frequency does not yield any discount from the above categories.
4. Local Discounts: Local Car Jeep Van -Rs. 275 per month (for locals residing within a radius of 20 kms from toll plaza). Additionally, local commercial vehicles are charged at 50% rate of single journey.

Building of inflation and escalation of rate on the basis of WPI are done as per toll notification (Schedule G) as given under as extract from concession agreement.

The formula for determining the applicable rate of fee shall be as follows:-

$$\text{Applicable rate of fee} = \text{base rate} + \text{base rate} \times \left\{ \frac{\text{WPI A} - \text{WPI B}}{\text{WPI B}} \right\} \times 0.4$$

Factor of inflation / growth has been incorporated as per Schedule R. WPI numbers (2011-12 series) are available up to 2021-22. A moderate growth in Wholesale Price

Index (WPI) has been assumed after that. Following graph provides projection of rate of inflation (WPI) in India. Data has been taken from Office of Economic Advisor web site (www.eaindustry.nic.in). WPI for year 2017-18 and 2018-2019 is worked back by applying a correlation factor for 2004-05 series as 2017-18 and 2018-2019 data is available in 2011-12 series only. Ratio of WPI for year 2016-17 for both series is used for conversion of WPI in 2004-05 series

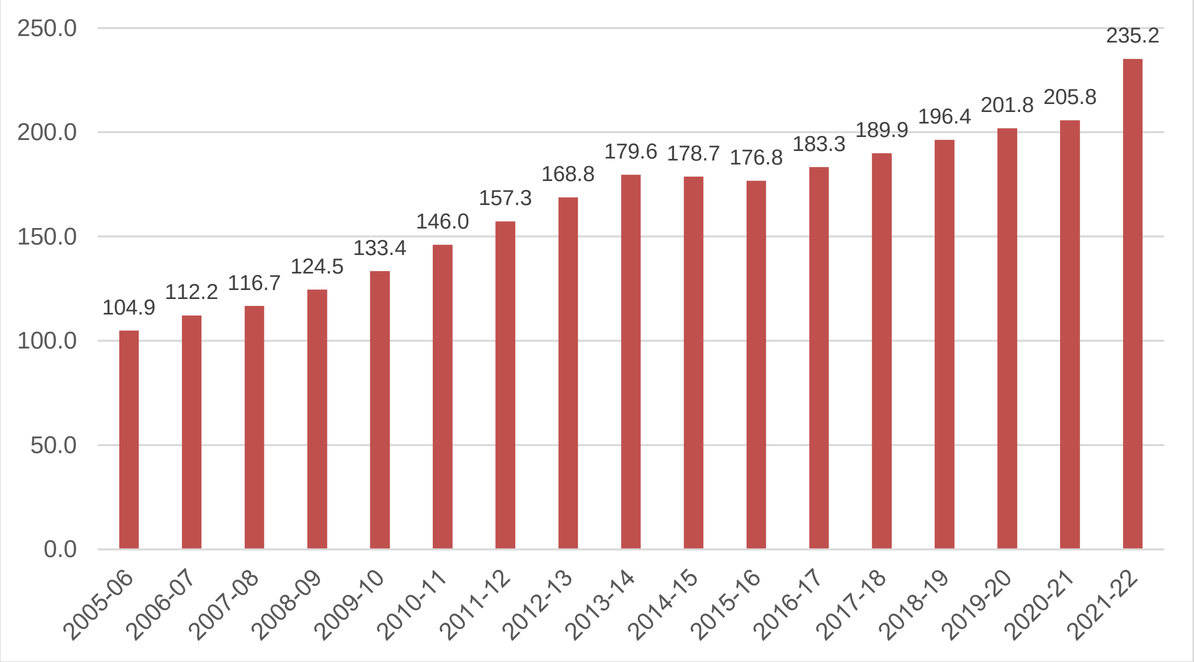


Figure 7-1 : Historical Rate of WPI Inflation in India

Average inflation in WPI in last few years is steadily growing. It grew in range of 4% - 5% in previous years. For future years initially it is takes 5% and Suitably Stepped down for future years.

Estimation of Toll Rates

As per the applicable MORTH notification and Schedule R of contract agreement, the following Base rate of fee for the categories mentioned in the table stands true in the National Highways Fee Rules applicable for contract.

Table 7-1 : Base Toll Rates June 2007-08

Type of Vehicle	Base Rate of Fee / Km (in Rs.)
Car, Jeep, Van or Light Motor Vehicle	0.65
Light Commercial Vehicle, Light Goods Vehicle or Mini Bus	1.05
Bus or Truck (Two Axles)	2.20
Three Axle Commercial Vehicles	2,40
Heavy Construction Machinery (HCM) or Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 axles)	3.45
Oversized Vehicles (7 or more Axles)	4.20

Toll rates are calculated as per guidelines provided in schedule R (rounded to nearest Rs.) for the concession period and are given below.

Thus, worked out rates for various categories of vehicle and discounts are given as under

Table 7-2 : Toll Rates for Single Journey Dankuni @ Km 646.005

Year	Car	Mini Bus /LCV	Bus	Truck	3-Axle Commercial Vehicle	Multi Axle	Oversized Vehicle
2022-23	75	120	250	250	270	390	475
2023-24	75	120	250	250	270	390	475
2024-25	75	120	250	250	270	390	475
2024-25	120	195	405	405	440	630	770
2025-26	125	195	405	405	445	635	770
2026-27	130	205	425	425	465	665	810
2027-28	135	215	450	450	490	700	850
2028-29	140	225	470	470	510	735	890
2029-30	150	240	490	490	535	770	935
2030-31	155	250	515	515	560	805	980
2031-32	165	260	540	540	590	845	1030
2032-33	170	275	565	565	620	885	1080
2033-34	180	285	595	595	650	930	1130
2034-35	190	300	625	625	680	975	1185
2035-36	200	315	655	655	715	1025	1245
2036-37	210	330	685	685	750	1075	1305

Table 7-3: Toll Rates for Return Journey Dankuni @ Km 646.005

Year	Car	Mini Bus /LCV	Bus	Truck	3-Axle Commercial Vehicle	Multi Axle	Oversized Vehicle
2022-23	110	175	370	370	405	585	710
2023-24	110	175	370	370	405	585	710
2024-25	110	175	370	370	405	585	710
2024-25	180	290	605	605	660	950	1155
2025-26	185	295	610	610	665	950	1155
2026-27	195	310	640	640	700	1000	1215
2027-28	205	325	670	670	730	1050	1275
2028-29	215	340	705	705	765	1100	1335
2029-30	225	355	740	740	805	1155	1400
2030-31	235	375	775	775	845	1210	1470
2031-32	245	390	810	810	885	1270	1540
2032-33	260	410	850	850	930	1330	1615
2033-34	270	430	895	895	975	1395	1695
2034-35	285	450	935	935	1020	1465	1780
2035-36	295	475	980	980	1070	1535	1865
2036-37	310	495	1030	1030	1125	1610	1960

Table 7-4: Toll Rates for Monthly pass Local Dankuni @ Km 646.005

Year	Car	Mini Bus /LCV
2022-23	315	315
2023-24	315	315
2024-25	315	315
2024-25	355	355
2025-26	355	355
2026-27	375	375
2027-28	395	395
2028-29	415	415
2029-30	435	435
2030-31	455	455
2031-32	475	475
2032-33	500	500
2033-34	525	525
2034-35	550	550
2035-36	575	575
2036-37	605	605

Table 7-5: Toll Rates for Monthly Pass Dankuni @ Km 646.005

Year	Car	Mini Bus /LCV	Bus	Truck	3-Axle Commercial Vehicle	Multi Axle	Oversized Vehicle
2022-23	2440	3945	8265	8265	9015	12960	15775
2023-24	2440	3945	8265	8265	9015	12960	15775
2024-25	2440	3945	8265	8265	9015	12960	15775
2024-25	4035	6470	13465	13465	14685	21070	25635
2025-26	4110	6545	13545	13545	14760	21150	25715
2026-27	4320	6880	14240	14240	15520	22235	27035
2027-28	4525	7210	14925	14925	16265	23310	28340
2028-29	4745	7555	15645	15645	17050	24435	29710
2029-30	4970	7920	16400	16400	17880	25620	31155
2030-31	5210	8305	17200	17200	18745	26865	32665
2031-32	5460	8705	18035	18035	19655	28175	34260
2032-33	5725	9130	18915	18915	20615	29550	35930
2033-34	6000	9570	19835	19835	21620	30995	37690
2034-35	6295	10040	20810	20810	22680	32515	39540
2035-36	6600	10530	21830	21830	23795	34115	41485
2036-37	6920	11045	22905	22905	24970	35795	43530

7.3 Toll Revenue

As indicated earlier, toll revenue on the Project Road has been calculated in all three scenarios based on above rates and projected traffic. The estimates of toll revenue under ***Optimistic***, ***Pessimistic*** and ***Most Likely*** growth scenarios are presented in the following section.

7.4 Toll Revenue at all toll plazas under Scenarios

Toll Revenue estimates under most likely scenario at each of the toll plaza starting from the year 2022-23 are shown in tables below.

Table 7-3 : Toll Revenue Optimistic Scenario

(Rs. Crores)

Year	TP-1	Total
2022-23	207.74	**207.74**
2023-24	220.93	**220.93**
2024-25	294.77	**294.77**
2025-26	387.29	**387.29**
2026-27	428.89	**428.89**
2027-28	477.16	**477.16**

Year	TP-1	Total
2028-29	526.29	**526.29**
2029-30	583.75	**583.75**
2030-31	637.45	**637.45**
2031-32	700.61	**700.61**
2032-33	764.52	**764.52**
2033-34	838.14	**838.14**
2034-35	918.65	**918.65**
2035-36	1001.23	**1001.23**
2036-37	1085.85	**1085.85**

Table 7-4 : Toll Revenue Pessimistic Scenario

(Rs. Crores)

Year	TP-1	Total
2022-23	207.74	**207.74**
2023-24	219.87	**219.87**
2024-25	291.98	**291.98**
2025-26	381.77	**381.77**
2026-27	420.76	**420.76**
2027-28	465.93	**465.93**
2028-29	511.51	**511.51**
2029-30	564.71	**564.71**
2030-31	613.68	**613.68**
2031-32	671.28	**671.28**
2032-33	729.06	**729.06**
2033-34	795.38	**795.38**
2034-35	867.70	**867.70**
2035-36	941.20	**941.20**
2036-37	1015.82	**1015.82**

Table 7-5 : Toll Revenue Most Likely Scenario

(Rs. Crores)

Year	TP-1	Total
2022-23	207.74	**207.74**
2023-24	220.40	**220.40**
2024-25	293.35	**293.35**
2025-26	384.51	**384.51**
2026-27	424.79	**424.79**
2027-28	471.51	**471.51**
2028-29	518.87	**518.87**
2029-30	574.15	**574.15**
2030-31	625.41	**625.41**
2031-32	685.69	**685.69**
2032-33	746.51	**746.51**

Year	TP-1	Total
2033-34	816.37	**816.37**
2034-35	892.70	**892.70**
2035-36	970.53	**970.53**
2036-37	1050.04	**1050.04**

CHAPTER 8

CONCLUSION & RECOMMENDATIONS

8.1 Conclusion & Recommendations

Project stretch of Palsit to Dankuni section of NH-19 from km 588.870 to km 652.700 in state of West Bengal is currently four lane road and being upgraded to six lane. The road is in sound condition and serves healthy traffic volumes. Project corridor is a part of the most busy and prominent national highway NH-19 which connects political and cultural capitals of India. This is one of the most important trunk road which spreads across many states. There are large number of townships, industrial corridors and other business establishment coming up along project corridor. As discussed, dominant portion of traffic is long route traffic, which is more sensitive towards the growth of national economy. As Indian economy is poised to grow at 7%+ post COVID-19, the project corridor is expected to pick up the same trend in terms of traffic flow. All these developments have potential to give positive impact to traffic flow on project. The following can be considered as major outcomes of the study

a) There is good amount of tollable traffic running on project

b) Project corridor has potential to witness traffic growth @ 6-8% annually in near future due to various development in area and overall development of economy

c) Project corridor has committed traffic as long route traffic and does not run a risk of traffic leakage due to quality competing road

Based on above it can be considered a stable healthy project from traffic and revenue point of view.

IRB
INFRASTRUCTURE TRUST

SOLAPUR TO YEDISHI SECTION OF NH 211 IN THE STATE OF MAHARASHTRA (KM 0.000 TO KM 100.000)

TTRAFFIC STUDY & REVENUE PROJECTION REPORT (FINAL)

JANUARY 2023

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NAVI MUMBAI

CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

AADT - Annual Average Daily Traffic

BOT - Build Operate Transfer

CAGR - Compound Annual Growth Rate

CTV - Classified traffic volume

DBFOT - Design, Build, Finance, Operate & Transfer

EME - Earth Moving Equipment

GDP - Gross Domestic Product

GSDP - Gross State Domestic Product

HCM - Heavy Construction Machinery

HCV - Heavy Commercial Vehicle

HTMS - Highway Traffic Management System

IRC - Indian Road Congress

IRR - Internal Rate of Return

LCV - Light Commercial Vehicle

LHS - Left Hand Side

LGV - Light Goods Vehicle

MAV - Multi Axle Vehicle

MORTH - Ministry of Road Transport and Highways

NH - National Highway

PCC - Plain Cement Concrete

CR - Coarse Rubble

NHAI - National Highway Authority of India

NHDP - National Highways Development Project

NSDP - Net State Domestic Product

O&M - Operation & Maintenance

PCDP - Per Capita Domestic Product

PCI - Per Capita Income

PCU - Passenger Car Unit

PSC - Pre-stressed Concrete

RCC - Reinforced cement concrete

RHS - Right Hand Side

SH - State Highway

TP - Toll Plaza

WPI - Wholesale Price Index

SIR - Special Investment Region

c. - Circa

ROB - Railway Over Bridge

MDR - Major District Road

ODR - Other District Road

CA - Concession Agreement

RMT - Running Meter

CHAPTER 1

INTRODUCTION

1.1 Background

The Government of India through National Highway Authority of India (NHAI) embarked upon a program to enhance the traffic capacity and safety for efficient transportation of goods as well as passenger traffic on National Highway Sections under various NHDP Phases.

The project under consideration, Four Laning of **Solapur** to **Yedeshi** section of NH-211 from km 0.000 to km 100.000 in the state of Maharashtrais one such road project NHAI intended to implement on a BOT basis in the DBFOT format. *M/s Solapur Yedeshi Tollway Ltd*. (Concessionaire) has been awarded the Project for a concession period of 29 years starting from appointed date of 21st January2015.COD was achieved for part length of project in 15th October 2019 and Tolling Operation on Project started for full length.

Project road section from Solapur to Yedeshi is part of important north-south connectivity. It connects Karnataka, southern parts of Maharashtra and other southern states to Solapur, Aurangabad, Dhule and then northern parts of India.

Following figure shows the project road alignment.

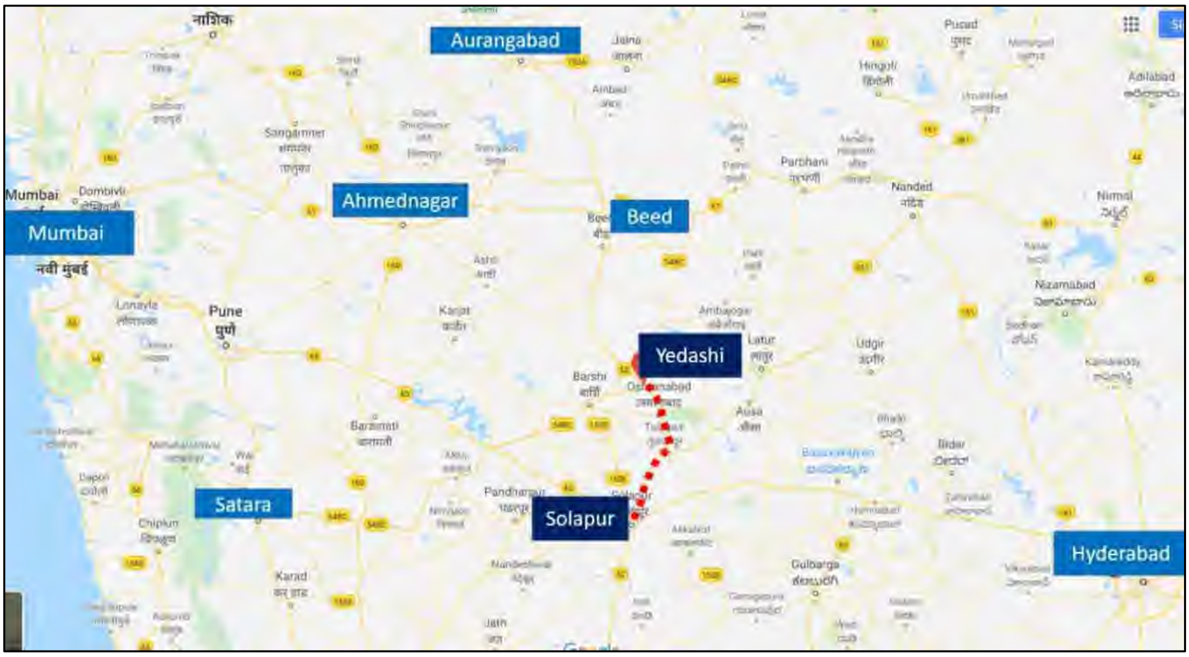

Figure 1-1: Alignment of Project Stretch

1.2 Objective of the Study

M/s IRB INFRASTRUCTURE TRUST has engaged *GMD Consultants* to assess the future traffic and toll potential of project along with related operation & maintenance expenditure involved.

This report named as **"Traffic Study &*Toll Revenue Projection Report*"** mainly focuses on traffic and revenue aspects of the project. Other parameters like competing road, area developments etc. have been considered from a traffic development point of view.

1.2.1 Scope of Services

The broad scope of work covered in the assignment is as follows

a) Analysis of Traffic Growth

b) Toll Rate Growth

c) Revenue Forecasting

The Concessionaire has provided basic traffic data and other project details on the basis of which the above analysis has been carried out.

CHAPTER 2

PROJECT DETAILS

2.1 Project Corridor

NH-211 is important national highway of Maharashtra. It connects northern Karnataka to Marathwada region of Maharashtra.

Solapur, the textile and sugar belt of Maharashtra, Jalna, India's first dry port, Aurangabad fall in project corridor. Bidkin, Shendre areas which are coming up with mega green field Industrial smart city of 10000 acre at Bidkin and Shendra in Maharashtra also fall in influence zone of project corridor.

2.2 Project Stretch Description

The Project highway from Solapur to Yedeshi border from Km 0.000 to km 100.00 has been widened to four lanes as per schedules.

Project road forms part of very important transportation corridor which works as gateway to Karnataka and rest of south India for Marathwada region of Maharashtra. Though it connects Solapur – Dhule but forms important transportation link for traffic from Vijapur, Hubli and other parts of north Karnataka to Aurangabad, Jalna, Beed and other places in Marathwada region. Project has two toll plaza at Tamamwadi and Yedeshi.

Following figure show project alignment and toll plaza locations.

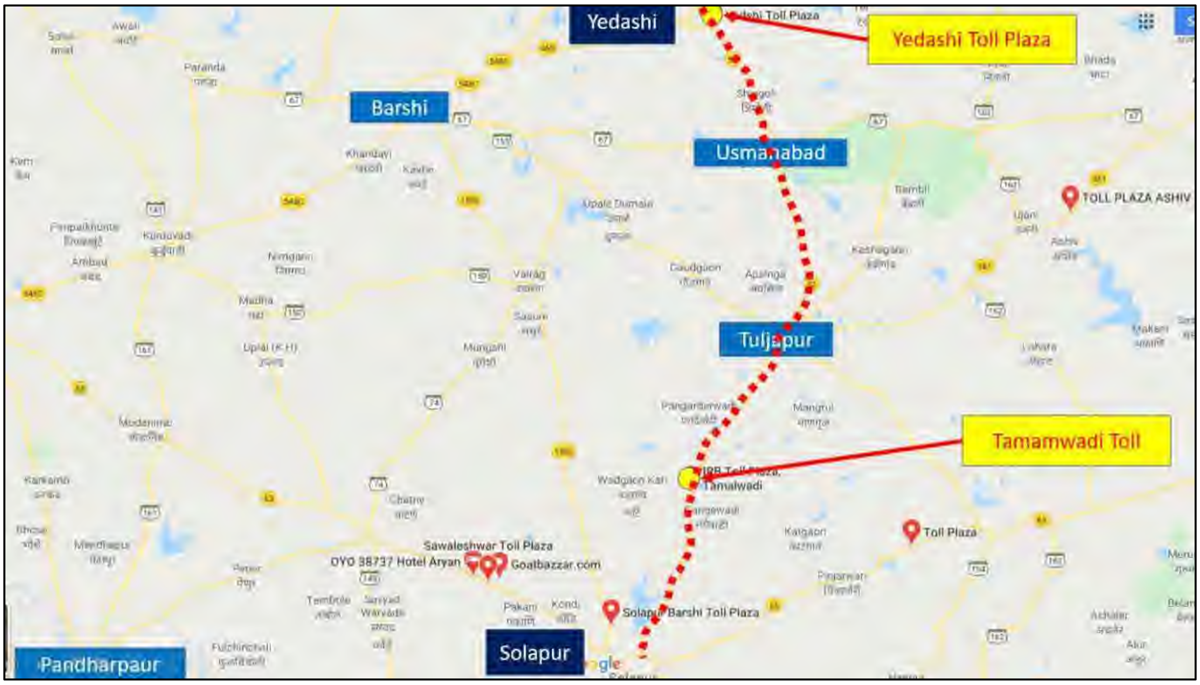

Figure 2-1: Project Alignment with Toll Plaza

2.3 Project Corridor Illustration

Four laning of project stretch is complete. Following photographs illustrate project section along the corridor.

Figure 2-2: Photographs showing Project Corridor

CHAPTER 3

TRAFFIC SURVEYS AND ANALYSIS

3.1 Traffic Surveys

The Consultants have collected the required information for project corridor to understand the general traffic and travel characteristics on the corridor.

The following traffic data has been collected from client for project.

- Classified traffic volume counts at two toll plaza locations on Solapur-Yedeshi section of NH-211 for Year 2018-19, 2019-20, 2020-21, 2021-22 & Six-Monthly traffic data from April 2022 to September 2022.
- Local Component of traffic
- Component of Return Journey
- Component of Monthly Pass Journey

The main objective of the traffic data analysis is to:

- Determine the existing traffic movement characteristics of the project
- Establish base year traffic
- Identification of travel patterns and modal split of project traffic
- Deriving growth factors for traffic forecasting
- Estimation of corridor traffic including traffic diversion if any
- Preparation of revenue model and projection of revenue as per toll policy for various scenarios

Table 3-1below lists provides details of locations from where traffic details have been collected.

Table 3-1 : Traffic Data Details

SR. NO	LOCATION	CTV	Single Journey Traffic	Daily Return Journey	Monthly Pass	Local Pass
1	Km 19.300 Toll Plaza at Immamwadi	AADT for Period for Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Period for Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Period for Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Period for Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Period for Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22
2	Km 77.400 Toll Plaza at Yedeshi	AADT for Period for Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Period for Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Period for Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Period for Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Period for Year 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22

2.5 Classified Traffic Volume

The objective of conducting a Classified Traffic Volume Count is to understand the traffic flow pattern including modal split on a roadway. The Classified Traffic Volume Count survey has been provided by the concessionaire of project highway from actual traffic data gathered at toll plaza locations based on monthly data shared with NHAI.

The vehicles can broadly be classified into fast moving / motorized and slow moving / non-motorized vehicles, which can be further classified into specific categories of vehicles. The groupings of vehicles are further segregated to capture the tollable vehicle categories specifically and toll exempted vehicles are counted separately. The detailed vehicle classification system as per IRC: 64-1990 is given in table below

Table 3-2 : Vehicle Classification System

Vehicle Type	
Auto Rickshaw	
Passenger Car	Car, Jeep, Taxi & Van (Old / new technology)
Bus	Mini Bus
	Standard Bus
Truck	Light Goods Vehicle (LCV)
	2 – Axle Truck
	3 Axle Truck (HCV)
	Multi Axle Truck (4-6 Axle)
	Oversized Vehicles (7 or more axles)
Other Vehicles	Agriculture Tractor, Tractor & Trailer

Source - IRC: 64 – 1990

However, since project highway is currently under toll operation, the data collected is corresponding to category of tollable vehicles. Following are the type of vehicles as per concession agreement.

- Car / Jeep / van
- Mini Bus /LCV
- Bus
- Truck
- 3-Axle
- Multi Axle

2.6 Traffic Characteristic

Toll revenue of project highway does not solely depend on traffic volume. There are certain characteristics of traffic which have substantial potential to affect toll collection. Component of local traffic, component of passenger and commercial traffic, portion of return journey traffic, % of monthly pass traffic are some of such characteristics of traffic. These will be discussed in subsequent sections of report.

2.6.1 Traffic Data

Project concessionaire has provided Traffic data for year 2019-20,2020-21, 2021-22 & from April 2022 to September 2022 as under for both toll plazas–

Table 3-3 : Traffic Data at Immamwadi Toll Plaza at Km 19.300

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)- 2019-20	Annual Average Daily Traffic (Nos.)- 2020-21	Annual Average Daily Traffic (Nos.)- 2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	4964	3564	6308	8132
2	Mini Bus/LCV	1068	782	362	367
3	Bus	675	304	343	639
4	Truck	907	835	946	1090
5	3-Axle	861	783	823	857
6	Multi Axle	934	1074	1286	1548
7	Oversized Vehicles	4	1	1	1
Total		**9413**	**7343**	**10070**	**12633**

Table 3-4 : Traffic Data at Yedeshi Toll Plaza at Km 77.400

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)- 2019-20	Annual Average Daily Traffic (Nos.)- 2020-21	Annual Average Daily Traffic (Nos.)- 2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	2840	2132	3308	4006
2	Mini Bus/LCV	613	514	263	243
3	Bus	233	118	127	226
4	Truck	674	682	783	910
5	3-Axle	807	826	870	909

6	Multi Axle	1101	1343	1615	1856
7	Oversized Vehicles	0	1	1	1
Total		**6269**	**5616**	**6967**	**8150**

Pandemic of COVID-19 (Corona Virus) had impacted entire world. Taking precaution, government of India announced a complete lockdown in last of March 2020 and traffic on highways was stopped which was eased out progressively later. There after India was hit by Covid-19 second and third wave in February 21 to July -21 and December 21 to March-22. Recovering traffic pattern was somewhat again disturbed du to second and third wave of Covid-19. Traffic numbers of for period from April-2020 to March 2021 were not representative of traffic pattern at project corridor due to pandemic lockdown impact. However, for integrity of data same shown above. Traffic has almost recovered from Covid -19 impact as of now.

Adjacent road to project stretches Ahmednagar – Karmala road was in poor condition and due to which there is some additional traffic on project road in current period. It expected that same may be reduced in second half of year. Hence as correction factor is applied to average traffic of April-22 to September 22 to arrive at yearly average traffic. This data was then bifurcated to various components like through local, monthly, return journey etc. category. Same is discussed in detail in following section.

2.7 Data Analysis

2.7.1 Analysis of Traffic Volume Count

Understanding the character of existing traffic forms the basis of the traffic forecast. The various vehicle types having different sizes and characteristics can be converted into a single unit called Passenger Car Unit (PCU). Passenger Car equivalents for various vehicles are adopted based on recommendations of Indian Road Congress prescribed in "IRC-64-1990: Guidelines for Capacity of Roads in Rural areas". The adopted passenger car unit values (PCU) are presented in ***Table* 3-5.**

Table 3-5 : PCU Factors Adopted for Study

Vehicle Type	PCUs
Car	1.0
Mini Bus	1.5
Standard Bus	3.0
LCV/LGV	1.5
2 Axle Truck	3.0
3 – 6 Axle Truck	4.5
MAV	4.5
Auto Rickshaw	1.0
Van/Tempo	1.0
Agriculture Tractor with Trailer	4.5
Agriculture Tractor without Trailer	1.5

Source: IRC: 64-1990

Traffic volume at each toll plaza was converted to PCU and same is presented as under

Table 3-6 : Traffic in PCU at Project Stretch Base Year 2022-23

Year	Toll Plaza Location (Km)	Traffic No	PCU	PCU Index
2019-20	Tamalwadi Km 19.300	9413	18116	1.92
	Yedeshi Km 77.400	6269	13859	2.21
2020-21	Tamalwadi Km 19.300	7343	15339	2.09
	Yedeshi Km 77.400	5616	13829	2.46
2021-22	Tamalwadi Km 19.300	10070	18981	1.88
	Yedeshi Km 77.400	6967	16316	2.34

2022-23	Tamalwadi Km 19.300	12633	23408	1.85
	Yedeshi Km 77.400	8150	18857	2.31

It can be observed from above that project traffic has PCU index more than 2 which is an indicator of high proportion of commercial traffic in traffic mix in project corridor. Following figure illustrates variation of PCU index at two toll plaza locations.

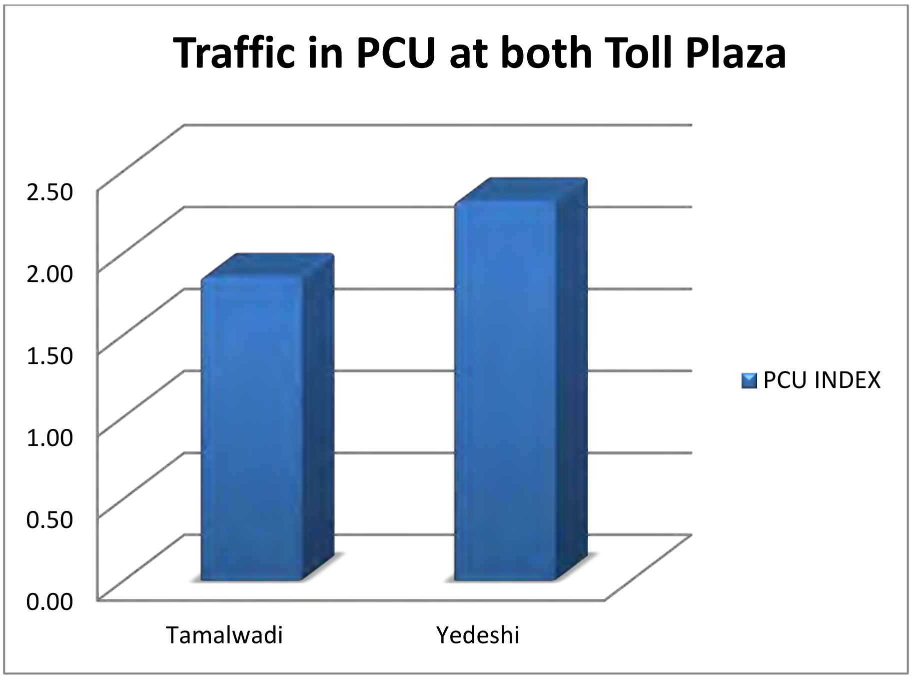

Figure 3-1: Comparison of PCU Index

It can be observed that PCU index is consistent at two toll plaza locations with commercial traffic slightly higher at Yedeshi toll plaza..

2.7.2 Components of Traffic

As discussed previously, components of traffic volume play an important role in determining project revenue. A larger component of commercial traffic with higher axle configuration adds to project revenue positively. Similarly, a larger component of local traffic affects the project revenue potential negatively.

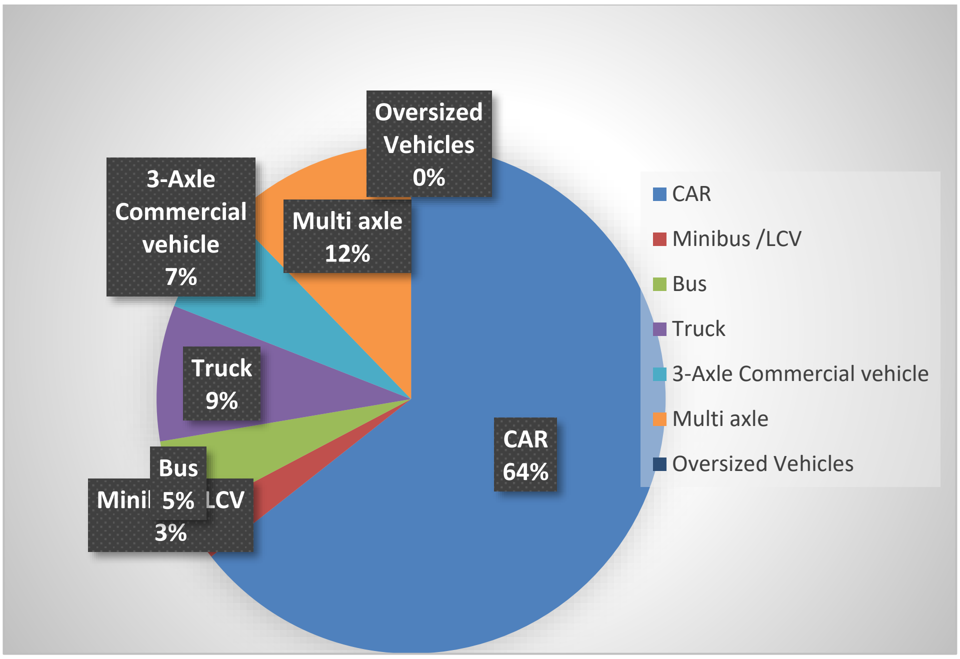

Figure 3-2 : Model Split of Tollable Vehicle @TP-1

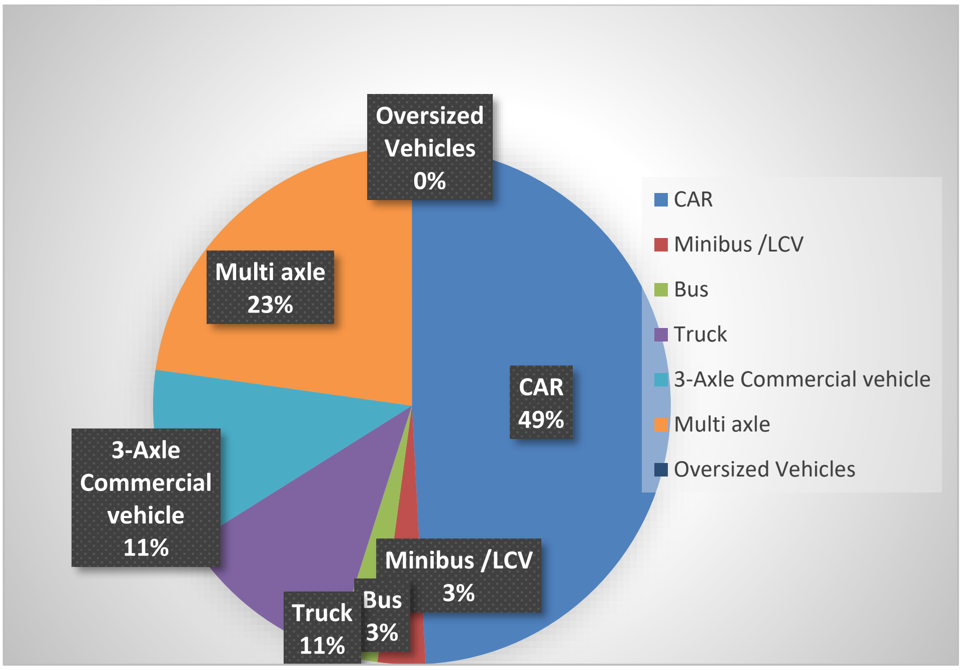

Figure 3-3 : Model Split of Tollable Vehicle @TP-2

It is observed that car traffic forms about 45%- 65% of total traffic at toll plaza locations while multi axle commercial vehicles are about 20% -40% of total traffic. Truck / Bus and LCV share about 9%-12% and 4% of traffic volume respectively.

Another important bifurcation of traffic is components of traffic with respect various type of toll ticketing like

1. Single Journey

2. Multi Journey
3. Monthly Pass (Local and General)

The following table provides numbers of vehicles falling in each of above category on base year 2019-20, 2020-21, 2021-22 & 2022-23

Table 3-7 : Journey Type Bifurcation of Traffic atTamalwadiTP-1 KM 19.300

Sr. No	Type	Traffic Volume (Nos.)2022-23
1	Single Journey	6727
2	Return Journey	5758
3	Local Commercial Single Journey	138
4	Monthly Pass Local	8
5	Monthly Pass	0
6	Local Monthly Pass Commercial	3

Most dominant part of the above is the single journey type followed by return journey at project stretch. Monthly pass commuters are a very low fraction of the total traffic on the project corridor.

The single journey component in total traffic numbers is a high as 53%. Return journey component is 46%. The number of monthly pass local is 0% and Local commercial Single Journey 1% at Imamwadi toll plaza.

Following tables give the detail of journey distribution at Yedeshi toll plaza at Km 77.400.

Table 3-8 : Journey Type Bifurcation of Traffic at Yedashi TP-2 KM 77.400

Sr. No	Type	Traffic Volume (Nos.)2022-23
1	Single Journey	5733
2	Return Journey	2330
3	Local Commercial Single Journey	66

4	Monthly Pass Local	16
5	Monthly Pass	0
6	Local Monthly Pass Commercial	5

It is observed that the project corridor demonstrates a similar pattern of single journey dominated mix of traffic across the entire stretch which is typical of major national highways.

2.8 Secondary Data Collection

There are several other factors which have a substantial impact on traffic pattern and growth on any project corridor. Following are some of such important factors

- Industrial development around project corridor and its catchment
- Educational infrastructure along project corridor
- Demographic pattern
- Urban area development
- Tourism potential
- Upcoming major infrastructural or Industrial projects
- Special Industry in project corridor
- Overall trends of economic growth local as well as national / regional

Hence in addition to traffic details on project site, secondary data was also collected from various other sources. Typical secondary data includes the following:

1. Vehicle registration data of regional and national level.
2. Economic Data
   a) GDP
   b) NSDP
   c) Population Growth
   d) Per Capita Income growth
   e) Industrial Growth
   f) Special Industry Potential
   g) Regional and National development vision / plan
   h) Any other relevant data
3. Competing road network

We have collected and utilized such underlying data in the study to estimate the growth and risk factors for traffic along the project corridor.

CHAPTER 4

INFLUENCE ZONE TRANSPORT NETWORK ANALYSIS

3.1 Introduction

Highway corridors behave like integrated circuit network and more often than not every road is connected to various networks having different origin and destinations. Traffic running on these networks behave like fluid and flow on network on alignment of least friction. 0

Following Factors can be considered as major contributors to friction on transportation network

- Travel Speed / Travel Time
- Geometric deficiencies like blind horizontal curves and steep vertical gradients etc,
- Configuration of road
- Riding quality
- Traffic delays,
- Length of road,
- Passing through built up or Urban Area,
- Terrain,
- Facilities,

3.2 Competing / Alternate route

Project road from Solapur to Yedashi is important transportation link between Solapur and Aurangabad. It can be observed that between Solapur and Yedashi all other roads cross or meet project road alignment radially. There is no important parallel road network which can be a competing link for project road traffic. At local level there is no competing road. Moreover, after completion of four laning project road is under toll operation for last two years since 2018. In such case local diversion, if any, would have settled by now.

At regional level also project road (NH-211) is preferred route for Solapur – Aurangabad traffic. Though there could be one alternate route via Ahmednager for Solapur- Aurangabad pair origin and destination.

Following figures show the layout of competingroutes between both these Zones

Figure 4-1: Alternate route at Regional level

For this alternate route also traffic would have settled since project road is under toll operation for last two years under toll. With completion of Aurangabad – Yedashi stretch four laning last year project route has become more attractive for candidate traffic. Following table provides summary of analysis of competing or alternate routes.

Sr. No	Route Details	Designation	Length (Km)	Avg. Speed (KMPH)	Time Taken (Min)	Observations
Regional Level						
1	Solapur-Ahmednagar-Aurangabad	Alternate Route	346	64	6 Hr 50 Min	Alternate route is longer and has higher travel time. Project road has clear advantage
	Solapur-Yedeshi-Aurangabad	Project Road	310	55	5 Hr 27 Min	

Table 4-1 : Competing Roads Details

Under these circumstances it is not envisaged that commercial or passenger traffic would switch to alternate roads from the project road.

CHAPTER 5

GROWTH OF TRAFFIC ON PROJECT HIGHWAY

5.1 Introduction

Traffic growth is a function of the interplay of a number of contributory factors such as National economy, Government policy, socio-economic conditions of the people, and changes in land uses along the project corridor precincts etc. As these factors have a number of uncertainties associated with them, forecasts of traffic are dependent on the projectionsof other factors such as population, gross domestic product (GDP), vehicle ownership, per capita income (PCI), agricultural output, fuel consumption etc. Future pattern of change in these factors can be estimated with only a reasonable degree of accuracy and hence the resultant traffic forecast levels may not be precise.

Traffic growth forecast for project corridor Solapur–Yedeshi section of NH-211has been done taking the above factors into consideration. "**IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**" is established best practice and has been used for traffic growth forecast.

5.2 Trend Analysis

One of the methods of estimation of future rate of growth is to assume the same rate of growth as in the past. Although such a method is more suitable to projects of short durations say 5-10 years, however for long term projections it would-be erroneous to assume that the past rate of growth will continue to prevail for a long time in future. Economic conditions, which are major influencing factors, are bound to change over a long period of time. Thus, it would be necessary to modify the past trends of growth suitably.

Elasticity model of growth projection is one of the most widely acceptable methods for traffic forecast. The same is recommended in **IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**.

In this method the past trend of vehicular data is paired with an economic indicator and a regression analysis is done to yield the economic model of growth. Growth of vehicle traffic varies for different type of vehicle. It is a proven fact that the growth pattern for passenger and goods vehicle is different. Traffic growth on any highway

typically depends on number of economic parameters. Most important and direct parameters are given as under

- Per Capita Income
- Net State Domestic Product (NSDP)
- Population

It can be observed that the ownership of a car is more closely related to affordability; hence per capita is the index which closely fits the growth of car traffic among other criteria. In a similar fashion, the following can be pairs of vehicle type and independent variable for elasticity modeling of growth.

- Car / Jeep – Par Capita Income
- Bus / Minibus – Population
- Goods Vehicle – NSDP

5.3 Estimation of Traffic Demand Elasticity

Elasticity of traffic demand is defined as the rate at which traffic intensity varies due to a change in the corresponding indicator selected. Hence, In order to estimate the elasticity of traffic demand, it is necessary to establish relationship between the growth in number of given category of vehicles with the relevant economic variable considered, such as NSDP, per capita income and population growth.Latest available data for vehicle registration, per capita income, NSDP and population is used in analysis.

As per IRC: 108-1996 the model for estimating elasticity index for the project corridor is of the following form and is given as below:

$$Log(P) = k \times Log(EI) + A$$

Where,

P = Number of Vehicles (Mode wise)

EI = Economic Indicator

A = Regression constant

k = Elasticity coefficient (Regression coefficient)

The elasticity for car and bus (passenger vehicles) is calculated based on the Population and Per Capita Domestic Product (PCDP) and the elasticity for trucks is calculated based on the Net State Domestic Product (NSDP).

The project corridor is entirely in stat of Maharashtra but being at border of Karnataka there is certain of Karnataka on project traffic. In such circumstances for elasticity calculations, working data from above Maharashtra and Karnataka states has been analyzed.

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Maharashtra State.

Table 5-1 : Per Capita Income Vs Car Maharashtra

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	99564	2307841	5.00	6.36		
2013	103904	2592565	5.02	6.41	4%	
2014	109399	2834847	5.04	6.45	5%	
2015	114746	3113773	5.06	6.49	5%	
2016	122422	3406872	5.09	6.53	7%	
2017	132899	3715744	5.12	6.57	9%	5.96%

Regression analysis of same is given in figure below

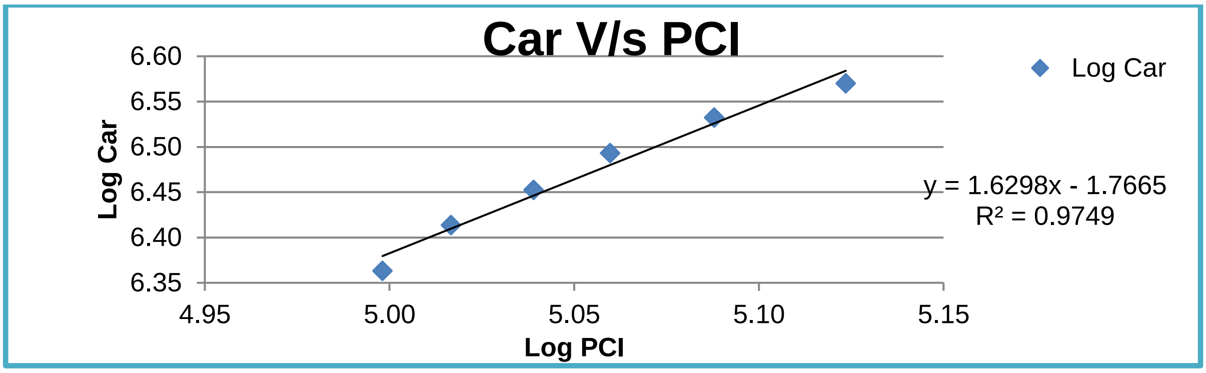

Figure 5-1: Regression and Elasticity PCI vs. Car–Extrapolation Maharashtra

Table 5-2 : Population Vs BusMaharashtra

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	112374333	119298	8.05	5.08		
2013	113807248	129535	8.06	5.11	1%	
2014	115229410	140087	8.06	5.15	1%	
2015	116640546	140102	8.07	5.15	1%	
2016	118040394	150427	8.07	5.18	1%	
2017	119428710	160042	8.08	5.20	1%	1.23%

Regression analysis of same is given in figure below

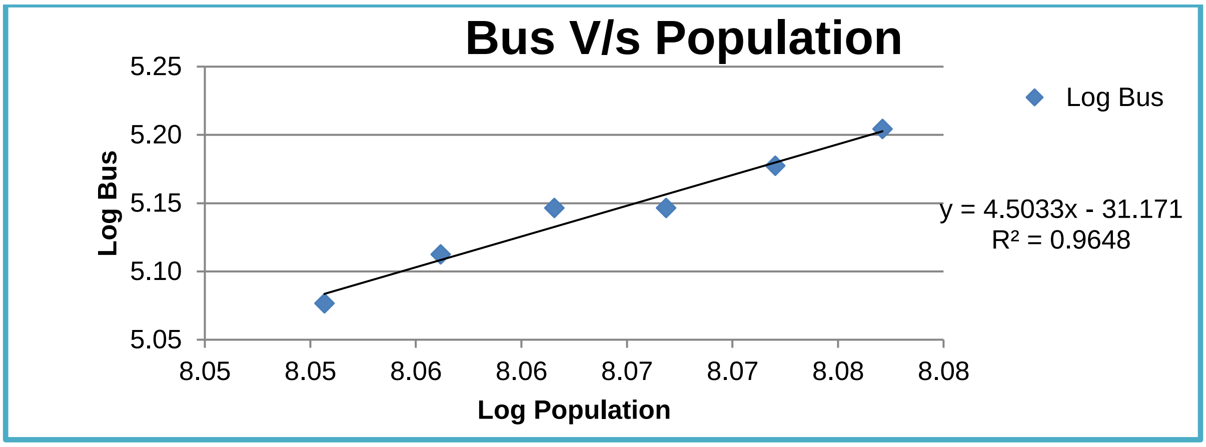

Figure 5-2: Regression and Elasticity Population vs. Bus – ExtrapolationMaharashtra

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-3 : LCV Traffic Vs NSDPMaharashtra

Year	NSDP	LCV	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	1126595	656407	6.05	5.82		
2013	1189711	739725	6.08	5.87	6%	

2014	1267551	803128	6.10	5.90	7%	
2015	1345341	868632	6.13	5.94	6%	
2016	1452439	927903	6.16	5.97	8%	6.56%

Following figure depict regression analysis and extrapolation.

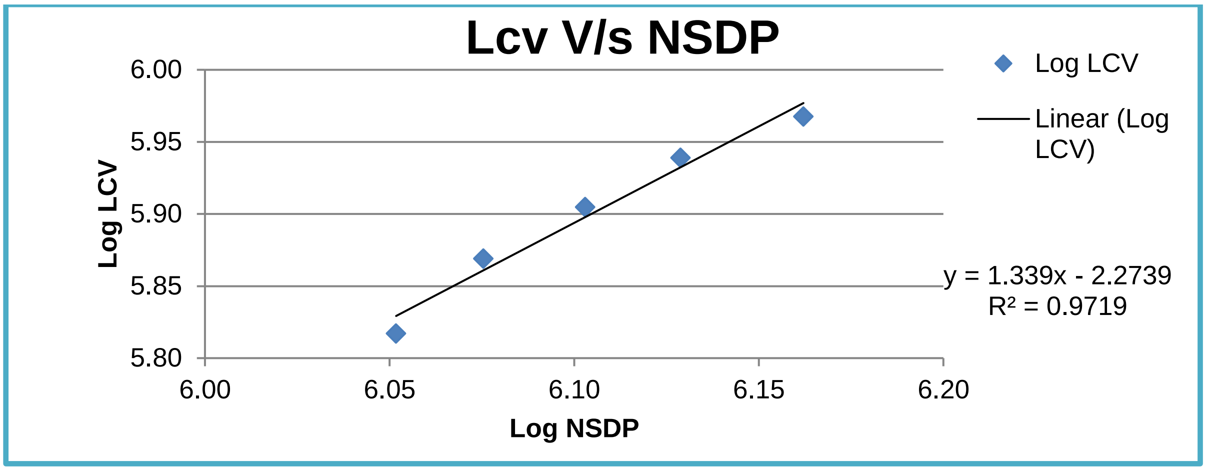

Table 5-4 : Truck Traffic Vs NSDP Maharashtra

Year	NSDP	TRUCK	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	1126595	411418	6.05	5.61		
2013	1189711	402366	6.08	5.60	6%	
2014	1267551	470128	6.10	5.67	7%	
2015	1345341	491582	6.13	5.69	6%	
2016	1452439	468810	6.16	5.67	8%	
2017	1595514	496439	6.20	5.70	10%	7.22%

Following figure depict regression analysis and extrapolation.

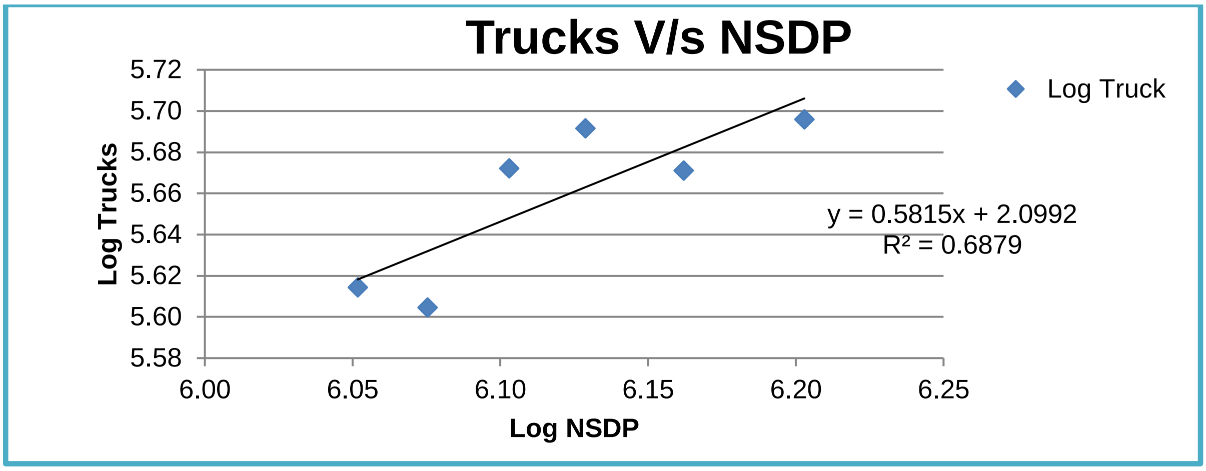

Figure 5-3: Regression and Elasticity NSDP vs. Goods Traffic – extrapolationMaharashtra

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit*regression as reflected by R^2 values are presented in the Table below

Table 5-4 : Summary Regression Analysis Maharashtra

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average Growth	Growth Elastic Model
Maharashtra	Car/Jeep	PCI	y = 1.6298x + -1.7665	R² = 0.9749	1.6298	5.96%	9.71%
	Bus	Population	y = 4.5033x - -31.1713	R² = 0.9648	4.5033	1.23%	5.52%
	LCV	NSDP	y = 1.339x - -2.2739	R² = 0.9719	1.3390	6.56%	8.78%
	Truck	NSDP	y = 0.5815x - 2.0992	R² = 0.6879	0.5815	7.22%	4.20%

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Karnataka State.

Table 5-5 : Per Capita Income Vs Car Karnataka

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	90269	1269430	4.96	6.10		
2013	94382	1420767	4.97	6.15	5%	
2014	101864	1572521	5.01	6.20	8%	
2015	105703	1741831	5.02	6.24	4%	
2016	116819	1916373	5.07	6.28	11%	
2017	131260	2110493	5.12	6.32	12%	7.83%

Regression analysis of same is given in figure below

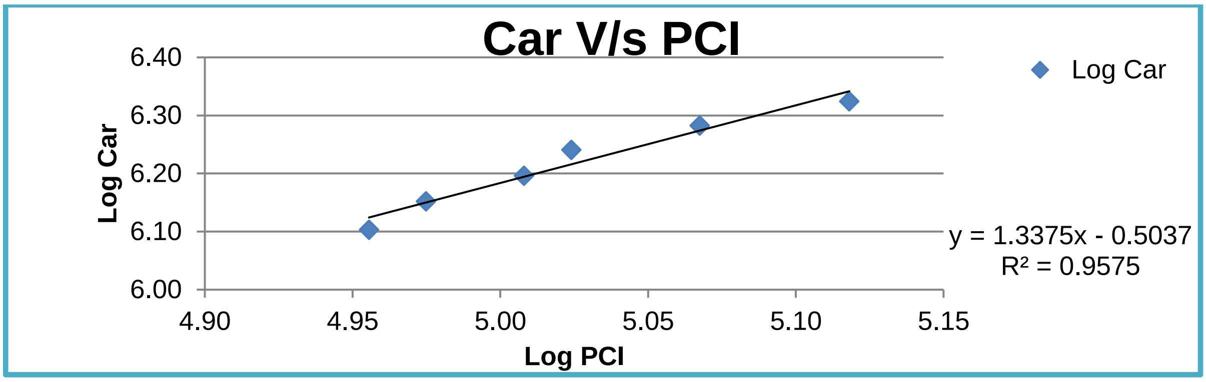

Figure 5-4: Regression and Elasticity PCI vs. Car–Extrapolation Karnataka

Table 5-6 : Population Vs Bus Karnataka

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	61095297	175705	7.79	5.24		
2013	62058777	186705	7.79	5.27	2%	
2014	63017877	195913	7.80	5.29	2%	
2015	63972322	204803	7.81	5.31	2%	
2016	64921845	213699	7.81	5.33	1%	

2017	65866188	224580	7.82	5.35	1%	1.52%

Regression analysis of same is given in figure below

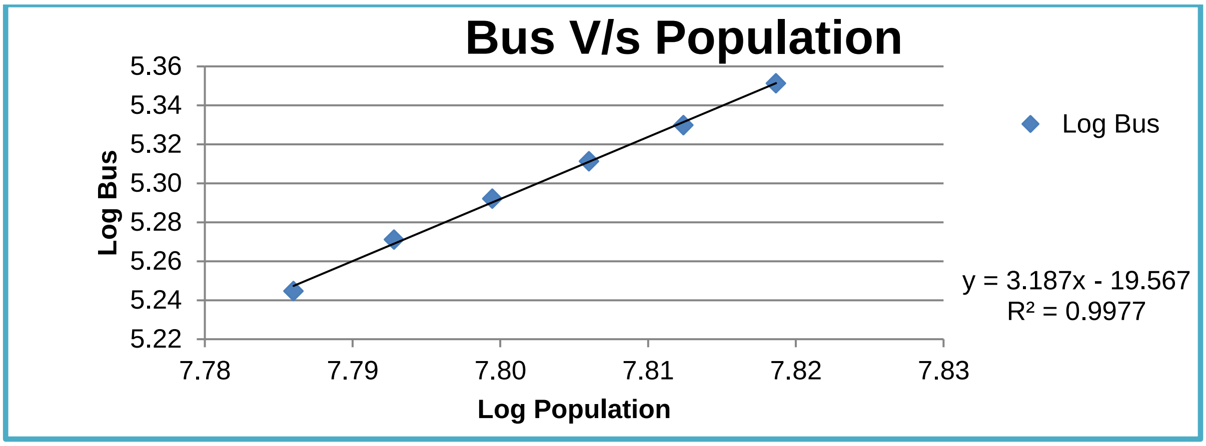

Figure 5-5: Regression and Elasticity Population vs. Bus – Extrapolation Karnataka

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-7 : LCV Traffic Vs NSDP Karnataka

Year	NSDP	LCV	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	554990	221160	5.74	5.34		
2013	586592	258701	5.77	5.41	6%	
2014	639981	294266	5.81	5.47	9%	
2015	671322	331381	5.83	5.52	5%	
2016	749990	367572	5.88	5.57	12%	7.85%

Following figure depict regression analysis and extrapolation.

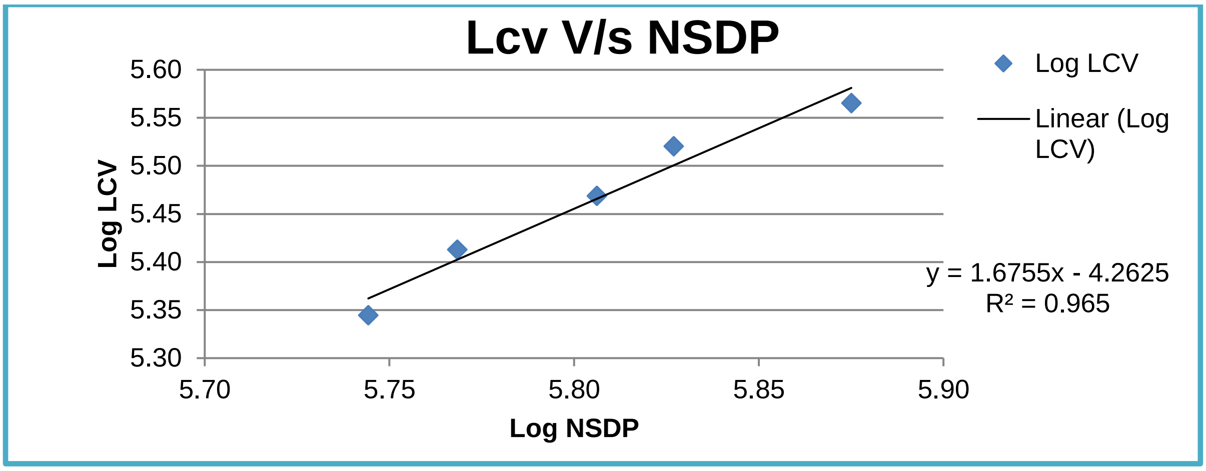

Table 5-4 : Truck Traffic Vs NSDP Karnataka

Year	NSDP	TRUCK	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	554990	233422	5.74	5.37		
2013	586592	247639	5.77	5.39	6%	
2014	639981	260989	5.81	5.42	9%	
2015	671322	274971	5.83	5.44	5%	
2016	749990	290415	5.88	5.46	12%	
2017	851880	306290	5.93	5.49	14%	9.00%

Following figure depict regression analysis and extrapolation.

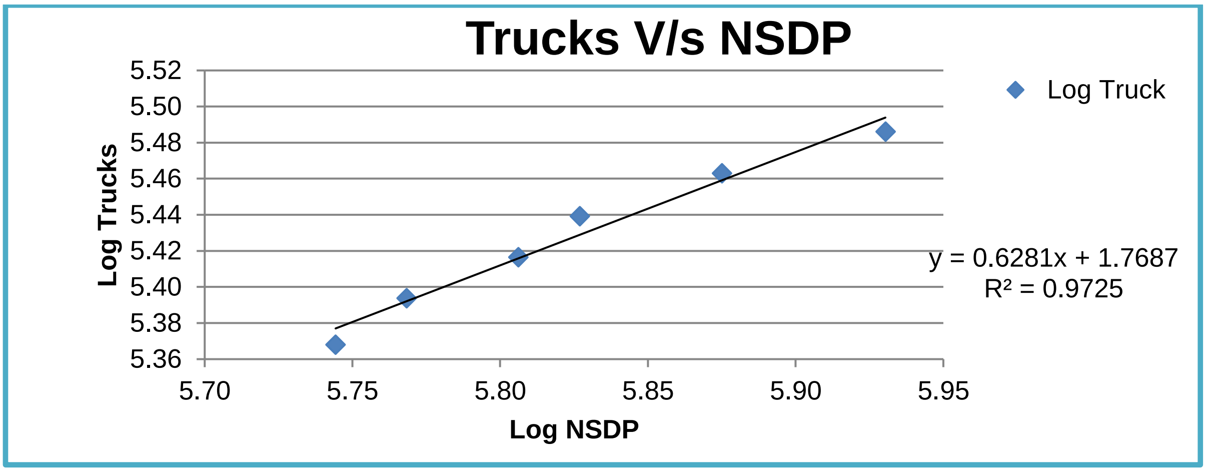

Figure 5-6: Regression and Elasticity NSDP vs. Goods Traffic – extrapolation Karnataka

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below

Table 5-8 : Summary Regression Analysis Karnataka

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average Growth	Growth Elastic Model
Karnataka	Car/Jeep	PCI	y = 1.3375x + -0.5037	R^2 = 0.9575	1.3375	7.83%	10.47%
	Bus	Population	y = 3.187x - -19.567	R^2 = 0.9977	3.1870	1.52%	4.83%
	LCV	NSDP	y = 1.6755x - -4.2625	R^2 = 0.965	1.6755	7.85%	13.16%
	Truck	NSDP	y = 0.6281x - 1.7687	R^2 = 0.9725	0.6281	9.00%	5.65%

Economical model for predicting growth is good tool, however other local, regional, national factors should also be considered before finalizing growth factors. Considering factors such as proposed developments and other influencing economic factors, moderated growth should be considered. These factors are discussed in subsequent sections.

5.4 Analysis of Historic Traffic Data

Historical traffic data forms useful information for any highway project. It provides useful information for establishing past trend of growth. Project stretch of Kaithal to Rajasthan Border is under tolling operation with current concessionaire and has only two years of tolling history from 2018-19. As traffic data available with the project concessionaires of just a year about, we do not have sufficient data points to be able to establish a reliable past trend of traffic growth. A minimum of about 5 -6 years' traffic data is required for establishing a reliable past trend.

5.5 Other Factors Influencing Growth

There are many factors which have impact on traffic growth. As discussed previously these factors can be economical, social, educational, and industrial.

Potentiality of such factors for project highway is discussed as under.

ECONOMY

After witnessing a slowdown during 2011-12, the economy recovered in 2013-14, and a high growth rate of GDP was recorded in up to 2018-19. Pandemic of COVID-19 impacted all economies of world including India. Following figure show trend of GDP growth in India.

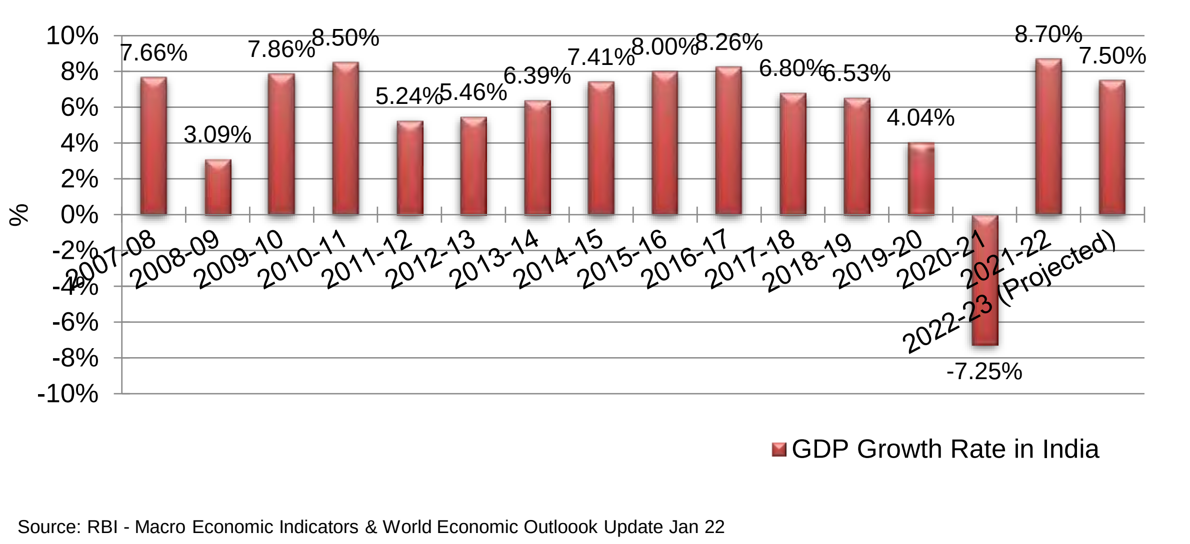

Figure 5-7 : Growth of GDP in India

FY 2017-18 recorded a growth of 6.7% which had slight impact of GST and demonetization. Indian economy appears on recovery path with estimated growth of 6.8% in FY 2018-19. Government took major policy decision including tax infrastructure reforming, banking sector improvement and ease of doing business.

Major economies of world collapsed due to pandemic COVID-19 including India. Indian economy is also registered negative growth in financial year 2020-21. After that Indian economy recovered handsomely and registered a growth of about 9% in Year 2021-22. This was partly due to low base of year 2020-21 as well.

Honorable Prime Minister has announced a major relief package of Rs. 20 lakh crores which is about 10% of GDP. This is aimed at turning this major crisis of COVID-19 into opportunity by providing major impetus to industrial production to the limit of becoming a self-reliant economy. With major thrust of this package being on **Make -In- India** it is expected that industry in India would grow at rapid pace and recover handsomely in post COVID-19 scenario. World Economic Outlook update also has predicted a growth rate of about 7.5 % in year 2022-23.

5.6 Developments along and around the Project Corridor & State

Project stretch falls in region of good development potential. The same is discussed as under.

Solapur

Solapur is one of the major city of Karnataka which shares boundary with Karnataka. Thus, it can be called as gateway to south for this region. Solapur district has highest number of sugar factories in India.

Solapur leads Karnataka in production of Indian cigarettes or beedi.Solapuri Chadars and towels are famous in India and also at a global level, however, there has been a significant decline in their exports due to quality reasons. ***"SolapuriChadars"*** are the famous and first product in Karnataka. It has been a leading centre for cotton mills and power looms in Karnataka. Solapur had the world's second-largest and Asia's largest spinning mill. The National Research Centre on Pomegranate (NRCP) of India is located in Solapur and pomegranate farming is done on a large scale in Solapur District. MIDC (Karnataka Industrial Development Corporation) has been very successful in creating and promoting industrial hubs in various part of Karnataka. It provides businesses with infrastructure such as land (open plot or built-up spaces), roads, water supply, drainage facilities and street lights along with necessary clearances. In total MIDC has developed about 300 industrial centres which have attracted large number of domestic and international industries to set up their business and production houses in Karnataka. Solapur is one of the major Industrial cluster focusing on textile and food processing. Following are major MIDCs spread over Solapur district.

- Chincholi, Mohol
- Tembhurni, Madha
- Kurduwadi, Madha
- Akkalkot

- Mangalwedha
- Solapur, Solapur citybelow.

Pandharpur

This is a holy place of Shri.Vitthal and Shri Rukmini. It is also known as the Southern Kashi of India and Kuldaivat of Karnataka State. It is located at a distance of 72 kms by road. from Solapur District headquarters. Large number of devotees from all over Karnataka and surrounding States gather at Pandharpur mainly to celebrate the Aashadhi and Kartiki Ekadashis (in month of June and July) every year in addition to the regular rush of devotees every day. As per estimate about 8-10 lakhs of devotees visit Pandharpur during this auspicious periods.

Jalna

Government of Karnataka and JNPT are developing dry ports at Jalna and BidkinShendra which on Paithan road. Project road would work like feeder to these economic hubs for traffic from Karnataka and other southern states.

5.7 Recommended Growth Rates of Traffic

Based on the above analysis and after giving due consideration to the entire listed factors, the following overall growth rates are recommended for each category of vehicle as under. Rate of growth is moderated in light of overall regional trend. Growth of Multi-Axle is kept slightly higher as trend of technological advances in logistic industry favors multi-axle over 2/3 axle carriage. It is also expected that as the economy moves from developing to developed, rate of growth diminishes. Same growth rate is not sustainable for long. Traffic growth is suitably stepped down for future years.

Growth rates are recommended for three scenarios for sensitivity analysis namely **Optimistic, Pessimistic** and **Most Likely** with a positive and negative variation 0.5% from Most Likely case for corridor in both states.

5.7.1 Recommended Growth Rates of Traffic for Project Stretch

Table 5-9 : Recommended Growth Rates Optimistic

Category / Year	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045
Car/Jeep/Van	9.53%	8.92%	8.77%	8.47%	8.11%
Bus	5.83%	5.50%	5.47%	5.41%	5.15%
LCV	4.31%	4.02%	3.88%	3.61%	3.32%
2- Axle	5.13%	4.56%	4.43%	4.15%	3.86%
3 - Axle	6.46%	5.72%	5.55%	5.20%	4.82%
4 to6 Axle	7.12%	6.30%	6.11%	5.72%	5.30%
7 and Above Axle	7.12%	6.30%	6.11%	5.72%	5.30%

Table 5-10 : Recommended Growth Rates Pessimistic

Category / Year	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045
Car/Jeep/Van	9.03%	8.42%	8.27%	7.97%	7.61%
Bus	5.33%	5.00%	4.97%	4.91%	4.65%
LCV	3.81%	3.52%	3.38%	3.11%	2.82%
2- Axle	4.63%	4.06%	3.93%	3.65%	3.36%
3 - Axle	5.96%	5.22%	5.05%	4.70%	4.32%
4 to6 Axle	6.62%	5.80%	5.61%	5.22%	4.80%
7 and Above Axle	6.62%	5.80%	5.61%	5.22%	4.80%

Table 5-11 : Recommended Growth Rates Most Likely

Category / Year	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045
Car/Jeep/Van	9.28%	8.67%	8.52%	8.22%	7.86%
Bus	5.58%	5.25%	5.22%	5.16%	4.90%
LCV	4.06%	3.77%	3.63%	3.36%	3.07%
2- Axle	4.88%	4.31%	4.18%	3.90%	3.61%
3 - Axle	6.21%	5.47%	5.30%	4.95%	4.57%
4 to6 Axle	6.87%	6.05%	5.86%	5.47%	5.05%
7 and Above Axle	6.87%	6.05%	5.86%	5.47%	5.05%

Traffic and revenue has been worked out on the basis of above growths and same is presented in subsequent chapter of report.

5.8 COVID-19 Impact

All social and economic activities had been completely disrupted due worldwide pandemic of Corona Virus. This had affected traffic on project stretch as well. Traffic was severely affected form March-2020 due to lockdown and then in second wave and third waves.

Government has announced a mega economic stimulate and package of Rs. 20 Lakh Crore to bring the economy back on track and recover the losses. Traffic has shown impressive recovery post lockdown period and has recovered to normal level.

Taking recommended traffic growth and additional factors as discussed above into consideration traffic forecast for concession period is done and presented in next chapter.

CHAPTER 6

TRAFFIC FORECAST

6.1 Traffic Projections

Growth rates recommended in previous section of report are used to arrive at traffic projections for future years. Toll plaza wise futuristic traffic projection is given in tables below.

These projections have been done for following three cases of growth up to concession period

1. Optimistic Scenario
2. Pessimistic Scenario
3. Most Likely Scenario

Table 6-1 : Total Tollable Traffic @ Toll Plaza 1- Tamalwadi19.300 KM (Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU
2022-23	8132	367	639	1090	857	1548	1	12633	23408
2023-24	8907	383	676	1145	913	1658	1	13683	25149
2024-25	9754	400	715	1204	972	1776	1	14822	27024
2025-26	10624	417	754	1260	1027	1887	1	15970	28869
2026-27	11572	434	796	1318	1086	2006	1	17213	30855
2027-28	12604	451	840	1378	1148	2132	1	18554	32977
2028-29	13728	469	886	1441	1214	2266	1	20005	35256
2029-30	14953	488	934	1507	1283	2408	1	21574	37698
2030-31	16264	507	985	1574	1354	2554	1	23239	40261
2031-32	17690	526	1039	1644	1429	2710	1	25039	43015
2032-33	19241	546	1095	1717	1508	2875	1	26983	45962
2033-34	20929	567	1155	1793	1591	3051	1	29087	49131
2034-35	22765	589	1218	1872	1679	3237	1	31361	52527
2035-36	24694	610	1283	1949	1766	3422	1	33725	56007
2036-37	26786	632	1352	2029	1857	3617	1	36274	59729
2037-38	29055	654	1425	2113	1954	3823	1	39025	63720
2038-39	31517	678	1502	2200	2056	4041	1	41995	67997
2039-40	34187	702	1583	2291	2163	4271	1	45198	72575

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU
2040-41	36958	725	1664	2380	2268	4497	1	48493	77223
2041-42	39955	749	1750	2473	2378	4735	1	52041	82194
2042-43	43194	773	1840	2569	2492	4986	1	55855	87498
2043-44	46695	799	1935	2669	2612	5250	1	59961	93171
2044-45	50481	825	2034	2772	2738	5528	1	64379	99231

Table 6-2 : Total Tollable Traffic @ Toll Plaza 2- Yedashi77.400 KM (Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU
2022-23	4006	243	226	910	909	1856	1	8150	18857
2023-24	4387	253	239	957	967	1988	1	8792	20206
2024-25	4805	264	253	1006	1030	2129	1	9488	21653
2025-26	5233	275	267	1052	1089	2263	1	10180	23058
2026-27	5699	286	282	1100	1152	2405	1	10925	24557
2027-28	6207	297	297	1150	1218	2556	1	11726	26154
2028-29	6760	309	313	1203	1288	2717	1	12591	27867
2029-30	7363	321	330	1258	1361	2888	1	13522	29692
2030-31	8009	333	348	1314	1437	3064	1	14506	31598
2031-32	8712	346	367	1372	1517	3251	1	15566	33633
2032-33	9475	359	387	1433	1601	3450	1	16706	35806
2033-34	10305	372	408	1496	1690	3660	1	17932	38120
2034-35	11209	387	430	1562	1784	3883	1	19256	40596
2035-36	12158	401	453	1627	1877	4105	1	20622	43108
2036-37	13187	416	478	1695	1974	4340	1	22091	45787
2037-38	14304	431	504	1765	2077	4588	1	23670	48639
2038-39	15516	446	531	1838	2185	4850	1	25367	51677
2039-40	16830	462	560	1915	2298	5127	1	27193	54918
2040-41	18193	477	589	1989	2408	5399	1	29056	58167
2041-42	19667	493	619	2066	2524	5685	1	31055	61621
2042-43	21261	509	651	2146	2645	5987	1	33200	65297
2043-44	22985	525	684	2229	2772	6304	1	35500	69200
2044-45	24848	542	719	2315	2905	6638	1	37968	73354

Table 6-3 : Total Tollable Traffic@ Toll Plaza 1- Tamalwadi19.300 KM (Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU
2022-23	8132	367	639	1090	857	1548	1	12633	23408
2023-24	8866	382	672	1141	908	1650	1	13620	25032
2024-25	9666	397	708	1193	962	1759	1	14686	26771
2025-26	10480	411	743	1242	1012	1860	1	15749	28462
2026-27	11363	426	780	1292	1065	1968	1	16895	30274
2027-28	12320	441	818	1344	1120	2081	1	18125	32197
2028-29	13357	456	858	1398	1178	2201	1	19449	34252
2029-30	14482	473	901	1455	1240	2329	1	20881	36465
2030-31	15679	489	946	1512	1302	2459	1	22388	38763
2031-32	16976	506	993	1572	1368	2596	1	24012	41221
2032-33	18380	523	1042	1634	1437	2741	1	25758	43843
2033-34	19901	540	1094	1698	1510	2895	1	27639	46649
2034-35	21548	559	1148	1765	1586	3056	1	29663	49640
2035-36	23265	576	1204	1829	1660	3215	1	31750	52680
2036-37	25120	593	1262	1896	1738	3383	1	33993	55926
2037-38	27122	612	1324	1966	1819	3560	1	36404	59392
2038-39	29284	631	1389	2038	1904	3745	1	38992	63081
2039-40	31619	650	1457	2112	1993	3940	1	41772	67015
2040-41	34024	669	1524	2183	2079	4129	1	44609	70971
2041-42	36613	688	1595	2256	2168	4327	1	47648	75178
2042-43	39398	707	1669	2332	2261	4534	1	50902	79652
2043-44	42396	727	1746	2411	2359	4751	1	54391	84419
2044-45	45621	747	1827	2491	2461	4979	1	58127	89489

Table 6-4 : Total Tollable Traffic @ Toll Toll Plaza 2- Yedashi77.400 KM (Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU
2022-23	4006	243	226	910	909	1856	1	8150	18857
2023-24	4367	252	238	953	963	1979	1	8753	20117
2024-25	4761	261	250	997	1020	2110	1	9400	21453
2025-26	5162	270	262	1037	1074	2232	1	10038	22735
2026-27	5597	279	275	1078	1130	2362	1	10722	24098
2027-28	6069	288	289	1122	1189	2499	1	11457	25551

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU
2028-29	6580	297	304	1167	1252	2644	1	12245	27097
2029-30	7133	308	319	1214	1318	2797	1	13090	28739
2030-31	7723	319	335	1261	1385	2953	1	13977	30438
2031-32	8361	330	351	1310	1455	3119	1	14927	32244
2032-33	9053	341	368	1361	1528	3294	1	15946	34163
2033-34	9801	353	386	1414	1605	3478	1	17038	36201
2034-35	10611	365	406	1469	1686	3672	1	18210	38370
2035-36	11456	376	426	1522	1765	3863	1	19409	40547
2036-37	12369	388	447	1577	1848	4065	1	20695	42864
2037-38	13355	400	469	1634	1934	4277	1	22070	45317
2038-39	14418	412	492	1694	2025	4500	1	23542	47924
2039-40	15567	424	517	1756	2120	4735	1	25120	50694
2040-41	16751	436	541	1815	2212	4962	1	26718	53443
2041-42	18024	448	566	1876	2307	5200	1	28422	56348
2042-43	19395	460	592	1939	2406	5450	1	30243	59426
2043-44	20870	473	619	2003	2510	5711	1	32187	62680
2044-45	22456	486	647	2070	2618	5985	1	34263	66127

Traffic projections for Most Likely scenario are given as under

Table 6-5 : Total Tollable Traffic @ Toll Plaza 1- Tamalwadi19.300 KM (Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU
2022-23	8132	367	639	1090	857	1548	1	12633	23408
2023-24	8887	382	674	1144	910	1654	1	13652	25092
2024-25	9711	397	711	1200	966	1767	1	14753	26894
2025-26	10553	412	748	1252	1019	1874	1	15859	28666
2026-27	11468	427	787	1306	1074	1987	1	17050	30556
2027-28	12462	444	829	1363	1133	2107	1	18339	32589
2028-29	13542	461	873	1422	1195	2234	1	19728	34761
2029-30	14717	478	919	1483	1260	2368	1	21226	37081
2030-31	15970	495	966	1546	1326	2507	1	22811	39513
2031-32	17331	513	1017	1610	1396	2653	1	24521	42113
2032-33	18807	532	1070	1677	1470	2808	1	26365	44897
2033-34	20410	551	1125	1747	1548	2972	1	28354	47875
2034-35	22150	571	1183	1820	1630	3146	1	30501	51067
2035-36	23972	590	1244	1891	1711	3317	1	32726	54326
2036-37	25943	610	1308	1965	1796	3498	1	35121	57811

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU
2037-38	28075	630	1375	2041	1885	3689	1	37696	61528
2038-39	30383	651	1446	2120	1978	3891	1	40470	65506
2039-40	32880	673	1520	2203	2076	4104	1	43457	69759
2040-41	35463	693	1594	2282	2171	4311	1	46515	74048
2041-42	38249	714	1672	2364	2270	4528	1	49798	78619
2042-43	41254	736	1754	2449	2374	4756	1	53324	83496
2043-44	44495	758	1839	2537	2483	4996	1	57109	88696
2044-45	47991	781	1929	2629	2597	5248	1	61176	94248

Table 6-6 : Total Tollable Traffic @ Toll Toll Plaza 2- Yedeshi 77.400 KM (Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU
2022-23	4006	243	226	910	909	1856	1	8150	18857
2023-24	4377	253	239	955	965	1983	1	8773	20162
2024-25	4783	264	253	1001	1025	2119	1	9446	21556
2025-26	5198	273	267	1044	1081	2247	1	10111	22900
2026-27	5648	284	281	1089	1140	2383	1	10826	24332
2027-28	6137	295	296	1135	1203	2527	1	11594	25858
2028-29	6669	306	311	1183	1269	2679	1	12418	27477
2029-30	7247	317	327	1234	1338	2841	1	13305	29209
2030-31	7864	328	344	1285	1409	3007	1	14238	31006
2031-32	8534	340	361	1338	1483	3183	1	15240	32918
2032-33	9261	352	380	1393	1562	3369	1	16318	34959
2033-34	10050	364	400	1451	1645	3566	1	17477	37136
2034-35	10905	377	421	1511	1732	3775	1	18722	39455
2035-36	11802	389	442	1570	1817	3981	1	20002	41792
2036-37	12772	402	464	1631	1907	4198	1	21375	44277
2037-38	13822	415	488	1694	2001	4428	1	22849	46924
2038-39	14959	428	513	1760	2100	4670	1	24431	49740
2039-40	16189	443	539	1828	2204	4925	1	26129	52734
2040-41	17460	456	565	1894	2304	5174	1	27854	55721
2041-42	18832	470	592	1962	2409	5435	1	29701	58888
2042-43	20311	485	621	2032	2519	5710	1	31679	62254
2043-44	21906	500	651	2105	2633	5998	1	33794	65819
2044-45	23627	515	683	2181	2753	6301	1	36061	69610

6.2 Modification in Concession Period

As per Article 29 of the concession agreement, if actual traffic on the project falls short or exceeds Target Traffic on project highway on defined date, concession period shall be modified subject to calculation stipulated therein. For Solapur-Yedeshi project, the Target Date and Target Traffic are defined as under:

Target Date - 1st October 2023

Target Traffic - 22210 in PCU

It was observed that as per traffic projections, average traffic volume falls short of target traffic in all scenarios. Probable extension of concession period is estimated according to article 29 of concession agreement which comes to about a year. Traffic forecast and revenue projections are done for probable extended period accordingly.

Most Likely

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2023	22210	22661	2%	0%	0%	29	0.0

Optimistic

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2023	22210	22716	2%	0%	0%	29	0.0

Pessimistic

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2023	22210	22606	2%	0%	0%	29	0.0

CHAPTER 7

FORECAST OF TOLL REVENUE

7.1 General

This chapter presents the tolling rate calculations, categories and toll revenue of the project.

7.2 Discount Categories

As per the Toll Notification (Schedule -R) the discounts and special provisions have been considered. In addition to discounts as per Fee Notification concessionaire has declared special category rates also. Salient features of toll rate structure are given as under

1. Monthly Pass: For frequent user's monthly pass would be issued for 50 trips at 2/3rd rate as per provision of fee notification.
2. Multiple Journeys (for Return Trip): Will be charged at 1.5 times single journey.
3. Single Journey: Full single journey toll would be charged to this category of vehicles who are infrequent travelers or whose frequency does not yield any discount from the above categories.
4. Local Discounts: There are several categories of local discounts.
   a) Local Car – Rs. 275 Per Month
   b) Local Commercial Traffic at 50% rate for single trip.

Building of inflation and escalation of rate on the basis of WPI are done as per toll notification (Schedule G) as given under as extract from concession agreement.

The formula for determining the applicable rate of fee shall be as follows:-

$$\text{Applicable rate of fee} = \text{base rate} + \text{base rate} \times \left\{ \frac{\text{WPI A} - \text{WPI B}}{\text{WPI B}} \right\} \times 0.4$$

Factor of inflation / growth has been incorporated as per Schedule R. WPI numbers (2011-12 series) are available up to 2018-19. A moderate growth in Wholesale Price Index (WPI) has been assumed after that. The following graph provides historical rate of inflation (WPI) in India. Data has been sourced from the Office of Economic Advisor web site (www.eaindustry.nic.in) WPI for year 2017-18 and 2018-2019 is worked back by applying a correlation factor for 2004-05 series as 2017-18 and 2018-2019 data is available in 2011-12 series only. Ratio of WPI for year 2016-17 for both series is used for conversion of WPI in 2004-05 series

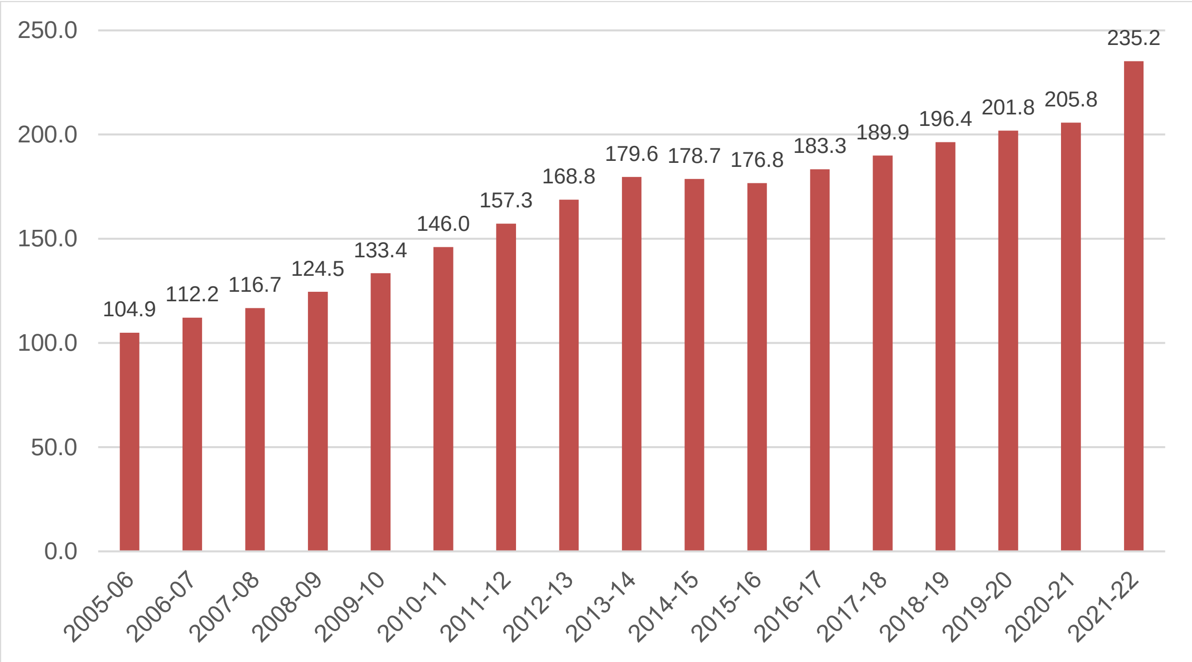

Figure 7-1 : Historical Rate of WPI Inflation in India

Average inflation in WPI in last few years is steadily growing. It grew in range of 4% - 5% in previous years. For future years initially it is takes 5% and Suitably Stepped down for future years.

7.3 Estimation of Toll Rates

As per the applicable MORTH notification and Schedule R of contract agreement, the following Base rate of fee for the categories mentioned in the table stands true in the National Highways Fee Rules applicable for contract.

Table 7-1 : Base Toll Rates June 2007-08

Type of Vehicle	Base Rate of Fee / Km (in Rs.)
Car, Jeep, Van or Light Motor Vehicle	0.65
Light Commercial Vehicle, Light Goods Vehicle or Mini Bus	1.05
Bus or Truck (Two Axles)	2.20
Three Axle Commercial Vehicles	2,40
Heavy Construction Machinery (HCM) or Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 axles)	3.45
Oversized Vehicles (7 or more Axles)	4.20

There is no bypass or structure to be factored in for rates calculations.

Toll rates are calculated as per guidelines provided in schedule R (rounded to nearest Rs.) for the concession period and are given below.

Thus worked out rates for various categories of vehicle and discounts are given as under

Table 7-2 : Toll Rates for Single Journey@ Toll Plaza 1- Tamalwadi 19.300 KM

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	70	110	235	235	255
2023-24	75	115	245	245	270
2024-25	75	125	260	260	280
2025-26	80	130	270	270	295
2026-27	85	135	285	285	310
2027-28	90	140	300	300	325
2028-29	90	150	315	315	340
2029-30	95	155	330	330	360
2030-31	100	165	345	345	375
2031-32	105	170	360	360	395
2032-33	110	180	380	380	410
2033-34	115	190	395	395	435
2034-35	125	200	415	415	455
2035-36	130	210	435	435	475
2036-37	135	220	460	460	500
2037-38	140	230	480	480	525
2038-39	150	240	505	505	550

2039-40	155	250	530	530	575
2040-41	165	265	555	555	605
2041-42	170	280	585	585	635
2042-43	180	290	610	610	670
2043-44	190	305	645	645	700
2044-45	200	320	675	675	735

Table 7-3 : Toll Rates for Single Journey @ Toll Plaza 2- Yedashi 77.400 KM

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	70	110	235	235	255
2023-24	75	115	245	245	270
2024-25	75	125	260	260	280
2025-26	80	130	270	270	295
2026-27	85	135	285	285	310
2027-28	90	145	300	300	325
2028-29	95	150	315	315	340
2029-30	95	155	330	330	360
2030-31	100	165	345	345	375
2031-32	105	170	360	360	395
2032-33	110	180	380	380	415
2033-34	115	190	395	395	435
2034-35	125	200	415	415	455
2035-36	130	210	435	435	475
2036-37	135	220	460	460	500
2037-38	140	230	480	480	525
2038-39	150	240	505	505	550
2039-40	155	255	530	530	580
2040-41	165	265	555	555	605
2041-42	170	280	585	585	635
2042-43	180	290	615	615	670
2043-44	190	305	645	645	700
2044-45	200	320	675	675	735

Table 7-4 : Toll Rates for Return Journey@ Toll Plaza 1- Tamalwadi 19.300 KM

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	105	165	350	350	380
2023-24	110	175	370	370	400
2024-25	115	185	385	385	420
2025-26	120	195	405	405	445

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2026-27	125	205	425	425	465
2027-28	130	215	450	450	490
2028-29	140	225	470	470	510
2029-30	145	235	490	490	535
2030-31	150	245	515	515	565
2031-32	160	260	540	540	590
2032-33	170	270	565	565	620
2033-34	175	285	595	595	650
2034-35	185	300	625	625	680
2035-36	195	310	655	655	715
2036-37	205	330	685	685	750
2037-38	215	345	720	720	785
2038-39	225	360	755	755	825
2039-40	235	380	795	795	865
2040-41	245	395	835	835	910
2041-42	260	415	875	875	955
2042-43	270	440	920	920	1000
2043-44	285	460	965	965	1050
2044-45	300	485	1010	1010	1105

Table 7-5 : Toll Rates for Return Journey @ Toll Plaza 2- Yedashi 77.400 KM

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	105	165	350	350	385
2023-24	110	175	370	370	400
2024-25	115	185	385	385	425
2025-26	120	195	405	405	445
2026-27	125	205	430	430	465
2027-28	130	215	450	450	490
2028-29	140	225	470	470	515
2029-30	145	235	495	495	535
2030-31	155	245	515	515	565
2031-32	160	260	540	540	590
2032-33	170	270	570	570	620
2033-34	175	285	595	595	650
2034-35	185	300	625	625	680
2035-36	195	315	655	655	715
2036-37	205	330	685	685	750
2037-38	215	345	720	720	785
2038-39	225	360	755	755	825
2039-40	235	380	795	795	865
2040-41	245	400	835	835	910
2041-42	260	420	875	875	955
2042-43	270	440	920	920	1005
2043-44	285	460	965	965	1055
2044-45	300	485	1015	1015	1105

Table 7-6 : Toll Rates for Monthly Pass Local @ Toll Plaza 1- Tamalwadi 19.300 KM

Year	Car
2022-23	315
2023-24	330
2024-25	345
2025-26	365
2026-27	385
2027-28	400
2028-29	420
2029-30	440
2030-31	460
2031-32	485
2032-33	510
2033-34	535
2034-35	560
2035-36	585
2036-37	615
2037-38	645
2038-39	675
2039-40	710
2040-41	745
2041-42	785
2042-43	825
2043-44	865
2044-45	905

Table 7-7 : Toll Rates for Monthly Pass Local @ Toll Plaza 2- Yedashi 77.400 KM

Year	Car
2022-23	315
2023-24	330
2024-25	345
2025-26	365
2026-27	385
2027-28	400
2028-29	420
2029-30	440
2030-31	460
2031-32	485
2032-33	510
2033-34	535
2034-35	560
2035-36	585
2036-37	615

Year	Car
2037-38	645
2038-39	675
2039-40	710
2040-41	745
2041-42	785
2042-43	825
2043-44	865
2044-45	905

Table 7-8 : Toll Rates for Monthly Pass @ Toll Plaza 1- Tamalwadi 19.300 KM

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2022-23	2300	3715	7790	7790	8495
2023-24	2415	3905	8180	8180	8925
2024-25	2540	4105	8595	8595	9380
2025-26	2670	4310	9035	9035	9855
2026-27	2805	4530	9495	9495	10360
2027-28	2940	4750	9950	9950	10855
2028-29	3080	4980	10430	10430	11380
2029-30	3230	5220	10935	10935	11930
2030-31	3385	5470	11465	11465	12505
2031-32	3550	5735	12020	12020	13110
2032-33	3725	6015	12605	12605	13750
2033-34	3905	6310	13215	13215	14420
2034-35	4095	6615	13865	13865	15125
2035-36	4295	6940	14540	14540	15865
2036-37	4510	7280	15255	15255	16645
2037-38	4730	7640	16010	16010	17465
2038-39	4965	8015	16800	16800	18325
2039-40	5210	8415	17630	17630	19235
2040-41	5470	8830	18505	18505	20190
2041-42	5740	9270	19425	19425	21195
2042-43	6025	9735	20395	20395	22250
2043-44	6330	10220	21420	21420	23365
2044-45	6645	10735	22495	22495	24540

Table 7-9 : Toll Rates for Monthly Pass @ Toll Plaza 2- Yedashi77.400 KM

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2022-23	2305	3720	7800	7800	8505
2023-24	2420	3910	8190	8190	8935
2024-25	2545	4110	8610	8610	9390
2025-26	2675	4315	9045	9045	9870
2026-27	2810	4540	9505	9505	10370
2027-28	2945	4755	9965	9965	10870
2028-29	3085	4985	10445	10445	11395

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2029-30	3235	5225	10950	10950	11945
2030-31	3390	5480	11475	11475	12520
2031-32	3555	5745	12035	12035	13130
2032-33	3730	6020	12620	12620	13765
2033-34	3910	6315	13235	13235	14435
2034-35	4100	6625	13880	13880	15140
2035-36	4300	6950	14560	14560	15885
2036-37	4515	7290	15275	15275	16665
2037-38	4735	7650	16030	16030	17485
2038-39	4970	8025	16820	16820	18350
2039-40	5215	8425	17650	17650	19255
2040-41	5475	8845	18530	18530	20215
2041-42	5745	9285	19450	19450	21220
2042-43	6035	9745	20425	20425	22280
2043-44	6335	10235	21445	21445	23395
2044-45	6655	10750	22520	22520	24570

7.4 Toll Revenue

As indicated earlier, toll revenue on the Project Road has been calculated in all three scenarios based on above rates and projected traffic. The estimates of toll revenue under ***Optimistic***, ***Pessimistic*** and ***Most Likely*** growth scenarios are presented in the following section.

7.5 Toll Revenue at all toll plazas under Scenarios

Toll Revenue estimates under most likely scenario at each of the toll plaza up to 2045-26 starting from the year 2022-23 are shown in tables below.

Table 7-10 : Toll Revenue Optimistic Scenario

(Rs. Crores)

Year	Toll Plaza Km 19.300	Toll Plaza Km 77.400	Total
2022-23	60.54	52.83	**113.37**
2023-24	67.52	58.57	**126.09**
2024-25	75.27	65.34	**140.61**

Year	Toll Plaza Km 19.300	Toll Plaza Km 77.400	Total
2025-26	84.40	72.98	**157.38**
2026-27	94.62	81.54	**176.15**
2027-28	106.60	91.63	**198.23**
2028-29	118.25	101.93	**220.18**
2029-30	132.41	113.27	**245.68**
2030-31	147.77	126.29	**274.06**
2031-32	166.15	140.88	**307.03**
2032-33	185.94	157.33	**343.26**
2033-34	207.06	175.02	**382.08**
2034-35	233.76	196.18	**429.94**
2035-36	261.79	218.22	**480.01**
2036-37	291.62	242.36	**533.98**
2037-38	324.91	269.07	**593.98**
2038-39	364.38	300.04	**664.42**
2039-40	407.06	334.62	**741.68**
2040-41	453.26	370.35	**823.62**
2041-42	504.99	410.99	**915.98**
2042-43	563.14	456.73	**1019.87**
2043-44	632.12	509.60	**1141.72**

Year	Toll Plaza Km 19.300	Toll Plaza Km 77.400	Total
2044-45	704.22	564.93	**1269.15**

Table 7-11 : Toll Revenue Pessimistic Scenario

(Rs. Crores)

Year	Toll Plaza Km 19.300	Toll Plaza Km 77.400	Total
2022-23	60.54	52.83	**113.37**
2023-24	67.19	58.27	**125.46**
2024-25	74.56	64.70	**139.26**
2025-26	83.21	71.94	**155.15**
2026-27	92.83	80.01	**172.84**
2027-28	104.11	89.53	**193.64**
2028-29	114.91	99.13	**214.05**
2029-30	128.11	109.65	**237.75**
2030-31	142.29	121.66	**263.95**
2031-32	159.21	135.03	**294.24**
2032-33	177.33	150.04	**327.37**
2033-34	196.58	166.13	**362.70**
2034-35	220.91	185.38	**406.29**
2035-36	246.25	205.20	**451.45**
2036-37	273.01	226.85	**499.86**
2037-38	302.73	250.65	**553.38**
2038-39	337.94	278.13	**616.07**
2039-40	375.69	308.70	**684.39**
2040-41	416.40	340.04	**756.44**
2041-42	461.67	375.54	**837.22**
2042-43	512.39	415.47	**927.86**
2043-44	572.44	461.40	**1033.85**
2044-45	634.78	509.02	**1143.80**

Table 7-12 : Toll Revenue Most Likely Scenario

(Rs. Crores)

Year	Toll Plaza Km 19.300	Toll Plaza Km 77.400	Total
2022-23	60.54	52.83	**113.37**
2023-24	67.36	58.40	**125.76**
2024-25	74.91	65.00	**139.91**
2025-26	83.81	72.42	**156.23**
2026-27	93.70	80.75	**174.45**
2027-28	105.36	90.55	**195.91**
2028-29	116.58	100.46	**217.04**
2029-30	130.23	111.36	**241.59**
2030-31	145.02	123.84	**268.86**
2031-32	162.64	137.75	**300.39**
2032-33	181.61	153.49	**335.10**
2033-34	201.78	170.37	**372.14**
2034-35	227.28	190.53	**417.81**
2035-36	253.94	211.41	**465.35**
2036-37	282.22	234.22	**516.44**
2037-38	313.67	259.40	**573.06**
2038-39	350.92	288.51	**639.43**
2039-40	391.10	321.02	**712.12**
2040-41	434.49	354.44	**788.93**
2041-42	482.88	392.43	**875.32**
2042-43	537.18	435.18	**972.36**
2043-44	601.56	484.42	**1085.98**
2044-45	668.68	535.70	**1204.37**

CHAPTER 8

CONCLUSION & RECOMMENDATIONS

8.1 Conclusion & Recommendations

Project stretch of Solapur to Yedashi section of NH-211 in state of Karnataka from km 0.000 to km 100.000has been widened to four lane. The road is in sound condition and serves healthy traffic volumes. Project corridor is main transport link for Karnataka- Marathwada traffic. There are large number of townships, industrial corridors and other business establishment coming up along project corridor. As Indian economy is poised to grow at 6%+ post COVID-19, the project corridor is expected to pick up the same trend in terms of traffic flow. All these developments have potential to give positive impact to traffic flow on project. The following can be considered as major outcomes of the study

a) There is good amount of tollable traffic running on project

b) Project corridor has potential to witness traffic growth @ 6-8% annually in near future due to various development in area and overall development of economy

c) Project corridor has committed traffic as long route traffic and does notrun a risk of traffic leakage due to quality competing road

Based on above it can be considered a stable healthy project from traffic and revenue point of view.

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UDAIPUR TO GUJARAT BORDER ON NH 8
(KM 287.400 TO KM 401.200)
IN THE STATE OF RAJASTHAN

JANUARY 2023

TRAFFIC STUDY & REVENUE PROJECTION REPORT (FINAL)

GMD CONSULTANTS ★ NAVI MUMBAI ★

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GMD Consultants

IRB INFRASTRUCTURE TRUST

UDAIPUR TO GUJARAT BORDER SECTION OF NH-8

(KM 287.400 TO 401.200)

IN THE STATE OF RAJASTHAN

TRAFFIC STUDY & REVENUE PROJECTION REPORT (FINAL)

JANUARY 2023

GMD CONSULTANTS NAVI MUMBAI

CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

AADT	-	Annual Average Daily Traffic
BOT	-	Build Operate Transfer
CAGR	-	Compound Annual Growth Rate
CTV	-	Classified traffic volume
DBFOT	-	Design, Build, Finance, Operate & Transfer
EME	-	Earth Moving Equipment
GDP	-	Gross Domestic Product
GSDP	-	Gross State Domestic Product
HCM	-	Heavy Construction Machinery
HCV	-	Heavy Commercial Vehicle
HTMS	-	Highway Traffic Management System
IRC	-	Indian Road Congress
IRR	-	Internal Rate of Return
LCV	-	Light Commercial Vehicle
LHS	-	Left Hand Side
LGV	-	Light Goods Vehicle
MAV	-	Multi Axle Vehicle
MORTH	-	Ministry of Road Transport and Highways
NH	-	National Highway
PCC	-	Plain Cement Concrete
CR	-	Coarse Rubble
NHAI	-	National Highway Authority of India
NHDP	-	National Highways Development Project
NSDP	-	Net State Domestic Product
O&M	-	Operation & Maintenance
PCDP	-	Per Capita Domestic Product
PCI	-	Per Capita Income
PCU	-	Passenger Car Unit
PSC	-	Pre-stressed Concrete
RCC	-	Reinforced cement concrete
RHS	-	Right Hand Side
SH	-	State Highway
TP	-	Toll Plaza
WPI	-	Wholesale Price Index
SIR	-	Special Investment Region
c.	-	Circa
ROB	-	Railway Over Bridge
MDR	-	Major District Road
ODR	-	Other District Road
CA	-	Concession Agreement
RMT	-	Running Meter

CHAPTER 1

INTRODUCTION

1.1 Background

The Government of India through National Highway Authority of India (NHAI) embarked upon a program to enhance the traffic capacity and safety for efficient transportation of goods as well as passenger traffic on National Highway Sections under NHDP Phase V. Under Phase V NHAI has planned to convert 6,500 km of existing 4-lane National Highways into 6-lane National Highway. Sections envisaged under 6-laning comprise the Golden Quadrilateral section (5,700 km) and some other sections which are 800 km in length.

The project under consideration, Six Laning of section from Km 287.400 to Km 401.200 of NH-8 in state of Rajasthan and Gujarat is one such road project NHAI intended to implement on a BOT basis in the DBFOT format. *M/s Udaipur Tollway Ltd*. (Concessionaire) has been awarded the Project for a concession period of 21 years starting from 3rd September 2017. The Project has been commissioned and is currently in the operation / maintenance phase. Six laning of project has also been completed in June 2021.

Length of project road is 114.00 Km approx. The project road is section of NH-8, one of the busiest national highways of India and part of Mumbai – Delhi arm of golden quadrilateral.

Project road alignment passes through the rural area in most part of stretch. After Udaipur there is no major urban establishment other than Rishabhdeo, a famous religious place in the region. Following figure show project road in regional context.

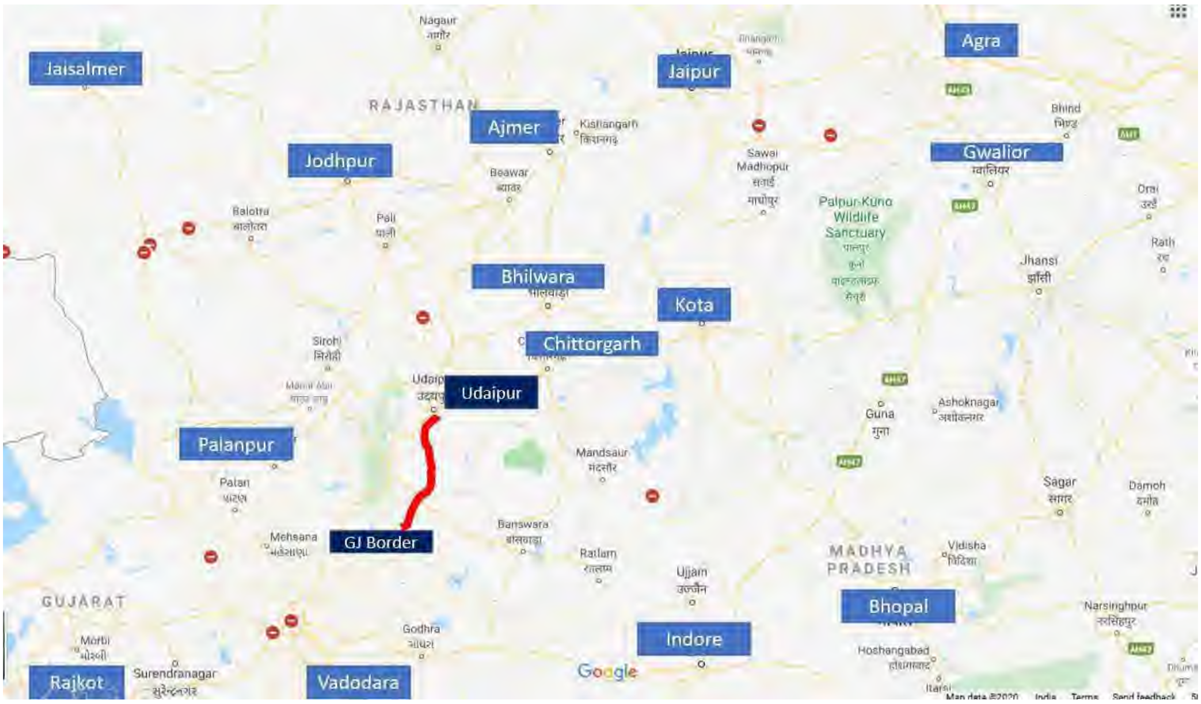

Figure 1-1 : Alignment of Project Stretch

1.2 Objective of the Study

M/s IRB INFRASTRUCTURE TRUST has engaged *GMD Consultants* to assess the future traffic and toll potential of project along with related operation & maintenance expenditure involved.

This report named as **"Traffic Study & *Toll Revenue Projection Report*"** mainly focuses on traffic and revenue aspects of the project. Other parameters like competing road, area developments etc. have been considered from a traffic development point of view.

1.2.1 Scope of Services

The broad scope of work covered in the assignment is as follows

a) Analysis of Traffic Growth

b) Toll Rate Growth

c) Revenue Forecasting

The Concessionaire has provided basic traffic data and other project details on the basis of which the above analysis has been carried out.

CHAPTER 2

PROJECT DETAILS

2.1 Project Corridor

National Highway 8 is one of the busiest national highways of India. Project stretch from Udaipur to Gujarat border on NH-8 is part of Delhi Mumbai arm of Golden quadrilateral.

Besides being part of major transport link between Mumbai and Delhi, stretch from Udaipur to Shamlaji forms major connectivity between Udaipur, Ahmedabad, Rajkot Jamnagar and Porbandar. After renumbering of all national highways by National Highway Authority of India in 2010, the current NH 48 was formed by merging the old NH 8 (Delhi-Mumbai section) and NH 4 (Mumbai-Chennai). National Highway 48 starts at Delhi and terminates at Chennai and goes through Jaipur, Udaipur, Vadodara, Mumbai, Pune and Bengaluru, traversing through six states of India.

2.2 Project Stretch Description

Section of NH-8 (New NH-48) from Udaipur to Gujarat Border is part of major transportation link in the area connecting industrial / tourist cities of Udaipur- , Ahmedabad, Vadodara, Mumbai. Project stretch would be faster connectivity to Udaipur from Gujarat border and onwards to Ahmedabad once six laning is complete.

Project stretch from Udaipur to Gujarat border as such passes through rural areas. Area has number of green marble mines and there are lot many establishments on the way. Rishabhdeo in one such area having more than 500 such units.

Major religious centres like Shamlaji and Ekling ji contribute to substantial passenger traffic on project stretch.

There is one operative toll plaza at project stretch at Khandi Obri at km 348.450. Following figure show project alignment and toll plaza location.

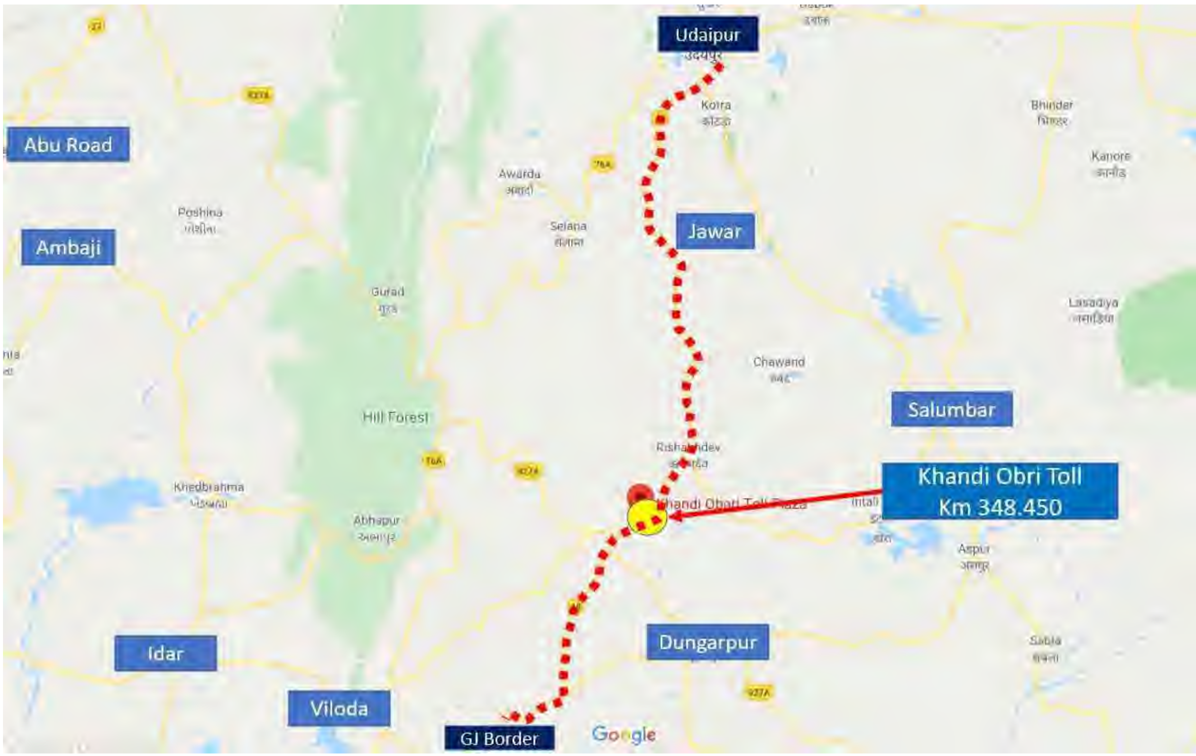

Figure 2-1 : Project Alignment with Toll Plaza

2.3 Project Corridor Illustration

Six laning of project stretch is complete underway and is expected to complete soon. Following photographs illustrate project section along the corridor.

Figure 2-2 : Photographs showing Project Corridor

CHAPTER 3

TRAFFIC SURVEYS AND ANALYSIS

3.1 Traffic Surveys

The Consultants have collected the required information for project corridor to understand the general traffic and travel characteristics on the corridor.

The following traffic data has been collected from client for project.

- Classified traffic volume counts at toll plaza location on Udaipur – Gujarat section of NH-8 for year 2017-18 (part), 2018-2019, 2019-20, 2020-21, 2021-2022 & Six-Monthly traffic data from April 2022 to September 2022.
- Local Component of traffic
- Component of Return Journey
- Component of Monthly Pass Journey

The main objective of the traffic data analysis is to:

- Determine the existing traffic movement characteristics of the project
- Establish base year traffic
- Identification of travel patterns and modal split of project traffic
- Deriving growth factors for traffic forecasting
- Estimation of corridor traffic including traffic diversion if any
- Preparation of revenue model and projection of revenue as per toll policy for various scenarios

Table 3-1 below lists provides details of locations from where traffic details have been collected.

Table 3-1 : Traffic Data Details

SR. NO	LOCATION	CTV	Single Journey Traffic	Daily Return Journey	Monthly Pass	Local Pass
1	Km 348.450 Toll Plaza at Khandi Obri	AADT for Year 2017-18, 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2017-18, 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2017-18, 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2017-18, 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2017-18, 2018-19, 2019-2020, 2020-21, 2021-22 & Six Monthly Data from April 22 to September 22

Classified Traffic Volume

The objective of conducting a Classified Traffic Volume Count is to understand the traffic flow pattern including modal split on a roadway. The Classified Traffic Volume Count survey has been provided by the concessionaire of project highway from actual traffic data gathered at toll plaza locations based on monthly data shared with NHAI.

The vehicles can broadly be classified into fast moving / motorized and slow moving / non-motorized vehicles, which can be further classified into specific categories of vehicles. The groupings of vehicles are further segregated to capture the tollable vehicle categories specifically and toll exempted vehicles are counted separately. The detailed vehicle classification system as per IRC: 64-1990 is given in table below

Table 3-2 : Vehicle Classification System

Vehicle Type	
Auto Rickshaw	
Passenger Car	Car, Jeep, Taxi & Van (Old / new technology)
Bus	Mini Bus
	Standard Bus

Truck	Light Goods Vehicle (LCV)
	2 – Axle Truck
	3 Axle Truck (HCV)
	Multi Axle Truck (4-6 Axle)
	Oversized Vehicles (7 or more axles)
Other Vehicles	Agriculture Tractor, Tractor & Trailer

Source - IRC: 64 – 1990

However, since project highway is currently under toll operation, the data collected is corresponding to category of tollable vehicles. Following are the type of vehicles as per concession agreement.

- Car / Jeep / van
- Min Bus /LCV
- Truck / Bus
- Multi Axle

2.6 Traffic Characteristic

Toll revenue of project highway does not solely depend on traffic volume. There are certain characteristics of traffic which have substantial potential to affect toll collection. Component of local traffic, component of passenger and commercial traffic, portion of return journey traffic, % of monthly pass traffic are some of such characteristics of traffic. These will be discussed in subsequent sections of report.

2.6.1 Traffic Data

Project concessionaire has provided Traffic data for base year 2019-20 ,2020-21, 2021-22 and from April 2022 to September 2022 as under for both toll plazas–

Table 3-3 : Traffic Data at Khandi Obri Toll Plaza at Km 348.450

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)-2019-20	Annual Average Daily Traffic (Nos.)-2020-21	Annual Average Daily Traffic (Nos.)-2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	4532	3574	4773	5232

2	LCV	934	737	619	696
3	BUS	800	472	661	779
4	Truck	1448	1402	1703	1949
5	3-Axle	1806	1548	1691	1764
6	Multi Axle	3717	3367	3887	4183
7	Oversized Vehicle	11	13	21	10
	Total	**13248**	**11113**	**13355**	**14614**

Pandemic of COVID-19 (Corona Virus) had impacted entire world. Taking precaution, government of India announced a complete lockdown in last of March 2020 and traffic on highways was stopped which was eased out progressively later. There after India was hit by Covid-19 second and third wave in February 21 to July -21 and December 21 to March-22. Recovering traffic pattern was somewhat again disturbed du to second and third wave of Covid-19. Traffic numbers of for period from April-2020 to March 2021 were not representative of traffic pattern at project corridor due to pandemic lockdown impact. However, for integrity of data same shown above. Traffic has almost recovered from Covid -19 impact as of now.

Since the traffic data available for this update is for only six months, from April 2022 to September 2022, a seasonality factor for balance half year has been applied to average traffic of current six months to arrive at Annual Average Daily Traffic for future projections and revenue calculations.

This data was then bifurcated to various components like through local, monthly, return journey etc. category. Same is discussed in detail in following section.

2.7 Data Analysis

2.7.1 Analysis of Traffic Volume Count

Understanding the character of existing traffic forms the basis of the traffic forecast. The various vehicle types having different sizes and characteristics can be converted into a single unit called Passenger Car Unit (PCU). Passenger Car equivalents for various vehicles are adopted based on recommendations of Indian Road Congress prescribed in

"IRC-64-1990: Guidelines for Capacity of Roads in Rural areas". The adopted passenger car unit values (PCU) are presented in ***Table 3-4.***

Table 3-4 : PCU Factors Adopted for Study

Vehicle Type	PCUs
Car	1.0
Mini Bus	1.5
Standard Bus	3.0
LCV/LGV	1.5
2 Axle Truck	3.0
3 – 6 Axle Truck	4.5
MAV	4.5
Auto Rickshaw	1.0
Van/Tempo	1.0
Agriculture Tractor with Trailer	4.5
Agriculture Tractor without Trailer	1.5

Source: IRC: 64-1990

Traffic volume at each toll plaza was converted to PCU and same is presented as under

Table 3-5 : Traffic in PCU at Project Stretch Base Year 2019-20, 2020-21, 2021-22 & 2022-23

Year	Toll Plaza Location (Km)	Traffic No	PCU	PCU Index
2019-20	Khandi Obri at Km 348.450	13248	34871	2.63
2020-21	Khandi Obri at Km 348.450	11113	30155	2.71
2021-22	Khandi Obri at Km 348.450	13355	35453	2.65

2022-23	Khandi Obri at Km 348.450	14614	38625	2.64

It can be observed from above that project traffic has PCU index more than 2.5 which is an indicator of high proportion of commercial traffic in traffic mix in project corridor.

2.7.2 Components of Traffic

As discussed previously, components of traffic volume play an important role in determining project revenue. A larger component of commercial traffic with higher axle configuration adds to project revenue positively. Similarly, a larger component of local traffic affects the project revenue potential negatively.

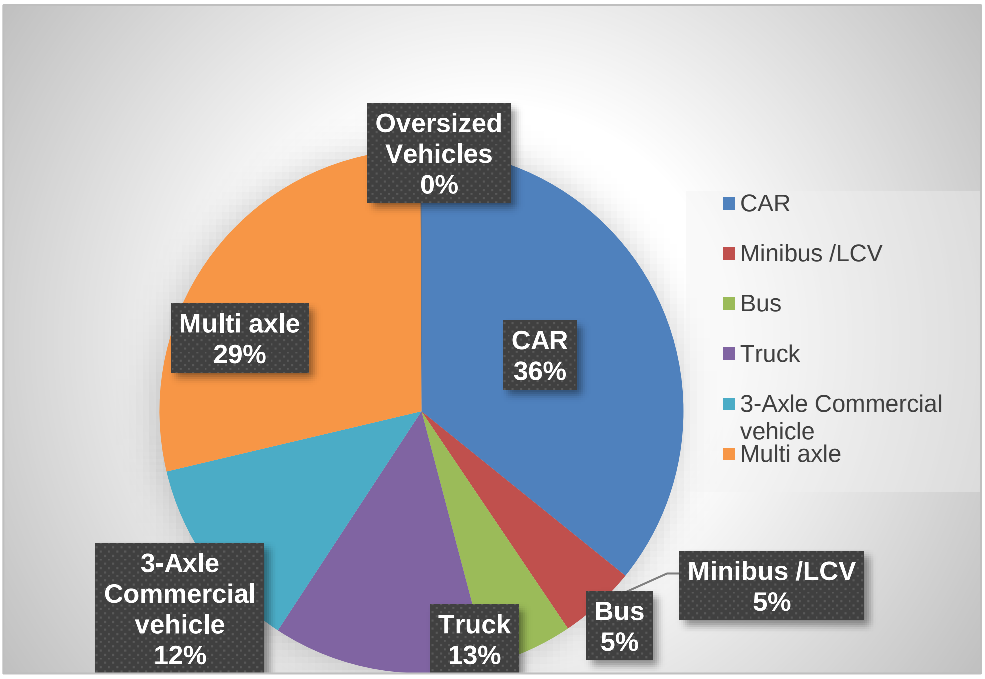

Figure 3-1 : Model Split of Tollable Vehicle

It is observed that car traffic forms about 36% of total traffic at toll plaza locations while multi axle commercial vehicles are about 41% of total traffic. Truck / Bus and LCV share about 18% and 5 % of traffic volume respectively.

Another important bifurcation of traffic is components of traffic with respect various type of toll ticketing like

1. Single Journey
2. Multi Journey

3. Monthly Pass (Local and General)

The following table provides numbers of vehicles falling in each of above category on base year 2022-23

Table 3-6 : Journey Type Bifurcation of Traffic at Khandi Obri TP KM 348.450

Sr. No	Type	Traffic Volume (Nos.)2022-23
1	Single Journey	11731
2	Return Journey	2682
3	Local Commercial Single Journey	135
4	Monthly Pass Local	66
5	Monthly Pass	0

Most dominant part of the above is the single journey type followed by return journey at project stretch. Monthly pass commuters are a very low fraction of the total traffic on the project corridor.

The single journey component in total traffic numbers is a high as 80%. Return journey component is 18%. The number of monthly pass Local is 1% and Local Commercial Single journey is 1% at Khandi Obri toll plaza.

It is observed that the project corridor demonstrates pattern of single journey dominated mix of traffic which is typical of major national highways having more long distance traffic.

2.8 Secondary Data Collection

There are several other factors which have a substantial impact on traffic pattern and growth on any project corridor. Following are some of such important factors

- Industrial development around project corridor and its catchment
- Educational infrastructure along project corridor
- Demographic pattern
- Urban area development
- Tourism potential
- Upcoming major infrastructural or Industrial projects
- Special Industry in project corridor
- Overall trends of economic growth local as well as national / regional

Hence in addition to traffic details on project site, secondary data was also collected from various other sources. Typical secondary data includes the following:

1. Vehicle registration data of regional and national level.
2. Economic Data
   a) GDP
   b) NSDP
   c) Population Growth
   d) Per Capita Income growth
   e) Industrial Growth
   f) Special Industry Potential
   g) Regional and National development vision / plan
   h) Any other relevant data
3. Competing road network

We have collected and utilized such underlying data in the study to estimate the growth and risk factors for traffic along the project corridor.

CHAPTER 4

INFLUENCE ZONE TRANSPORT NETWORK ANALYSIS

3.1 Introduction

Highway corridors behave like integrated circuit network and more often than not every road is connected to various networks having different origin and destinations. Traffic running on these networks behave like fluid and flow on network on alignment of least friction.

Following Factors can be considered as major contributors to friction on transportation network

- Travel Speed / Travel Time
- Geometric deficiencies like blind horizontal curves and steep vertical gradients etc,
- Configuration of road
- Riding quality
- Traffic delays,
- Length of road,
- Passing through built up or Urban Area,
- Terrain,
- Facilities,

3.2 Competing / Alternate route

Project stretch is part of Delhi – Mumbai arm of golden quadrilateral transport network. Additionally it also forms good connectivity to Ahmedabad, Rajkot, Jamnagar and other port and industrial establishments in bay of Khambat of Gujarat.

At regional level, there can be three alternates for Udaipur- Ahmedabad pair of Origin & Destination. One via project road (Udaipur – Rishabhdeo- Shamlaji- Ahemedabad), second on east side (via Himmatnagar) and third on far east side via Palanpur- Mehsana..

Following maps show these routes in relation to project stretch at regional level.

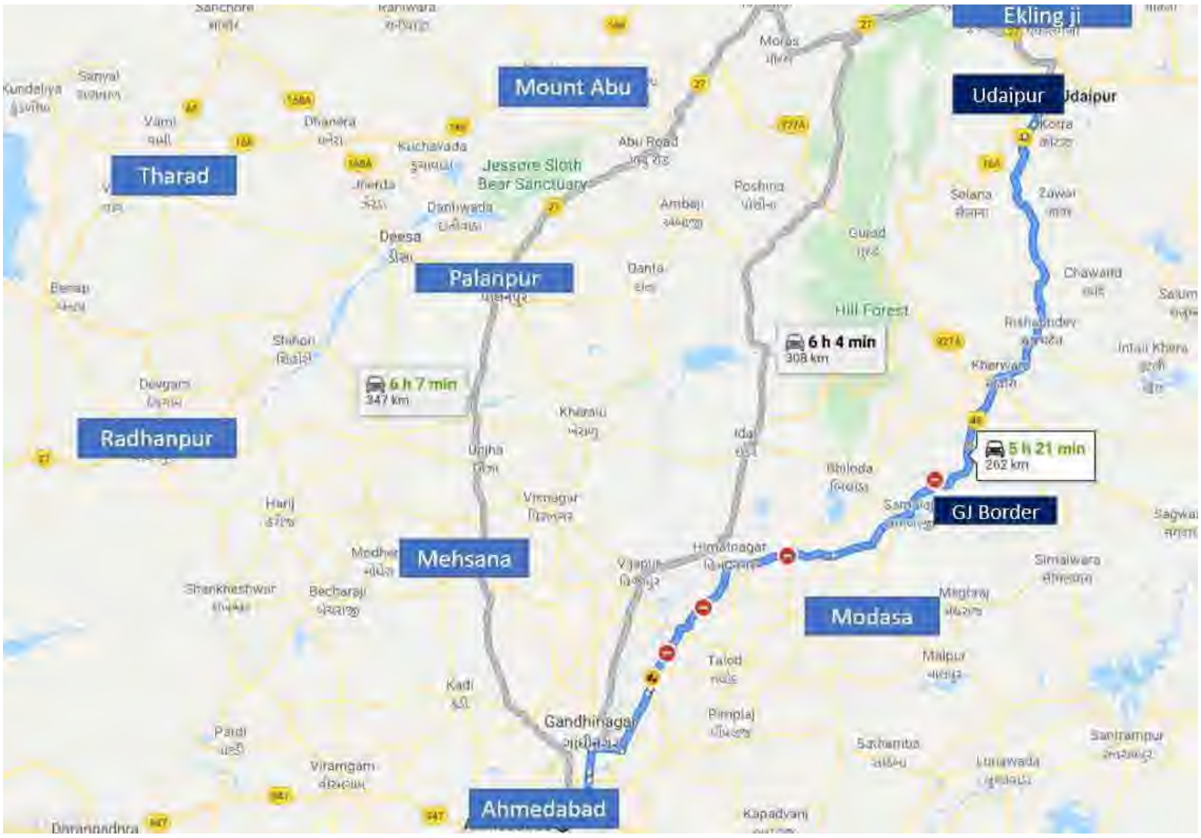

Figure 4-1 : Alternate route at regional level Udaipur - Ahmedabad

Route via project road is most preferred one due to minimum travel time and shortest length.

On a high level, between Delhi and Vadodara, there can be three alternatives. One via project road (Delhi- Jaipur- Udaipur- Shamlaji -Vadodara), second via Delhi-Sikar-Ahmedabad- Vadodara) and third via Delhi- Jaipur- Mandsauar – Banswara- Godhra-Vadodara. Following map shows these alignments.

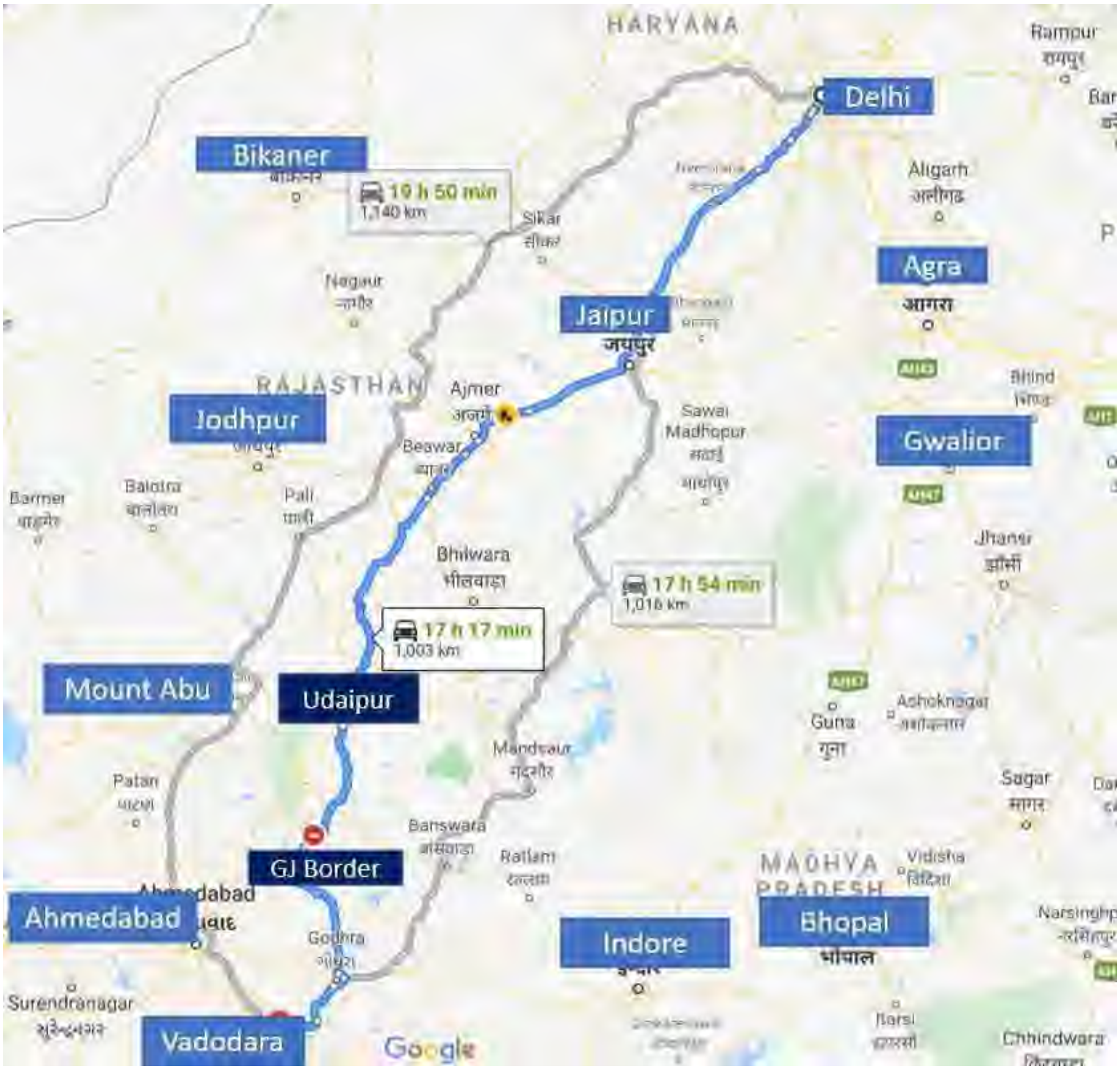

Figure 4-2 : Alternate route at regional level Delhi - Vadodara

For Delhi- Vadodara pair of origin and destination, route via project road (Udaipur – Shamlaji) is most preferred one due to minimum travel time and length of route.

Thus, at regional level project road is preferred route of long distance traffic between Mumbai- Delhi and Udaipur- Ahmedabad. Project road is under toll operation since long hence traffic on project road is now settled and it can be assumed as dedicated traffic on project road for logistic obligations.

After six laning completion, project stretch would become slightly more attractive due to improved level of service. In such case any further diversion of traffic from project road is not envisaged. It is expected that there could be some attracted traffic on project road after completion of six laning of Kishangarh Gulabpura stretch which is connecting section for project corridor.

At local level there is no potential alternate route to bypass toll plaza.

Following table provide summary of analysis of alternate route/ roads discussed above.

Table 4-1 : Competing Roads Details

Sr. No	Route Details	Designation	Length (Km)	Avg. Speed (KMPH)	Time Taken (Min)	Observations
Regional Level						
1	Udaipur- Palanpur -Mehsana-Ahemedabad	Alternate Route	347	64	6 Hr 7 Min	Project road alternate has minimum travel time and shortest road
	Udaipur- Idar -Himmatnagar-Ahemedabad	Alternate Route	308	50	6 Hr 8 Min	
	Udaipur-Rishabhdeo-Shamlaji-Ahemedabad	Project Road	262	49	5 Hr 21 Min	
2	Delhi- Jaipur-Mandsaur -Banswara-Vadodara	Alternate Route	1140	57	19 Hr 50 Min	Project road alternate has minimum travel time and shortest road
	Delhi- Sikar- Mt. Abu -Ahemedabad-Vadodara	Alternate Route	1016	57	17 Hr 54 Min	
	Delhi- Jaipur-Udaipur -Vadodara	Project Road	1003	58	17 Hr 54 Min	

Under these circumstances it is not envisaged that commercial or passenger traffic would switch to alternate roads from the project road. Further, it may be noted that since the project highway has already been commissioned and has a tolling history, the current traffic traversing the project corridor already factors in traffic diversion (if any) that may have taken place. Further after completion of six laning, level of service would improve on project corridor and this would create favorable conditions for traffic.

CHAPTER 5

GROWTH OF TRAFFIC ON PROJECT HIGHWAY

5.1 Introduction

Traffic growth is a function of the interplay of a number of contributory factors such as National economy, Government policy, socio-economic conditions of the people, and changes in land uses along the project corridor precincts etc. As these factors have a number of uncertainties associated with them, forecasts of traffic are dependent on the projections of other factors such as population, gross domestic product (GDP), vehicle ownership, per capita income (PCI), agricultural output, fuel consumption etc. Future pattern of change in these factors can be estimated with only a reasonable degree of accuracy and hence the resultant traffic forecast levels may not be precise.

Traffic growth forecast for project corridor Udaipur to Gujarat Border section of NH-8 has been done taking the above factors into consideration. "**IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**" is established best practice and has been used for traffic growth forecast.

5.2 Trend Analysis

One of the methods of estimation of future rate of growth is to assume the same rate of growth as in the past. Although such a method is more suitable to projects of short durations say 5-10 years, however for long term projections it would-be erroneous to assume that the past rate of growth will continue to prevail for a long time in future. Economic conditions, which are major influencing factors, are bound to change over a long period of time. Thus, it would be necessary to modify the past trends of growth suitably.

Elasticity model of growth projection is one of the most widely acceptable methods for traffic forecast. The same is recommended in **IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**.

In this method the past trend of vehicular data is paired with an economic indicator and a regression analysis is done to yield the economic model of growth. Growth of vehicle traffic varies for different type of vehicle. It is a proven fact that the growth pattern for passenger and goods vehicle is different. Traffic growth on any highway

typically depends on number of economic parameters. Most important and direct parameters are given as under

- Per Capita Income
- Net State Domestic Product (NSDP)
- Population

It can be observed that the ownership of a car is more closely related to affordability; hence per capita is the index which closely fits the growth of car traffic among other criteria. In a similar fashion, the following can be pairs of vehicle type and independent variable for elasticity modeling of growth.

- Car / Jeep – Par Capita Income
- Bus / Minibus – Population
- Goods Vehicle – NSDP

5.3 Estimation of Traffic Demand Elasticity

Elasticity of traffic demand is defined as the rate at which traffic intensity varies due to a change in the corresponding indicator selected. Hence, In order to estimate the elasticity of traffic demand, it is necessary to establish relationship between the growth in number of given category of vehicles with the relevant economic variable considered, such as NSDP, per capita income and population growth. Latest available data for vehicle registration, per capita income, NSDP and population is used in analysis.

As per IRC: 108-1996 the model for estimating elasticity index for the project corridor is of the following form and is given as below:

Log (P) = k x Log (EI) + A

Where,

P = Number of Vehicles (Mode wise)

EI = Economic Indicator

A = Regression constant

k = Elasticity coefficient (Regression coefficient)

The elasticity for car and bus (passenger vehicles) is calculated based on the Population and Per Capita Domestic Product (PCDP) and the elasticity for trucks is calculated based on the Net State Domestic Product (NSDP).

The project corridor spreads across state of Rajasthan. Toll plazas at Khondi Obri is in the state of Rajasthan but the traffic on project stretch has certain contribution from other states as well. For elasticity calculations, working data from such states in addition to Rajasthan has been analyzed.

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Rajasthan State.

Table 5-1 : Per Capita Income Vs Car Rajasthan

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	57192	591069	4.76	5.77		
2013	58441	659542	4.77	5.82	2%	
2014	61053	733916	4.79	5.87	4%	
2015	64496	814079	4.81	5.91	6%	
2016	68565	899307	4.84	5.95	6%	
2017	71394	988391	4.85	5.99	4%	4.55%

Regression analysis of same is given in figure below

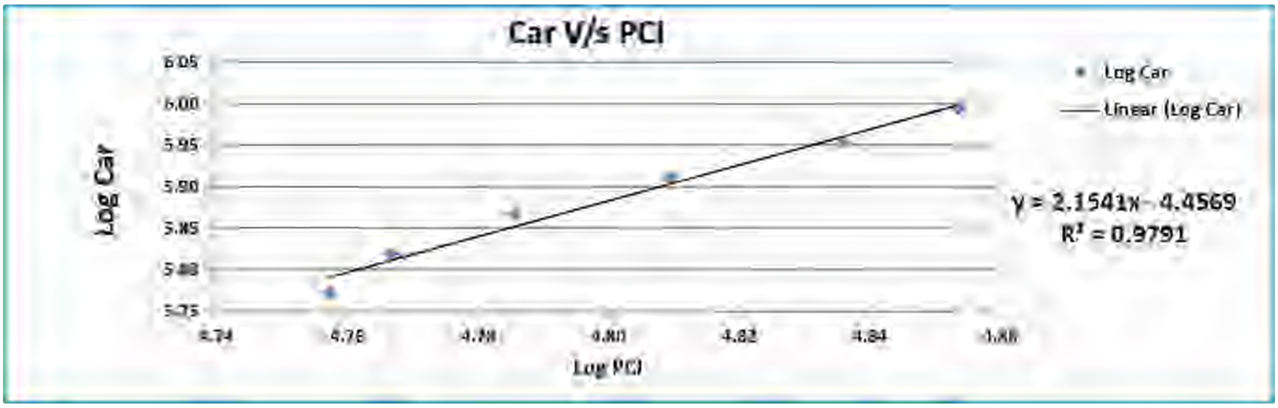

Figure 5-1 : Regression and Elasticity PCI vs. Car – Extrapolation Rajasthan

Table 5-2 : Population Vs Bus Rajasthan

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	68548437	83345	7.84	4.92		
2013	69783885	88616	7.84	4.95	2%	
2014	71016445	93892	7.85	4.97	2%	
2015	72245688	97650	7.86	4.99	2%	
2016	73471198	102818	7.87	5.01	2%	
2017	74692571	108680	7.87	5.04	2%	1.73%

Regression analysis of same is given in figure below

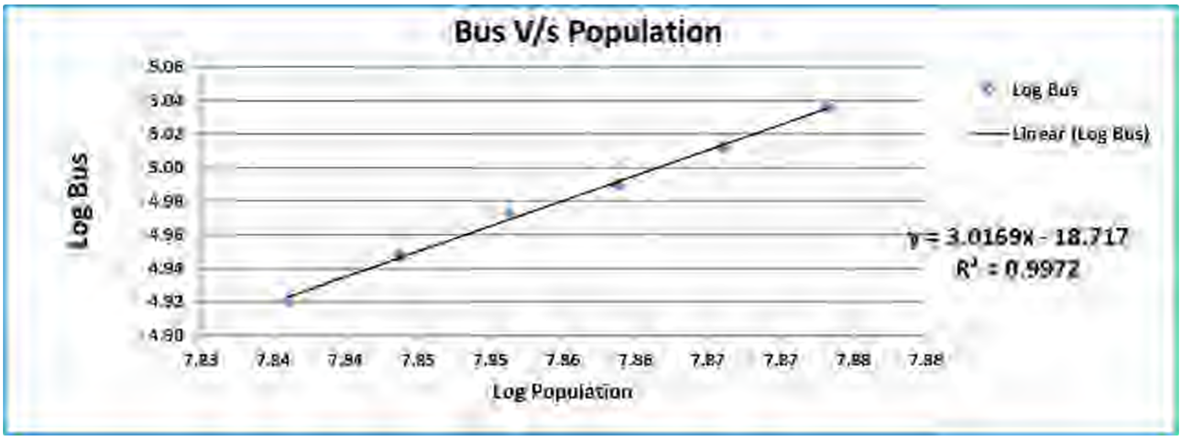

Figure 5-2 : Regression and Elasticity Population vs. Bus – Extrapolation Rajasthan

Elasticity of LCV has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-3 : LCV Vs NSDP Rajasthan

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth
2012	395331	69509	5.60	4.84		
2013	409802	76396	5.61	4.88	4%	
2014	434292	33379	5.64	4.52	6%	
2015	465408	91787	5.67	4.96	7%	
2016	501922	99763	5.70	5.00	8%	6.16%

Following figure depict regression analysis and extrapolation.

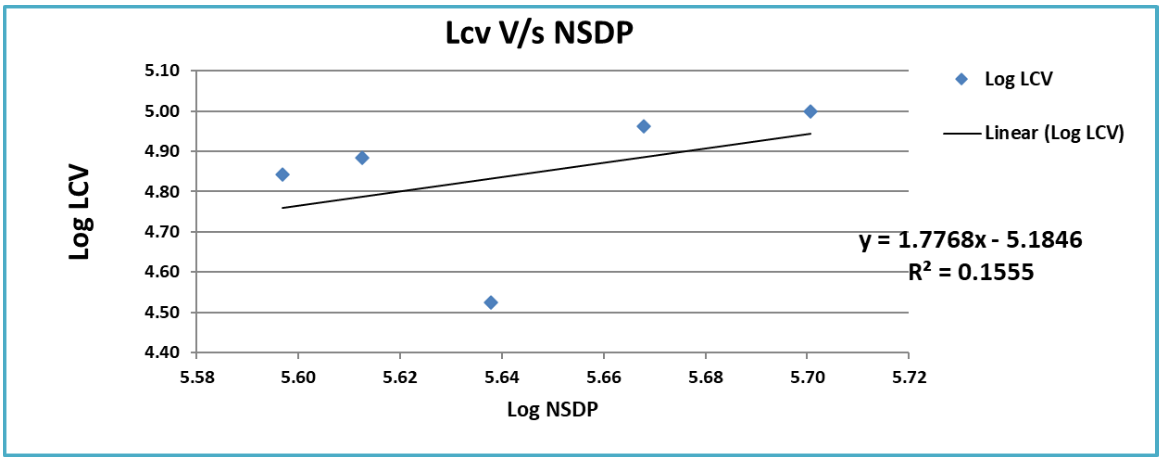

Figure 5-3 : Regression and Elasticity NSDP vs. LCV Traffic - extrapolation Rajasthan

Elasticity of Goods Traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-4 : GOODS Traffic Vs NSDP Rajasthan

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth
2012	395331	362028	5.60	5.56		
2013	409802	401983	5.61	5.60	4%	
2014	434292	434379	5.64	5.64	6%	
2015	465408	472365	5.67	5.67	7%	
2016	501922	517604	5.70	5.71	8%	
2017	530172	561158	5.72	5.75	6%	6.06%

Following figure depict regression analysis and extrapolation.

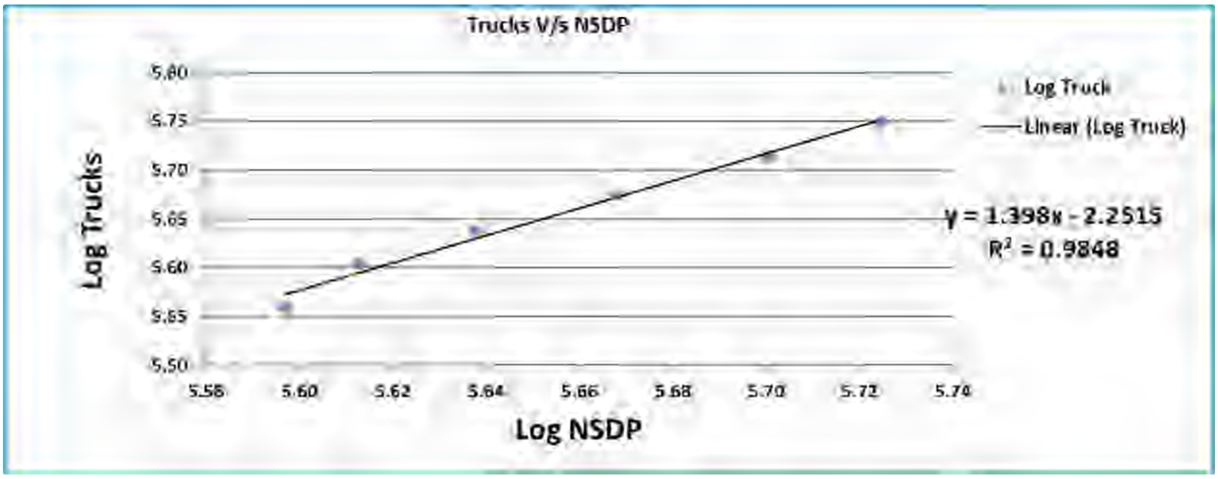

Figure 5-4 : Regression and Elasticity NSDP vs. Goods Traffic - extrapolation Rajasthan

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below

Table 5-5 : Summary Regression Analysis Rajasthan

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average IV Growth (5yrs)	Growth Elastic Model	Remarks
Rajasthan	Car/Jeep	PCI	y = 2.1541x + -4.4569	R^2 = 0.9791	2.1541	4.55%	9.79%	Good Regression
	Bus	Population	y = 3.0169x - -18.7174	R^2 = 0.9972	3.0169	1.73%	5.22%	Good Regression
	LCV	NSDP	y = 1.7768x - -5.1846	R^2 = 0.1555	1.7768	6.16%	10.95%	Poor Regression
	Truck	NSDP	y = 1.398x - -2.2515	R^2 = 0.9848	1.3980	6.06%	8.46%	Good Regression

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Rajasthan State.

Table 5-6 : Per Capita Income Vs Car Gujarat

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	87481	1411898	4.94	6.15		
2013	96683	1602129	4.99	6.20	11%	
2014	102589	1771298	5.01	6.25	6%	
2015	111370	2008748	5.05	6.30	9%	
2016	120683	2260084	5.08	6.35	8%	
2017	129738	2527537	5.11	6.40	8%	8.21%

Regression analysis of same is given in figure below

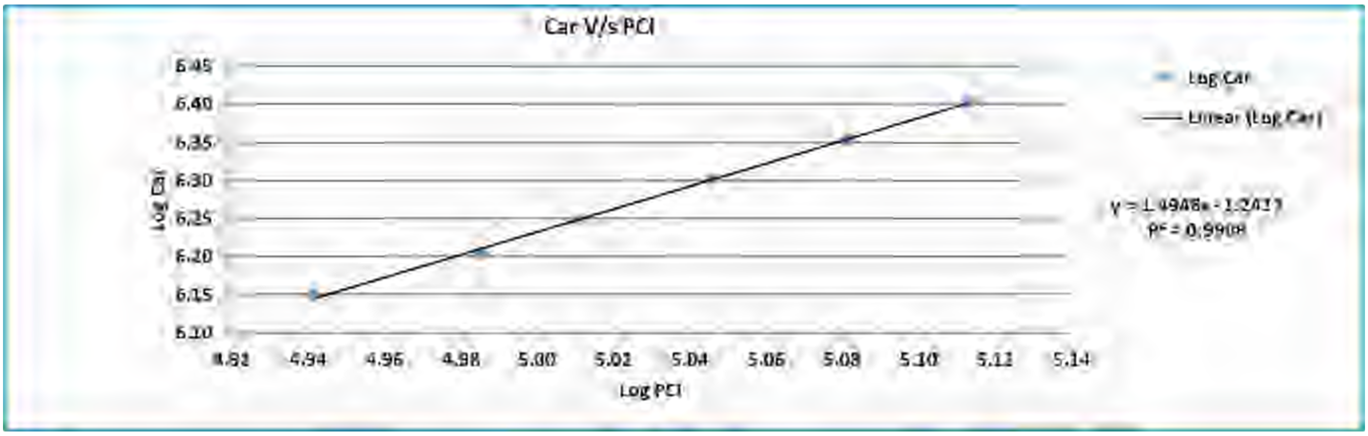

Figure 5-5 : Regression and Elasticity PCI vs. Car – Extrapolation Gujarat

Table 5-7 : Population Vs Bus Gujarat

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	60439692	67546	7.78	4.83		
2013	61563037	70615	7.79	4.85	2%	
2014	62684375	72998	7.80	4.86	2%	
2015	63803304	76435	7.80	4.88	2%	
2016	64919427	82734	7.81	4.92	2%	
2017	66032362	74855	7.82	4.87	2%	1.79%

Regression analysis of same is given in figure below

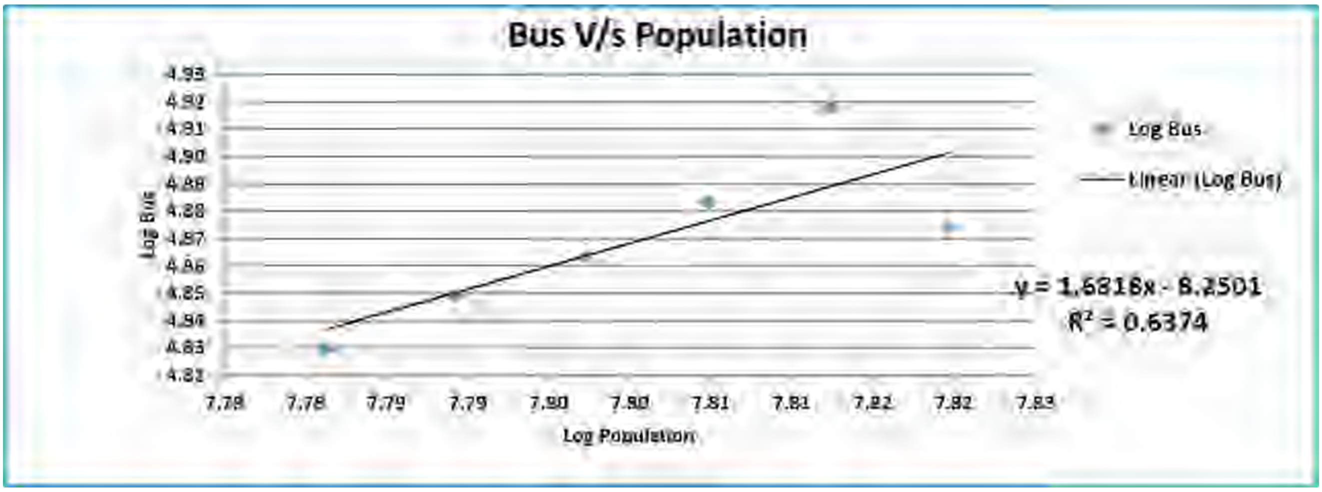

Figure 5-6 : Regression and Elasticity Population vs. Bus – Extrapolation Gujarat

Elasticity of LCV has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-8 : LCV Vs NSDP Gujarat

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth (5 Year)
2012	532809	448958	5.73	5.65		
2013	596659	499277	5.78	5.70	12%	
2014	641489	542918	5.81	5.73	8%	
2015	705629	589984	5.85	5.77	10%	
2016	774775	633599	5.89	5.80	10%	9.82%

Following figure depict regression analysis and extrapolation.

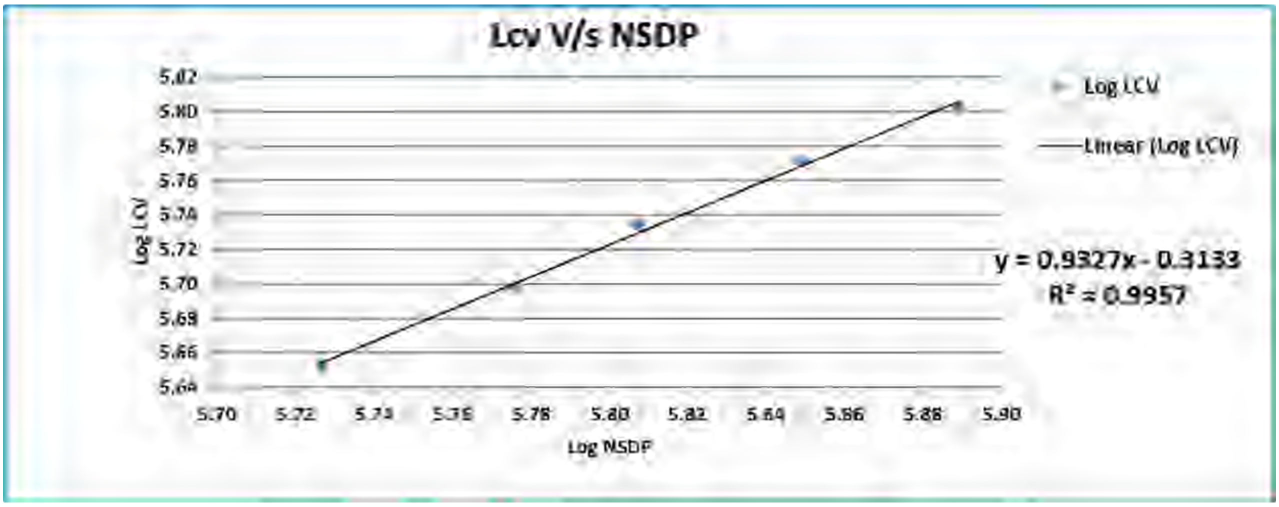

Figure 5-7 : Regression and Elasticity NSDP vs. LCV Traffic - extrapolation Gujarat

Elasticity of Goods Traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-9 : GOODS Traffic Vs NSDP Gujarat

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	532809	301533	5.73	5.48		
2013	596659	319207	5.78	5.50	12%	
2014	641489	332185	5.81	5.52	8%	
2015	705629	352225	5.85	5.55	10%	
2016	774775	375265	5.89	5.57	10%	
2017	843930	396061	5.93	5.60	9%	9.64%

Following figure depict regression analysis and extrapolation.

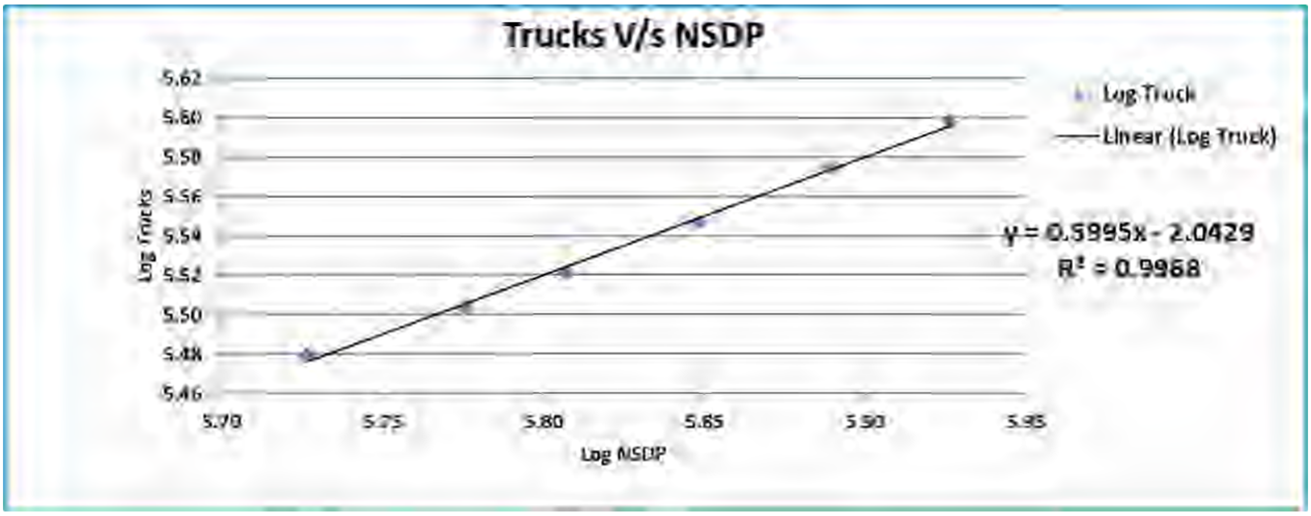

Figure 5-8 : Regression and Elasticity NSDP vs. Goods Traffic - extrapolation Gujarat

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below

Table 5-10 : Summary Regression Analysis Gujarat

State	**Vehicle Category**	**Independent Variable**	**Regression Equation**	**R Square**	**Elasticity Coefficient (y)**	**Average IV Growth (5yrs)**	**Growth Elastic Model**	**Remarks**
Gujarat	Car/Jeep	PCI	y = 1.4948x - -1.2417	R^2 = 0.9988	1.4948	8.21%	12.27%	Good Regression
	Bus	Population	y = 1.6818x - -8.2501	R^2 = 0.6374	1.6818	1.79%	3.00%	Fair Regression
	LCV	NSDP	y = 0.9327x - - 0.3133	R^2 = 0.9957	0.9327	9.82%	9.16%	Good Regression
	Truck	NSDP	y = 0.5995x - - 2.0429	R^2 = 0.9968	0.5995	9.64%	5.78%	Good Regression

Economical model for predicting growth is good tool, however other local, regional, national factors should also be considered before finalizing growth factors. Considering factors such as proposed developments and other influencing economic factors, moderated growth should be considered. These factors are discussed in subsequent sections.

5.4 Analysis of Historic Traffic Data

Historical traffic data forms useful information for any highway project. It provides useful information for establishing past trend of growth. Project stretch of Udaipur to Gujarat on NH-8 is under tolling operation with current concessionaire and has three year of tolling history from 2017-18 (Part year). As traffic data available with the project concessionaire is of less than three years, we do not have sufficient data points to be able to establish a reliable past trend of traffic growth. A minimum of about 5 -6 years' traffic data is required for establishing a reliable past trend.

5.5 Other Factors Influencing Growth

There are many factors which have impact on traffic growth. As discussed previously these factors can be economical, social, educational, and industrial.

Potentiality of such factors for project highway is discussed as under.

ECONOMY

After witnessing a slowdown during 2011-12, the economy recovered in 2013-14, and a high growth rate of GDP was recorded in up to 2018-19. Pandemic of COVID-19 impacted all economies of world including India. Following figure show trend of GDP growth in India.

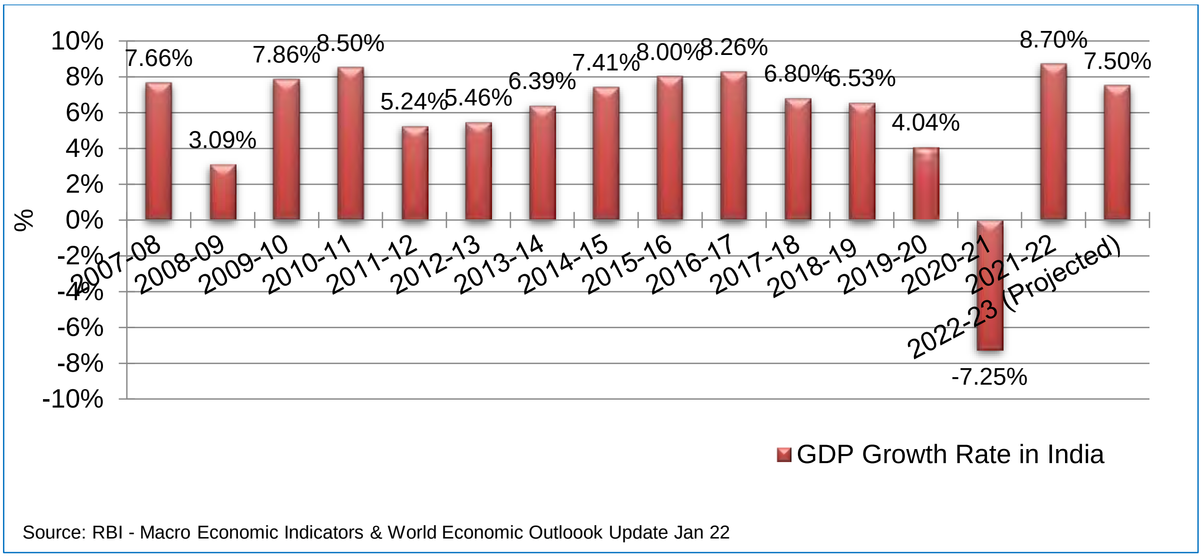

Figure 5-9 : Growth of GDP in India

FY 2017-18 recorded a growth of 6.7% which had slight impact of GST and demonetization. Indian economy appears on recovery path with estimated growth of

6.8% in FY 2018-19. Government took major policy decision including tax infrastructure reforming, banking sector improvement and ease of doing business.

Major economies of world collapsed due to pandemic COVID-19 including India. Indian economy is also registered negative growth in financial year 2020-21. After that Indian economy recovered handsomely and registered a growth of about 9% in Year 2021-22. This was partly due to low base of year 2020-21 as well.

Honorable Prime Minister has announced a major relief package of Rs. 20 lakh crores which is about 10% of GDP. This is aimed at turning this major crisis of COVID-19 into opportunity by providing major impetus to industrial production to the limit of becoming a self-reliant economy. With major thrust of this package being on **Make -In- India** it is expected that industry in India would grow at rapid pace and recover handsomely in post COVID-19 scenario. World Economic Outlook update also has predicted a growth rate of about 7.5 % in year 2022-23.

5.6 Developments along and around the Project Corridor & State

Project stretch passes through mineral rich belt of marble and minerals.

Tourism, agriculture, and mineral industries contribute to Udaipur's diverse economic base. Udaipur sees major tourist footfall throughout the year owing to its picturesque landscape, lakes, and historic palaces and architecture. Shamlaji is a major Hindu pilgrimage dedicated to God Vishnu. Each year an annual fair is held October which attracts huge crowds from surrounding region. Udaipur district is rich in lead, zinc, silver, phosphate, calcite, copper and limestone minerals. Udaipur is known for its marble which is mined, processed, and is exported across the world. Nathdwara in north of asset is one of biggest extractors of marble and limestone minerals. Hindustran Zinc, which is world's second largest zinc producer, is based out of Udaipur.

Rishbhdeo is one of the major religious and industrial settlement on project corridor. This region has more than 200 mines of green marble. Rishabhdeo is the largest miner of green marble.9 0 per-cent of green marble in the world is produced in Rishabhdev. The turnover of marble industry is more than 500 crore. It also give employment to many labourers. Beyond this the town also has spinning and weaving mill by lnjbhilwara group. Thus it gives employment to 10000 local workers. The presence of temple also leads to income of many people

Growth of Rajasthan has been comparable to the national average economic growth. Rajasthan is rich in natural resources and benefits from its strategic geographic location in India. The state is pre-eminent in quarrying, mining in India and has been a leader in crude oil extraction over the past the few years. Moreover, Rajasthan is also a relevant tourism attractor in India. Considering the scenario, it may be assumed that the traffic growth on project highway would remain high and there are minimal risks in terms of growth.

Table 5-11 : GDP of India, Rajasthan and other important states

Year	India (GDP)	Bihar	Haryana	Madhya Pradesh	Maharashtra	Odisha	Punjab	Rajasthan	Uttar Pradesh	Uttarakhand	West Bengal	Delhi
1980-81	12336	514	357	623	1464	529	504	560	1631	138	830	269
1981-82	13030	543	371	639	1498	528	551	607	1670	141	808	291
1982-83	13411	548	394	668	1556	497	568	620	1800	152	840	328
1983-84	14464	601	402	702	1654	597	578	761	1871	158	939	320
1984-85	15037	658	418	668	1675	569	623	706	1900	161	964	333
1985-86	15663	672	493	726	1807	635	670	704	1975	167	1005	386
1986-87	16339	725	493	694	1832	643	694	771	2060	174	1045	411
1987-88	16917	685	484	789	1955	623	730	718	2154	182	1101	447
1988-89	18635	772	602	847	2159	754	769	1014	2434	206	1148	486
1989-90	19778	759	610	865	2515	805	834	993	2502	212	1188	531
1990-91	20824	831	674	987	2629	668	849	1149	2651	224	1251	553
1991-92	21122	784	688	916	2620	753	888	1061	2662	225	1349	638
1992-93	22254	737	688	983	3017	740	930	1220	2690	228	1389	660
1993-94	23519	755	719	1088	3349	788	970	1121	2757	233	1490	705
1994-95	25023	842	771	1107	3414	826	995	1325	2901	254	1594	790
1995-96	26846	712	787	1174	3791	864	1032	1374	2995	251	1713	804
1996-97	28987	893	879	1252	3941	804	1107	1535	3327	267	1832	915
1997-98	30234	850	887	1318	4158	920	1137	1721	3292	270	1985	1063
1998-99	32255	904	934	1405	4324	948	1203	1797	3316	274	2112	1116
1999-00	34837	950	1002	1552	4735	1008	1267	1801	3440	274	2264	1170
2000-01	36282	1106	1081	1426	4589	982	1309	1743	3511	308	2343	1215
2001-02	38236	1043	1165	1528	4751	1042	1326	1941	3575	323	2512	1262
2002-03	39719	1175	1236	1449	5079	1034	1348	1708	3690	353	2600	1359
2003-04	42883	1099	1358	1611	5471	1185	1433	2251	3885	381	2753	1433
2004-05	45906	1238	1475	1664	5948	1340	1504	2196	4079	431	2936	1588
2005-06	50257	1207	1608	1748	6810	1399	1577	2344	4317	492	3121	1752
2006-07	55066	1416	1791	1907	7748	1574	1748	2620	4660	551	3366	1969
2007-08	60199	1489	1931	1997	8650	1708	1899	2739	4959	648	3627	2191
2008-09	64248	1716	2080	2250	8786	1837	2004	2969	5336	716	3774	2464
2009-10	69769	1798	2340	2463	9634	1852	2132	3142	5668	839	4067	2667
2010-11	75987	2073	2498	2592	10732	1968	2270	3614	6120	927	4313	2888
2011-12	81069	2285	2712	2824	11222	2042	2392	3953	6451	1020	4471	3147
2012-13	85463	2369	2894	3069	11842	2163	2518	4098	6736	1095	4838	3342
2013-14	90636	2469	3142	3226	12671	2331	2675	4343	7075	1178	5247	3565
2014-15	97121	2557	3314	3394	13322	2359	2777	4656	7297	1257	5633	3882
2015-16	105033	2749	3612	3597	14417	2557	2926	4981	7894	1355	-	4291
2016-17	112476	3033	3927	4129	15744	2828	3095	5352	8457	1448	-	4658
2017-18	119762	-	-	4432	-	3029	-	5736	9011	1547	-	5035
Growth 1981-2018	6.34	5.05	6.88	5.44	6.82	4.83	5.17	6.49	4.73	6.75	5.79	8.24
Growth 1994-2018	7.02	6.23	7.66	6.03	6.96	5.77	5.17	7.04	5.06	8.20	6.54	8.53
Growth 2000-2018	7.10	7.07	8.37	6.00	7.32	6.30	5.40	6.65	5.50	10.10	6.27	8.45

5.7 Recommended Growth Rates of Traffic

Based on the above analysis and after giving due consideration to the entire listed factors, the following overall growth rates are recommended for each category of vehicle as under. Rate of growth is moderated in light of overall regional trend. Growth of Multi-Axle is kept slightly higher as trend of technological advances in logistic industry favors multi-axle over 2/3 axle carriage. It is also expected that as the economy moves from developing to developed, rate of growth diminishes. Same growth rate is not sustainable for long. Traffic growth is suitably stepped down for future years.

Growth rates are recommended for three scenarios for sensitivity analysis namely **Optimistic, Pessimistic** and **Most Likely** with a positive and negative variation 0.5% from Most Likely case for corridor in both states.

5.7.1 Recommended Growth Rates of Traffic for Project Stretch

Table 5-12 : Recommended Growth Rates Optimistic

Category / Year	2021-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
Car/Jeep/Van	9.44%	8.82%	8.21%	7.60%	7.01%	6.43%
Bus	5.26%	4.95%	4.64%	4.35%	4.07%	3.79%
LCV	3.55%	3.09%	2.64%	2.19%	1.75%	1.31%
2- Axle	3.73%	3.35%	2.96%	2.58%	2.21%	1.84%
3 - Axle	5.82%	5.20%	4.59%	3.99%	3.39%	2.80%
4 to6 Axle	6.52%	5.82%	5.13%	4.45%	3.78%	3.12%
7 and Above Axle	6.52%	5.82%	5.13%	4.45%	3.78%	3.12%

Table 5-13 : Recommended Growth Rates Pessimistic

Category / Year	2021-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
Car/Jeep/Van	8.94%	8.32%	7.71%	7.10%	6.51%	5.93%
Bus	4.76%	4.45%	4.14%	3.85%	3.57%	3.29%
LCV	3.05%	2.59%	2.14%	1.69%	1.25%	0.81%
2- Axle	3.23%	2.85%	2.46%	2.08%	1.71%	1.34%
3 - Axle	5.32%	4.70%	4.09%	3.49%	2.89%	2.30%
4 to6 Axle	6.02%	5.32%	4.63%	3.95%	3.28%	2.62%
7 and Above Axle	6.02%	5.32%	4.63%	3.95%	3.28%	2.62%

Table 5-14 : Recommended Growth Rates Most Likely

Category / Year	2021-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
Car/Jeep/Van	9.19%	8.57%	7.96%	7.35%	6.76%	6.18%
Bus	5.01%	4.70%	4.39%	4.10%	3.82%	3.54%
LCV	3.30%	2.84%	2.39%	1.94%	1.50%	1.06%
2- Axle	3.48%	3.10%	2.71%	2.33%	1.96%	1.59%
3 - Axle	5.57%	4.95%	4.34%	3.74%	3.14%	2.55%
4 to6 Axle	6.27%	5.57%	4.88%	4.20%	3.53%	2.87%
7 and Above Axle	6.27%	5.57%	4.88%	4.20%	3.53%	2.87%

It is expected that there will some bullet increment in traffic in year 2023-24 due to completion of Ahmedabad – Shyamalaji Road which is a feeder to project road. Hence some bullet increment is taken in year 2023-24.

Traffic and revenue have been worked out on the basis of above growths and same is presented in subsequent chapter of report.

5.8 COVID-19 Impact

All social and economic activities had been completely disrupted due worldwide pandemic of Corona Virus. This had affected traffic on project stretch as well. Traffic was severely affected form March-2020 due to lockdown and then in second wave and third waves.

Government has announced a mega economic stimulate and package of Rs. 20 Lakh Crore to bring the economy back on track and recover the losses. Traffic has shown impressive recovery post lockdown period and has recovered to normal level

Taking recommended traffic growth and additional factors as discussed above into consideration traffic forecast for concession period is done and presented in next chapter

CHAPTER 6

TRAFFIC FORECAST

6.1 Traffic Projections

Growth rates recommended in previous section of report are used to arrive at traffic projections for future years. Toll plaza wise futuristic traffic projection is given in tables below.

These projections have been done for following three cases of growth up to concession period

1. Optimistic Scenario
2. Pessimistic Scenario
3. Most Likely Scenario

Table 6-1 : Total Tollable Traffic @ Toll Plaza - 348.450 KM
(Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	5232	696	779	1949	1764	4183	10	14614	38625
2023-24	6412	805	920	2265	2091	4991	12	17496	45959
2024-25	7016	833	968	2349	2212	5316	13	18707	48833
2025-26	7634	859	1016	2428	2326	5626	14	19903	51613
2026-27	8307	886	1066	2510	2447	5953	15	21184	54561
2027-28	9039	914	1119	2594	2575	6299	16	22556	57692
2028-29	9835	942	1174	2681	2709	6666	17	24024	61014
2029-30	10702	971	1232	2771	2851	7054	18	25599	64545
2030-31	11580	997	1289	2854	2982	7416	19	27137	67908
2031-32	12530	1024	1349	2939	3119	7796	20	28777	71459
2032-33	13558	1051	1411	3026	3263	8196	21	30526	75211
2033-34	14670	1079	1476	3116	3413	8617	22	32393	79179
2034-35	15873	1107	1544	3209	3569	9060	23	34385	83373
2035-36	17080	1132	1611	3292	3712	9463	24	36314	87315
2036-37	18378	1157	1681	3377	3860	9885	25	38363	91463
2037-38	19775	1183	1754	3464	4014	10326	26	40542	95830
2038-39	21279	1209	1830	3554	4173	10785	27	42857	100418
2039-40	22897	1236	1910	3646	4339	11265	28	45321	105255
2040-41	24503	1257	1988	3727	4486	11691	29	47681	109732
2041-42	26221	1278	2069	3810	4638	12134	30	50180	114427
2042-43	28061	1300	2153	3894	4795	12593	31	52827	119345

Table 6-2 : Total Tollable Traffic @ Toll Plaza - Chainage 348.450 KM

(Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	5232	696	779	1949	1764	4183	10	14614	38625
2023-24	6383	803	915	2253	2082	4967	12	17416	45747
2024-25	6953	827	958	2326	2193	5265	13	18535	48376
2025-26	7531	848	1001	2392	2296	5546	14	19628	50890
2026-27	8157	869	1045	2459	2404	5841	15	20790	53537
2027-28	8835	891	1092	2529	2516	6152	16	22031	56339
2028-29	9569	913	1140	2601	2634	6479	17	23353	59296
2029-30	10365	936	1191	2675	2758	6824	18	24767	62430
2030-31	11164	956	1241	2740	2870	7140	19	26130	65367
2031-32	12025	976	1292	2807	2987	7471	20	27578	68457
2032-33	12952	996	1346	2875	3109	7817	21	29116	71707
2033-34	13950	1017	1401	2946	3236	8179	22	30751	75129
2034-35	15025	1038	1459	3018	3368	8557	23	32488	78727
2035-36	16093	1056	1515	3081	3486	8895	24	34150	82059
2036-37	17237	1074	1573	3145	3607	9246	25	35907	85543
2037-38	18462	1092	1634	3210	3732	9611	26	37767	89195
2038-39	19774	1111	1696	3276	3861	9990	27	39735	93016
2039-40	21179	1130	1761	3344	3995	10384	28	41821	97028
2040-41	22558	1144	1823	3401	4110	10725	29	43790	100669
2041-42	24028	1158	1888	3459	4229	11076	30	45868	104470
2042-43	25593	1172	1955	3518	4351	11439	31	48059	108438

Traffic projections for Most Likely scenario are given as under

Table 6-3 : Total Tollable Traffic @ Toll Plaza - Chainage 348.450KM
(Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU(Including Exempted)
2022-23	5232	696	779	1949	1764	4183	10	14614	38625
2023-24	6397	804	917	2259	2087	4978	12	17455	45851
2024-25	6984	831	963	2338	2203	5290	13	18622	48606
2025-26	7583	856	1009	2410	2312	5585	14	19769	51256
2026-27	8233	881	1056	2484	2426	5896	15	20991	54052
2027-28	8938	907	1106	2560	2546	6224	16	22297	57015
2028-29	9704	933	1158	2639	2672	6571	17	23694	60157
2029-30	10536	960	1212	2720	2805	6937	18	25188	63485
2030-31	11374	983	1265	2793	2927	7276	19	26637	66631
2031-32	12279	1007	1320	2868	3054	7631	20	28179	69945
2032-33	13255	1032	1378	2945	3187	8003	21	29821	73441
2033-34	14309	1057	1438	3025	3326	8394	22	31571	77134
2034-35	15446	1083	1501	3107	3471	8803	23	33434	81025
2035-36	16582	1103	1562	3179	3601	9173	24	35224	84649
2036-37	17801	1124	1626	3253	3736	9559	25	37124	88460

2037-38	19110	1145	1693	3328	3876	9960	26	39138	92456
2038-39	20516	1166	1763	3405	4021	10378	27	41276	96655
2039-40	22025	1188	1836	3485	4171	10814	28	43547	101072
2040-41	23515	1206	1907	3553	4302	11195	29	45707	105118
2041-42	25105	1224	1980	3623	4437	11590	30	47989	109351
2042-43	26804	1242	2056	3694	4577	11998	31	50402	113779

6.2 Modification in Concession Period

As per Article 29 of the concession agreement, if actual traffic on the project falls short or exceeds Target Traffic on project highway on defined date, concession period shall be modified subject to calculation stipulated therein. For Udaipur – Gujarat Border on NH-8 project stretch, the Target Date and Target Traffic are defined as under:

Target Date – 21st September 2026

Target Traffic - 61435 in PCU

It was observed that as per traffic projections, average traffic volume falls short of target traffic in all scenarios. Probable extension of concession period is estimated according to article 29 of concession agreement which comes to about a year. Traffic forecast and revenue projections are done for probable extended period accordingly.

Most Likely

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2026	61435	54107	-12%	18%	18%	21	3.8

Optimistic

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2026	61435	54622	-11%	17%	17%	21	3.5

Pessimistic

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2026	61435	53588	-13%	19%	19%	21	4.0

CHAPTER 7

FORECAST OF TOLL REVENUE

7.1 General

This chapter presents the tolling rate calculations, categories and toll revenue of the project.

7.2 Discount Categories

The fee schedule in the CA of Udaipur- Gujarat Border section of NH-8 is based on the old toll policy. As per the Toll Notification (Schedule - G) the discounts and special provisions have been considered. In addition to discounts as per Fee Notification concessionaire has declared special category rates also. Salient features of toll rate structure are given as under

1. Monthly Pass: For frequent users monthly pass would be issued at fee 30 time the single journey fee.
2. Multiple Journeys (for Return Trip): Will be charged at 1.5 times single journey.
3. Single Journey: Full single journey toll would be charged to this category of vehicles who are infrequent travelers or whose frequency does not yield any discount from the above categories.
4. Local Discounts: There are several categories of local discounts.
   a) Local Car Jeep Van I - Rs. 275 per month
   b) Other local Commercial at 50% of the regular single journey toll fee

Building of inflation and escalation of rate on the basis of WPI are done as per toll notification (Schedule G) as given under as extract from concession agreement.

The formula for determining the applicable rate of fee shall be as follows:-

$$\text{Applicable rate of fee} = \text{base rate} + \text{base rate} \times \left\{\frac{\text{WPI A} - \text{WPI B}}{\text{WPI B}}\right\} \times 0.4$$

Factor of inflation / growth has been incorporated as per Schedule R. WPI numbers (2011-12 series) are available up to 2018-19. A moderate growth in Wholesale Price Index (WPI) has been assumed after that. The following graph provides historical rate of inflation (WPI) in India. Data has been sourced from the Office of Economic Advisor web site (www.eaindustry.nic.in) WPI for year 2017-18 and 2018-2019 is worked back by applying a correlation factor for 2004-05 series as 2017-18 and 2018-2019 data is available in 2011-12 series only. Ratio of WPI for year 2016-17 for both series is used for conversion of WPI in 2004-05 series

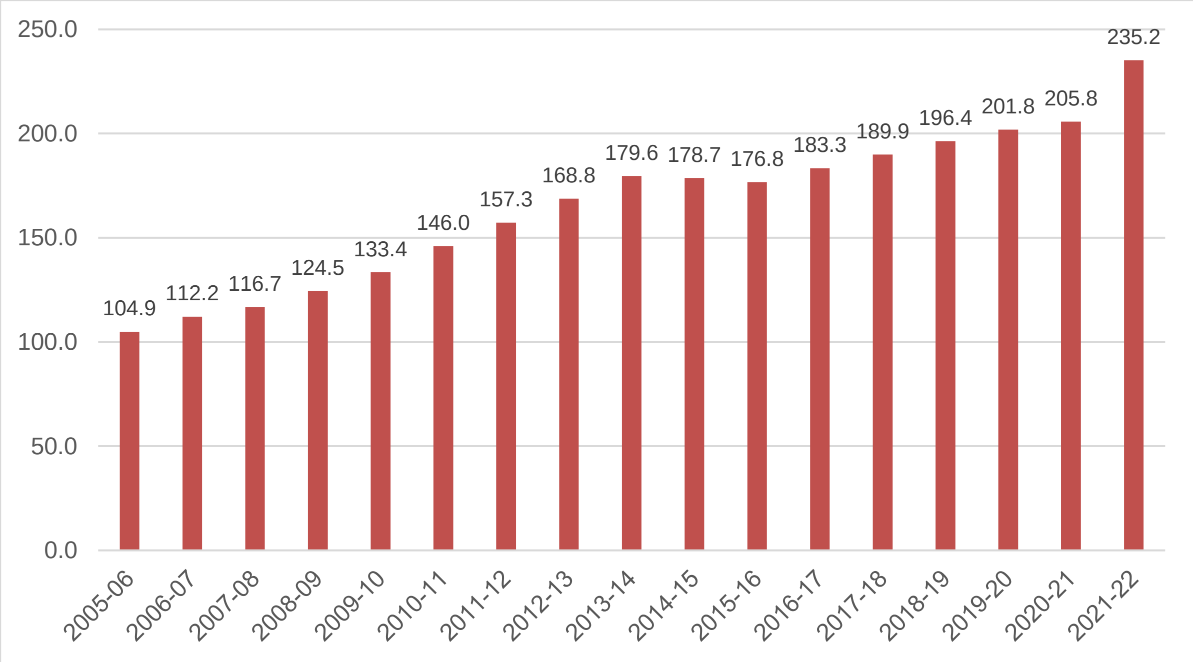

Figure 7-1 : Historical Rate of WPI Inflation in India

Average inflation in WPI in last few years is steadily growing. It grew in range of 4% - 5% in previous years. For future years initially it is takes 5% and Suitably Stepped down for future years.

7.3 Estimation of Toll Rates

As per the applicable MORTH notification and Schedule R of contract agreement, the following Base rate of fee for the categories mentioned in the table stands true in the National Highways Fee Rules applicable for contract.

Table 7-1 : Base Toll Rates June 2007-08

Type of Vehicle	Base Rate of Fee / Km (in Rs.)
Car, Jeep, Van or Light Motor Vehicle	0.65
Light Commercial Vehicle, Light Goods Vehicle or Mini Bus	1.05
Bus or Truck (Two Axles)	2.20
Three Axle Commercial Vehicles	2,40
Heavy Construction Machinery (HCM) or Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 axles)	3.45
Oversized Vehicles (7 or more Axles)	4.20

There is no bypass or structure to be factored in for rates calculations.

Toll rates are calculated as per guidelines provided in schedule R (rounded to nearest Rs.) for the concession period and are given below.

Thus, worked out rates for various categories of vehicle and discounts are given as under

Table 7-2 : Toll Rates for Single Journey @ Km TP-348.450 KM

Year	Car	Mini Bus /LCV	Bus	Truck	3-Axle Commercial Vehicle	Multi Axle	Oversized Vehicle
2022-23	165	265	555	555	605	870	1060
2023-24	175	280	585	585	635	915	1115
2024-25	180	295	615	615	670	960	1170
2025-26	190	310	645	645	705	1010	1230
2026-27	200	325	680	680	740	1065	1295
2027-28	210	340	710	710	775	1115	1355
2028-29	220	355	745	745	810	1165	1420
2029-30	230	370	780	780	850	1225	1490
2030-31	240	390	820	820	895	1285	1560
2031-32	255	410	860	860	935	1345	1640
2032-33	265	430	900	900	980	1410	1715
2033-34	280	450	945	945	1030	1480	1800
2034-35	290	470	990	990	1080	1550	1890
2035-36	305	495	1040	1040	1130	1630	1980
2036-37	320	520	1090	1090	1190	1710	2080
2037-38	340	545	1145	1145	1245	1790	2180
2038-39	355	570	1200	1200	1310	1880	2290
2039-40	370	600	1260	1260	1375	1975	2400
2040-41	390	630	1320	1320	1440	2070	2520
2041-42	410	660	1385	1385	1515	2175	2645
2042-43	430	695	1455	1455	1590	2285	2780

Table 7-3 : Toll Rates for Return Journey @ TP-348.450 KM

Year	Car	Mini Bus /LCV	Bus	Truck	3-Axle Commercial Vehicle	Multi Axle	Oversized Vehicle
2022-23	245	400	835	835	910	1310	1590
2023-24	260	420	875	875	955	1375	1670
2024-25	270	440	920	920	1005	1445	1755
2025-26	285	460	965	965	1055	1515	1845
2026-27	300	485	1015	1015	1110	1595	1940
2027-28	315	510	1065	1065	1160	1670	2035
2028-29	330	535	1115	1115	1220	1750	2130
2029-30	345	560	1170	1170	1275	1835	2235
2030-31	365	585	1225	1225	1340	1925	2345
2031-32	380	615	1285	1285	1405	2020	2455
2032-33	400	645	1350	1350	1470	2115	2575
2033-34	420	675	1415	1415	1545	2220	2700
2034-35	440	710	1485	1485	1620	2325	2835
2035-36	460	745	1555	1555	1700	2440	2970
2036-37	485	780	1635	1635	1780	2560	3120
2037-38	505	820	1715	1715	1870	2690	3270
2038-39	530	860	1800	1800	1960	2820	3435
2039-40	560	900	1890	1890	2060	2960	3605
2040-41	585	945	1980	1980	2160	3105	3780
2041-42	615	995	2080	2080	2270	3260	3970
2042-43	645	1040	2185	2185	2380	3425	4170

Table 7-4 : Toll Rates for Monthly Pass Local @ TP-348.450 KM

Year	Car	Mini Bus /LCV
2022-23	315	315
2023-24	330	330
2024-25	345	345
2025-26	365	365
2026-27	385	385
2027-28	400	400
2028-29	420	420
2029-30	440	440
2030-31	460	460
2031-32	485	485
2032-33	510	510
2033-34	535	535
2034-35	560	560
2035-36	585	585
2036-37	615	615
2037-38	645	645
2038-39	675	675

2039-40	710	710
2040-41	745	745
2041-42	785	785
2042-43	825	825

Table 7-5 : Toll Rates for Monthly Pass @ TP-348.450 KM

Year	Car	Mini Bus /LCV	Bus	Truck	3-Axle Commercial Vehicle	Multi Axle	Oversized Vehicle
2022-23	5475	8845	18530	18530	20215	29060	35375
2023-24	5750	9290	19465	19465	21235	30525	37160
2024-25	6045	9760	20455	20455	22310	32075	39045
2025-26	6350	10260	21495	21495	23445	33705	41035
2026-27	6675	10780	22590	22590	24645	35425	43130
2027-28	6995	11300	23675	23675	25830	37130	45200
2028-29	7330	11845	24815	24815	27070	38915	47375
2029-30	7685	12415	26015	26015	28380	40795	49660
2030-31	8060	13015	27270	27270	29750	42765	52065
2031-32	8450	13645	28595	28595	31195	44840	54590
2032-33	8860	14310	29985	29985	32710	47020	57240
2033-34	9290	15010	31445	31445	34305	49310	60030
2034-35	9745	15740	32980	32980	35980	51720	62965
2035-36	10220	16510	34595	34595	37740	54255	66050
2036-37	10725	17325	36295	36295	39595	56920	69295
2037-38	11250	18175	38085	38085	41545	59725	72705
2038-39	11810	19075	39965	39965	43600	62675	76300
2039-40	12395	20020	41945	41945	45760	65775	80075
2040-41	13010	21015	44030	44030	48030	69045	84055
2041-42	13655	22060	46220	46220	50420	72480	88240
2042-43	14340	23160	48525	48525	52940	76100	92645

7.4 Toll Revenue

As indicated earlier, toll revenue on the Project Road has been calculated in all three scenarios based on above rates and projected traffic. The estimates of toll revenue under ***Optimistic***, ***Pessimistic*** and ***Most Likely*** growth scenarios are presented in the following section.

7.5 Toll Revenue at all toll plazas under Scenarios

Toll Revenue estimates under most likely scenario at each of the toll plaza up to 2024-25 (5 years from the end of original Concession Period) starting from the year 2015-16 are shown in tables below.

Table 7-6 : Toll Revenue Optimistic Scenario

(Rs. Crores)

Year	TP-1	Total
2022-23	255.88	**255.88**
2023-24	321.19	**321.19**
2024-25	356.63	**356.63**
2025-26	396.21	**396.21**
2026-27	440.84	**440.84**
2027-28	489.14	**489.14**
2028-29	539.31	**539.31**
2029-30	598.22	**598.22**
2030-31	660.08	**660.08**
2031-32	729.65	**729.65**
2032-33	801.41	**801.41**
2033-34	885.53	**885.53**
2034-35	974.63	**974.63**
2035-36	1073.95	**1073.95**
2036-37	1176.60	**1176.60**
2037-38	1291.99	**1291.99**
2038-39	1419.18	**1419.18**
2039-40	1563.69	**1563.69**
2040-41	1702.78	**1702.78**
2041-42	1863.63	**1863.63**
2042-43	2038.81	**2038.81**

Table 7-7 : Toll Revenue Pessimistic Scenario

(Rs. Crores)

Year	TP-1	Total
2022-23	255.88	**255.88**
2023-24	319.72	**319.72**
2024-25	353.36	**353.36**
2025-26	390.73	**390.73**
2026-27	432.75	**432.75**
2027-28	477.85	**477.85**
2028-29	524.35	**524.35**
2029-30	578.97	**578.97**
2030-31	635.81	**635.81**
2031-32	699.46	**699.46**
2032-33	764.62	**764.62**
2033-34	840.90	**840.90**
2034-35	921.10	**921.10**
2035-36	1010.03	**1010.03**
2036-37	1101.28	**1101.28**
2037-38	1203.42	**1203.42**
2038-39	1315.53	**1315.53**
2039-40	1442.60	**1442.60**
2040-41	1563.42	**1563.42**
2041-42	1702.83	**1702.83**
2042-43	1853.77	**1853.77**

Table 7-8 : Toll Revenue Most Likely Scenario

(Rs. Crores)

Year	TP-1	Total
2022-23	255.88	**255.88**
2023-24	320.43	**320.43**
2024-25	354.95	**354.95**
2025-26	393.47	**393.47**
2026-27	436.78	**436.78**
2027-28	483.42	**483.42**
2028-29	531.75	**531.75**
2029-30	588.47	**588.47**
2030-31	647.72	**647.72**
2031-32	714.30	**714.30**
2032-33	782.67	**782.67**
2033-34	862.77	**862.77**
2034-35	947.39	**947.39**
2035-36	1041.41	**1041.41**
2036-37	1138.23	**1138.23**
2037-38	1246.80	**1246.80**
2038-39	1366.24	**1366.24**
2039-40	1501.85	**1501.85**

2040-41	1631.58	**1631.58**
2041-42	1781.29	**1781.29**
2042-43	1943.87	**1943.87**

CHAPTER 8

CONCLUSION & RECOMMENDATIONS

8.1 Conclusion & Recommendations

Project stretch of Udaipur to Gujarat Border section of NH-8 in state of Rajasthan is nearing completion of six laning. The road is in sound condition and serves healthy traffic volumes. Project corridor is a part of the busy and prominent national highway NH-8 which connects Mumbai to Delhi and is part of golden quadrilateral. There are large number of townships, industrial corridors and other business establishment coming up along project corridor. As discussed, dominant portion of traffic is long route traffic, which is more sensitive towards the growth of national economy. As Indian economy is poised to grow at 7%+ post COVID-19, the project corridor is expected to pick up the same trend in terms of traffic flow. All these developments have potential to give positive impact to traffic flow on project. The following can be considered as major outcomes of the study

a) There is good amount of tollable traffic running on project

b) Project corridor has potential to witness traffic growth @ 6-8% annually in near future due to various development in area and overall development of economy

c) Project corridor has committed traffic as long route traffic and does not run a risk of traffic leakage due to quality competing road

Based on above it can be considered a stable healthy project from traffic and revenue point of view.

YEDISHI TO AURANGABAD SECTION OF NH-211

(KM 100.000 TO KM 290.200)

IN THE STATE OF MAHARASHTRA

TRAFFIC STUDY & REVENUE PROJECTION REPORT (FINAL)

GMD CONSULTANTS ★ NAVI MUMBAI ★

JANUARY 2023

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B - 553

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CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

AADT	-	Annual Average Daily Traffic	**NHAI**	-	National Highway Authority of India
BOT	-	Build Operate Transfer	**NHDP**	-	National Highways Development Project
CAGR	-	Compound Annual Growth Rate	**NSDP**	-	Net State Domestic Product
CTV	-	Classified traffic volume	**O&M**	-	Operation & Maintenance
DBFOT	-	Design, Build, Finance, Operate & Transfer	**PCDP**	-	Per Capita Domestic Product
EME	-	Earth Moving Equipment	**PCI**	-	Per Capita Income
GDP	-	Gross Domestic Product	**PCU**	-	Passenger Car Unit
GSDP	-	Gross State Domestic Product	**PSC**	-	Pre-stressed Concrete
HCM	-	Heavy Construction Machinery	**RCC**	-	Reinforced cement concrete
HCV	-	Heavy Commercial Vehicle	**RHS**	-	Right Hand Side
HTMS	-	Highway Traffic Management System	**SH**	-	State Highway
IRC	-	Indian Road Congress	**TP**	-	Toll Plaza
IRR	-	Internal Rate of Return	**WPI**	-	Wholesale Price Index
LCV	-	Light Commercial Vehicle	**SIR**	-	Special Investment Region
LHS	-	Left Hand Side	**c.**	-	Circa
LGV	-	Light Goods Vehicle	**ROB**	-	Railway Over Bridge
MAV	-	Multi Axle Vehicle	**MDR**	-	Major District Road
MORTH	-	Ministry of Road Transport and Highways	**ODR**	-	Other District Road
NH	-	National Highway	**CA**	-	Concession Agreement
PCC	-	Plain Cement Concrete	**RMT**	-	Running Meter
CR	-	Coarse Rubble			

CHAPTER 1

INTRODUCTION

1.1 Background

The Government of India through National Highway Authority of India (NHAI) embarked upon a program to enhance the traffic capacity and safety for efficient transportation of goods as well as passenger traffic on National Highway Sections under various NHDP Phases.

The project under consideration, four laning of **Yedeshi** to **Aurangabad** section of NH-211 from km 100.000 to km 290.200 is one such road project NHAI intended to implement on a BOT basis in the DBFOT format. *M/s YA Tollway Ltd*. (Concessionaire) has been awarded the Project for a concession period of 26 years starting from 1st July 2015. Four laning of project has also been completed in September 2020.

Length of project road is 189.090 Kms. The project road is section of NH-211, is one of the important transportation link in Maharashtra which connects Solapur to Dhule and then at Dhule it can join other important highway like NH-3 (Mumbai – Agra Road) and NH-6 (east-west highway). The project road passes through the important places like Chausala, Beed, Adul, Chitegaon and then Aurangabad. The Project Road passes through the districts of Beed and Aurangabad.

Following figure shows alignment of project road section from Yedeshi to Aurangabad.

Figure 1-1 : Alignment of Project Stretch

1.2 Objective of the Study

M/s IRB INFRASTRUCTURE TRUST has engaged *GMD Consultants* to assess the future traffic and toll potential of project along with related operation & maintenance expenditure involved.

This report named as **"Traffic Study & *Toll Revenue Projection Report*"** mainly focuses on traffic and revenue aspects of the project. Other parameters like competing road, area developments etc. have been considered from a traffic development point of view.

1.2.1 Scope of Services

The broad scope of work covered in the assignment is as follows

a) Analysis of Traffic Growth

b) Toll Rate Growth

c) Revenue Forecasting

The Concessionaire has provided basic traffic data and other project details on the basis of which the above analysis has been carried out.

CHAPTER 2

PROJECT DETAILS

2.1 Project Corridor

National Highway 211 which is now part of NH-52. The national highway 52 was numbered after amalgamating many existing national highways of India.

It connects the important places like Chausala, Beed, Adul, Chitegaon and then Aurangabad. The Project Road passes through the districts of Beed and Aurangabad. Following are the major centers of development around project road.

Project Stretch Description

Like other parts of India rapid ribbon development is happening around these cities on project highway. This also contributes to sustainable traffic growth.

There are three operative toll plazas at project stretch. First is at Yedeshi at Km 134.000, second at Padalshingi at Km 194.000 and third at Bhokarwadi at Km 254.000. Following figure show project alignment and toll plaza locations.

Figure 2-1 : Project Alignment with Toll Plaza

2.2 Project Corridor Illustration

Four laning of project stretch is complete. Following photographs illustrate project section along the corridor.

Figure 2-2 : Photographs showing Project Corridor

CHAPTER 3

TRAFFIC SURVEYS AND ANALYSIS

3.1 Traffic Surveys

The Consultants have collected the required information for project corridor to understand the general traffic and travel characteristics on the corridor.

The following traffic data has been collected from client for project.

- Classified traffic volume counts at toll plaza locations on Yedeshi-Aurangabad section of NH-211 for year 2019-20, 2020-21, 2021-2022 and Six-Monthly traffic data from April 2022 to September 2022.
- Local Component of traffic
- Component of Return Journey
- Component of Monthly Pass Journey

The main objective of the traffic data analysis is to:

- Determine the existing traffic movement characteristics of the project
- Establish base year traffic
- Identification of travel patterns and modal split of project traffic
- Deriving growth factors for traffic forecasting
- Estimation of corridor traffic including traffic diversion if any
- Preparation of revenue model and projection of revenue as per toll policy for various scenarios

Table 3-1 below lists provides details of locations from where traffic details have been collected.

Table 3-1 : Traffic Data Details

SR. NO	LOCATION	CTV	Single Journey Traffic	Daily Return Journey	Monthly Pass	Local Pass
1	Km 134.000 Toll Plaza at Pargaon	AADT for Year 2019-20, 2020-2021, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2019-20 ,2020-2021, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2019-20 ,2020-2021, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2019-20 ,2020-2021, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2019-20 ,2020-2021, 2021-22 & Six Monthly Data from April 22 to September 22
2	Km 194.000 Toll Plaza at Padalshingi	AADT for Year 2019-20 , 2020-2021, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2019-20 ,2020-2021, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2019-20 ,2020-2021, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2019-20 ,2020-2021, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2019-20 ,2020-2021, 2021-22 & Six Monthly Data from April 22 to September 22
3	Km 254.000 Toll Plaza at Maliwadi	AADT for Year 2019-20 , 2020-2021, 2021-22 & Six Monthly Data from April 22 to September 22	For Year 2019-20 ,2020-2021, 2021-22 & Six Monthly Data from April 22 to	For Year 2019-20 ,2020-2021, 2021-22 & Six Monthly	For Year 2019-20 ,2020-2021, 2021-22 & Six Monthly Data from April 22 to	For Year 2019-20 ,2020-2021, 2021-22 & Six Monthly Data from

			September 22	Data from April 22 to September 22	September 22	April 22 to September 22

All toll plazas are located in Maharashtra.

3.2 Classified Traffic Volume

The objective of conducting a Classified Traffic Volume Count is to understand the traffic flow pattern including modal split on a roadway. The Classified Traffic Volume Count survey has been provided by the concessionaire of project highway from actual traffic data gathered at toll plaza locations based on monthly data shared with NHAI.

The vehicles can broadly be classified into fast moving / motorized and slow moving / non-motorized vehicles, which can be further classified into specific categories of vehicles. The groupings of vehicles are further segregated to capture the tollable vehicle categories specifically and toll exempted vehicles are counted separately. The detailed vehicle classification system as per IRC: 64-1990 is given in table below .

Table 3-2 : Vehicle Classification System

Vehicle Type	
Auto Rickshaw	
Passenger Car	Car, Jeep, Taxi & Van (Old / new technology)
Bus	Mini Bus
	Standard Bus
Truck	Light Goods Vehicle (LCV)
	2 – Axle Truck
	3 Axle Truck (HCV)
	Multi Axle Truck (4-6 Axle)
	Oversized Vehicles (7 or more axles)
Other Vehicles	Agriculture Tractor, Tractor & Trailer

Source - IRC: 64 – 1990

However, since project highway is currently under toll operation, the data collected is corresponding to category of tollable vehicles. Following are the type of vehicles as per concession agreement.

- Car / Jeep / van
- Mini Bus /LCV
- Bus
- Truck /
- 3 Axle commercial vehicle
- Multi Axle

3.3 Traffic Characteristic

Toll revenue of project highway does not solely depend on traffic volume. There are certain characteristics of traffic which have substantial potential to affect toll collection. Component of local traffic, component of passenger and commercial traffic, portion of return journey traffic, % of monthly pass traffic are some of such characteristics of traffic. These will be discussed in subsequent sections of report.

3.3.1 Traffic Data

Project concessionaire has provided Traffic data for base year 2019-20 ,2020-21, 2021-22 and from April 2022 to September 2022 as under for both toll plazas–

Table 3-3 : Traffic Data at Pargaon Toll Plaza at Km 134.000

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)- 2019-20	Annual Average Daily Traffic (Nos.)- 2020-21	Annual Average Daily Traffic (Nos.)- 2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	1641	1439	2426	3077
2	Minibus /LCV	658	482	257	291
3	Bus	199	109	110	216
4	Truck	635	704	786	944
5	3-Axle Commercial vehicle	793	845	876	970
6	Multi axle	1081	1284	1567	1965

7	Oversize Vehicle	0	50	74	30
	Total	**5007**	**4913**	**6096**	**7492**

Table 3-4 : Traffic Data at Padalshingi Toll Plaza at Km 194.000

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)- 2019-20	Annual Average Daily Traffic (Nos.)- 2020-21	Annual Average Daily Traffic (Nos.)- 2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	4114	3166	4969	5818
2	Minibus /LCV	1095	883	383	420
3	Bus	473	260	252	477
4	Truck	788	839	891	1088
5	3-Axle Commercial vehicle	944	1049	1098	1148
6	Multi axle	1134	1363	1641	2071
7	Oversize Vehicle	1	60	65	25
	Total	**8549**	**7620**	**9299**	**11047**

Table 3-5 : Traffic Data at Maliwadi Toll Plaza at Km 254.000

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.)- 2019-20	Annual Average Daily Traffic (Nos.)- 2020-21	Annual Average Daily Traffic (Nos.)- 2021-22	Average Daily Traffic April-2022 to Sept 2022
1	CAR	3089	2492	3992	4762
2	Minibus /LCV	687	546	192	261
3	Bus	347	177	177	335
4	Truck	547	579	567	811
5	3-Axle Commercial	679	737	718	798

	vehicle				
6	Multi axle	866	1046	1164	1657
7	Oversize Vehicle	1	47	52	24
	Total	**6216**	**5623**	**6862**	**8649**

Pandemic of COVID-19 (Corona Virus) had impacted entire world. Taking precaution, government of India announced a complete lockdown in last of March 2020 and traffic on highways was stopped which was eased out progressively later. There after India was hit by Covid-19 second and third wave in February 21 to July -21 and December 21 to March-22. Recovering traffic pattern was somewhat again disturbed du to second and third wave of Covid-19. Traffic numbers of for period from April-2020 to March 2021 were not representative of traffic pattern at project corridor due to pandemic lockdown impact. However, for integrity of data same shown above. Traffic has almost recovered from Covid -19 impact as of now.

Adjacent road to project stretches Ahmednagar – Karmala road was in poor condition and due to which there is some additional traffic on project road in current period. It expected that same may be reduced in second half of year. Hence as correction factor is applied to average traffic of April-22 to September 22 to arrive at yearly average traffic.

This data was then bifurcated to various components like through local, monthly, return journey etc. category. Same is discussed in detail in following section.

3.4 Data Analysis

3.4.1 Analysis of Traffic Volume Count

Understanding the character of existing traffic forms the basis of the traffic forecast. The various vehicle types having different sizes and characteristics can be converted into a single unit called Passenger Car Unit (PCU). Passenger Car equivalents for various vehicles are adopted based on recommendations of Indian Road Congress prescribed in "IRC-64-1990: Guidelines for Capacity of Roads in Rural areas". The adopted passenger car unit values (PCU) are presented in ***Table*** 3-6**.**

Table 3-6 : PCU Factors Adopted for Study

Vehicle Type	PCUs
Car	1.0
Mini Bus	1.5
Standard Bus	3.0
LCV/LGV	1.5
2 Axle Truck	3.0
3 – 6 Axle Truck	4.5
MAV	4.5
Auto Rickshaw	1.0
Van/Tempo	1.0
Agriculture Tractor with Trailer	4.5
Agriculture Tractor without Trailer	1.5

Source: IRC: 64-1990

Traffic volume at each toll plaza was converted to PCU and same is presented as under

Table 3-7 : Traffic in PCU at Project Stretch

Year	Toll Plaza Location (Km)	Traffic No	PCU	PCU Index
2019-2020	Km 134.000 Toll Plaza at Pargaon	5007	12373	2.47
	Km 194.000 Toll Plaza at Padalshingi	8549	17479	2.04
	Km 254.000 Toll Plaza at Maliwadi	6216	12740	2.05

Year	Toll Plaza Location (Km)	Traffic No	PCU	PCU Index
2020-2021	Km 134.000 Toll Plaza at Pargaon	4913	13136	2.67
	Km 194.000 Toll Plaza at Padalshingi	7620	17339	2.28
	Km 254.000 Toll Plaza at Maliwadi	5623	12706	2.26
2021-2022	Km 134.000 Toll Plaza at Pargaon	6096	15511	2.54
	Km 194.000 Toll Plaza at Padalshingi	9299	19945	2.14
	Km 254.000 Toll Plaza at Maliwadi	6862	14138	2.06
2022-2023	Km 134.000 Toll Plaza at Pargaon	7492	18878	2.52
	Km 194.000 Toll Plaza at Padalshingi	11047	24021	2.17
	Km 254.000 Toll Plaza at Maliwadi	8649	18554	2.15

It can be observed from above that project traffic has PCU index 2 to 2.6 which is an indicator of high proportion of commercial traffic in traffic mix in project corridor. Following figure illustrates variation of PCU index at three toll plaza locations.

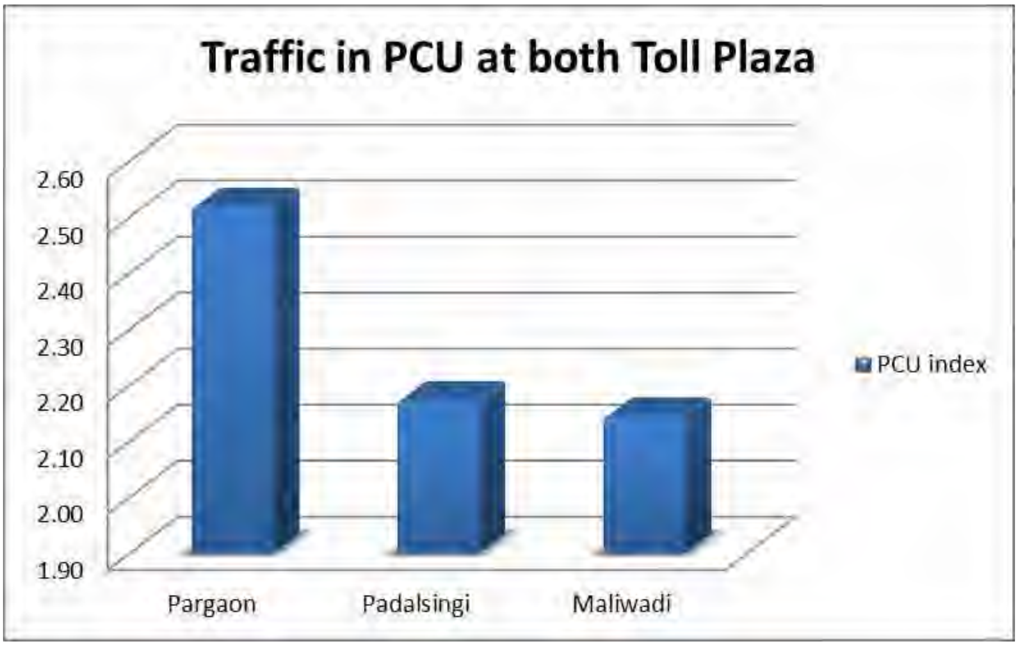

Figure 3-1 : Comparison of PCU Index

It can be observed that PCU index is consistent at all three toll plaza locations.

3.4.2 Components of Traffic

As discussed previously, components of traffic volume play an important role in determining project revenue. A larger component of commercial traffic with higher axle configuration adds to project revenue positively. Similarly, a larger component of local traffic affects the project revenue potential negatively.

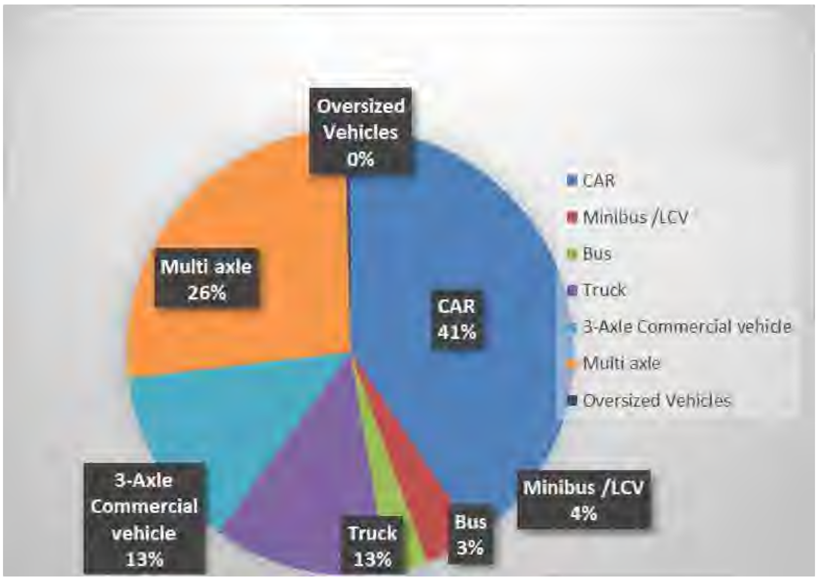

Figure 3-2: Model split of tollable vehicle @ Km 134.000

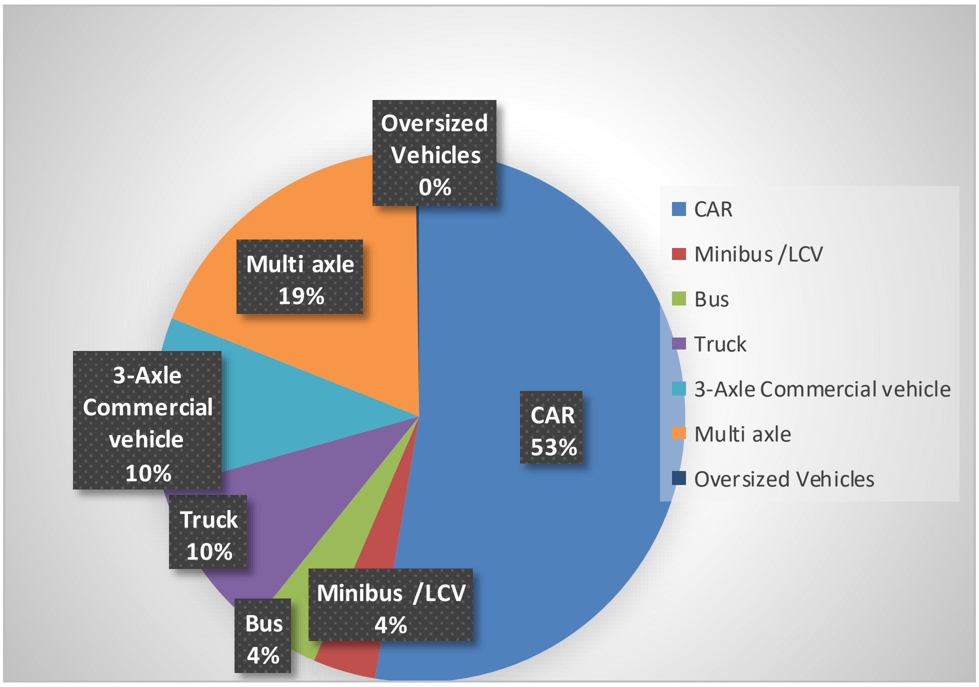

Figure 3-3: Model split of tollable vehicle @ Km 194.000

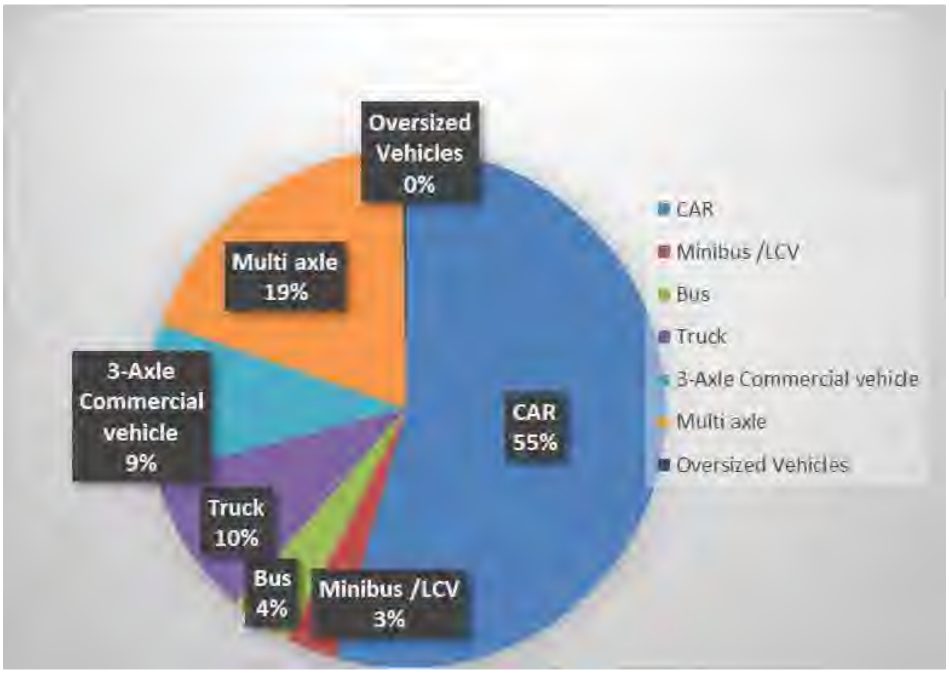

Figure 3-3: Model split of tollable vehicle @ Km 254.000

It is observed that car traffic forms about 41% of total traffic at toll plaza location KM 134.000 while multi axle commercial vehicles are about 39% of total traffic. Truck / Bus and LCV share about 16% and 4% of traffic volume respectively.

It is observed that car traffic forms about 53% of total traffic at toll plaza location KM 194.000 while multi axle commercial vehicles are about 29% of total traffic. Truck / Bus and LCV share about 14% and 4% of traffic volume respectively.

It is observed that car traffic forms about 55% of total traffic at toll plaza location KM 254.000 while multi axle commercial vehicles are about 28% of total traffic. Truck / Bus and LCV share about 14% and 3% of traffic volume respectively.

At second & third toll plaza passenger traffic component is higher due to urban settlement around.

Another important bifurcation of traffic is components of traffic with respect various type of toll ticketing like

1. Single Journey
2. Multi Journey
3. Monthly Pass (Local and General)

The following table provides numbers of vehicles falling in each of above category on base year 2022-23.

Table 3-8 : Journey Type Bifurcation of Traffic at Pargaon Toll Plaza KM 134.000

Sr. No	Type	Traffic Volume (Nos.)
		2022-23
1	Single Journey	5607
2	Return Journey	1848
3	Local Commercial Single Journey	31
4	Monthly Pass Local	6
5	Monthly Pass	0

Most dominant part of the above is the single journey type followed by return journey at project stretch. Monthly pass commuters are a very low fraction of the total traffic on the project corridor.

The single journey component in total traffic numbers is a high as 75%. Return journey component is 25%. The number of monthly pass Local is 0% and Local Commercial single Journey 0% at Pargaon toll plaza.

Following tables give the detail of journey distribution at Padalshingi toll plaza at Km 194.000 and Km 254.000.

Table 3-9 : Journey Type Bifurcation of Traffic at Padalshingi Toll Plaza KM 194.000

Sr. No	Type	Traffic Volume (Nos.) 2022-23
1	Single Journey	6577
2	Return Journey	4093
3	Local Commercial Single Journey	298
4	Monthly Pass Local	79
5	Monthly Pass	0

Table 3-10 : Journey Type Bifurcation of Traffic at Maliwadi Toll Plaza KM 254.000

Sr. No	Type	Traffic Volume (Nos.) 2022-23
1	Single Journey	5335
2	Return Journey	3257
3	Local Commercial Single Journey	23
4	Monthly Pass Local	33
5	Monthly Pass	0

It is observed that the project corridor demonstrates a similar pattern of single journey dominated mix of traffic across the entire stretch which is typical of major national highways.

3.5 Secondary Data Collection

There are several other factors which have a substantial impact on traffic pattern and growth on any project corridor. Following are some of such important factors

- Industrial development around project corridor and its catchment
- Educational infrastructure along project corridor
- Demographic pattern
- Urban area development
- Tourism potential
- Upcoming major infrastructural or Industrial projects
- Special Industry in project corridor
- Overall trends of economic growth local as well as national / regional

Hence in addition to traffic details on project site, secondary data was also collected from various other sources. Typical secondary data includes the following:

1. Vehicle registration data of regional and national level.
2. Economic Data
   a) GDP
   b) NSDP
   c) Population Growth
   d) Per Capita Income growth
   e) Industrial Growth
   f) Special Industry Potential
   g) Regional and National development vision / plan
   h) Any other relevant data
3. Competing road network

We have collected and utilized such underlying data in the study to estimate the growth and risk factors for traffic along the project corridor.

CHAPTER 4

INFLUENCE ZONE TRANSPORT NETWORK ANALYSIS

4.1 Introduction

Highway corridors behave like integrated circuit network and more often than not every road is connected to various networks having different origin and destinations. Traffic running on these networks behave like fluid and flow on network on alignment of least friction.

Following Factors can be considered as major contributors to friction on transportation network

- Travel Speed / Travel Time
- Geometric deficiencies like blind horizontal curves and steep vertical gradients etc.
- Configuration of road
- Riding quality
- Traffic delays,
- Length of road,
- Passing through built up or Urban Area,
- Terrain,
- Facilities,

4.2 Competing / Alternate route

In BOT projects there is always a risk factor of traffic shifting on competing roads after imposition of toll. Shifting of traffic depends on factors such as road length, type, geometry, riding quality ad capacity. Competing road network was identified around section and a speed delay analysis was conducted. In this detail of competing roads are provided and a comparison with project road is made. There can be some alternate route between Yedashi and Aurangabad. Following figure provide alignment of competing road network between Yedashi and Aurangabad.

Figure 4-1 : Alternate routes – Yedashi- Aurangabad

It can be observed that alternate routes are quire long and take more time to travel. Hence project road remains the most preferred option for travel between Yedashi and Aurangabad.

Similarly, at regional level there can be alternate via Ahmednagar for travel between Solapur and Aurangabad. Following figure show competing network in area.

Figure 4-2 : Alternate route Between Solapur and Aurangabad

For travel between Solapur and Aurangabad as well project road is most preferred option due to shorter length and less travel time. Completion of four laning of Solapur Yedashi section has complemented travel on this route.

Following table provide summary of analysis of alternate route/ roads discussed above.

Table 4-1 : Competing Roads Details

Sr. No	Route Details	Designation	Length (Km)	Avg. Speed (KMPH)	Time Taken (Min)	Observations
Regional Level						
1	Solapur-Ahmednagar-Aurangabad	Alternate Route	346	50	6 Hr 50 Min	Project road has minimum travel time and shortest road
	Solapur- Yedashi-Aurangabad	Project Road	310	60	5 Hr 10 Min	
2	Yedashi- Kalam-Madalmoni-Aurangabad (SH-61)	Alternate Route	270	50	5 Hr 24 Min	Project road has minimum travel time and shortest road
	Yedashi-Ahmednagar-Aurangabad	Alternate Route	289	50	5 Hr 49 Min	

	Yedashi- Beed- Aurangabad	Project Road	223	57	3 Hr 54 Min	

It light of above discussion project road remains most preferred route for the traffic of influence area. Moreover, project stretch is under toll operation for last one year. Hence any shifting of traffic, if any, would have settled by now and any further shifting of traffic is not envisaged from project road.

Regional Network

Project corridor is important transportation link for the traffic between Karnataka and Rajasthan / Delhi and other northern states. Part of this traffic uses the Bijapur- Solapur- Ahmednagar- Shirdi route to join back at Dhule and proceed towards northern parts of country. The length of route between Bijapur via project road and route via Ahmednagar is almost equal. Thus, it is expected that some part traffic will come back on project road as the four laning is complete. Following figures show route between Bijapur and Dhule via Project road and via Ahmednagar for better understanding.

Figure 4-3 : Project Road in regional network

CHAPTER 5

GROWTH OF TRAFFIC ON PROJECT HIGHWAY

5.1 Introduction

Traffic growth is a function of the interplay of a number of contributory factors such as National economy, Government policy, socio-economic conditions of the people, and changes in land uses along the project corridor precincts etc. As these factors have a number of uncertainties associated with them, forecasts of traffic are dependent on the projections of other factors such as population, gross domestic product (GDP), vehicle ownership, per capita income (PCI), agricultural output, fuel consumption etc. Future pattern of change in these factors can be estimated with only a reasonable degree of accuracy and hence the resultant traffic forecast levels may not be precise.

Traffic growth forecast for project corridor Yedeshi - Aurangabad section of NH-8 has been done taking the above factors into consideration. "**IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**" is established best practice and has been used for traffic growth forecast.

5.2 Trend Analysis

One of the methods of estimation of future rate of growth is to assume the same rate of growth as in the past. Although such a method is more suitable to projects of short durations say 5-10 years, however for long term projections it would-be erroneous to assume that the past rate of growth will continue to prevail for a long time in future. Economic conditions, which are major influencing factors, are bound to change over a long period of time. Thus, it would be necessary to modify the past trends of growth suitably.

Elasticity model of growth projection is one of the most widely acceptable methods for traffic forecast. The same is recommended in **IRC: 108-12015-Guidelines for Traffic Prediction on Rural Highways**.

In this method the past trend of vehicular data is paired with an economic indicator and a regression analysis is done to yield the economic model of growth. Growth of vehicle traffic varies for different type of vehicle. It is a proven fact that the growth pattern for passenger and goods vehicle is different. Traffic growth on any highway

typically depends on number of economic parameters. Most important and direct parameters are given as under

- Per Capita Income
- Net State Domestic Product (NSDP)
- Population

It can be observed that the ownership of a car is more closely related to affordability; hence per capita is the index which closely fits the growth of car traffic among other criteria. In a similar fashion, the following can be pairs of vehicle type and independent variable for elasticity modeling of growth.

- Car / Jeep – Par Capita Income
- Bus / Minibus – Population
- Goods Vehicle – NSDP

5.3 Estimation of Traffic Demand Elasticity

Elasticity of traffic demand is defined as the rate at which traffic intensity varies due to a change in the corresponding indicator selected. Hence, In order to estimate the elasticity of traffic demand, it is necessary to establish relationship between the growth in number of given category of vehicles with the relevant economic variable considered, such as NSDP, per capita income and population growth. Latest available data for vehicle registration, per capita income, NSDP and population is used in analysis.

As per IRC: 108-1996 the model for estimating elasticity index for the project corridor is of the following form and is given as below:

$$\text{Log}(P) = k \times \text{Log}(EI) + A$$

Where,

P = *Number of Vehicles (Mode wise)*

EI = *Economic Indicator*

A = *Regression constant*

k = *Elasticity coefficient (Regression coefficient)*

The elasticity for car and bus (passenger vehicles) is calculated based on the Population and Per Capita Domestic Product (PCDP) and the elasticity for trucks is calculated based on the Net State Domestic Product (NSDP).

The project corridor spreads across state of Maharashtra. Toll plazas at Paragaon, Padalsingi and Bhokharwadi are in the state of Maharashtra. Project traffic share of many states like Karnataka, Gujarat & Haryana also. For elasticity calculations, working data from these states also has been analyzed.

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Maharashtra State.

Table 5-1 : Per Capita Income Vs Car Maharashtra

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	99564	2307841	5.00	6.36		
2013	103904	2592565	5.02	6.41	4%	
2014	109399	2834847	5.04	6.45	5%	
2015	114746	3113773	5.06	6.49	5%	
2016	122422	3406872	5.09	6.53	7%	
2017	132899	3715744	5.12	6.57	9%	5.96%

Regression analysis of same is given in figure below

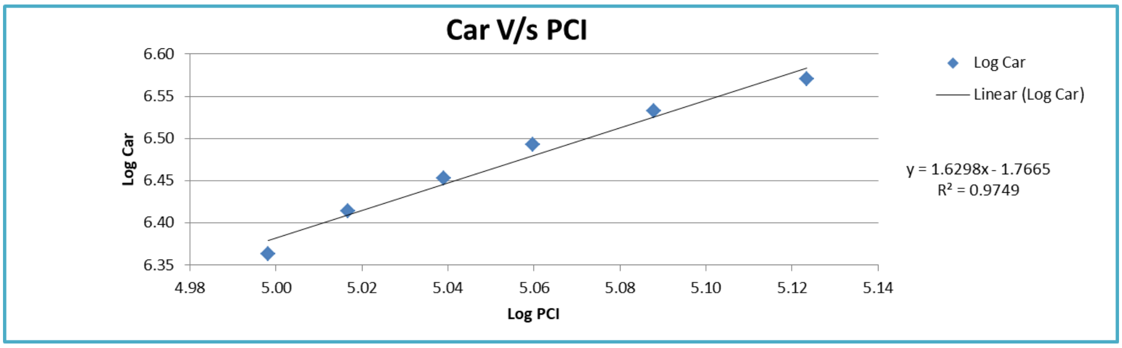

Figure 5-1 : Regression and Elasticity PCI vs. Car – Extrapolation Maharashtra

Table 5-2 : Population Vs Bus Maharashtra

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	112374333	119298	8.05	5.08		
2013	113807248	129535	8.06	5.11	1%	

2014	115229410	140087	8.06	5.15	1%	
2015	116640546	140102	8.07	5.15	1%	
2016	118040394	150427	8.07	5.18	1%	
2017	119428710	160042	8.08	5.20	1%	1.23%

Regression analysis of same is given in figure below

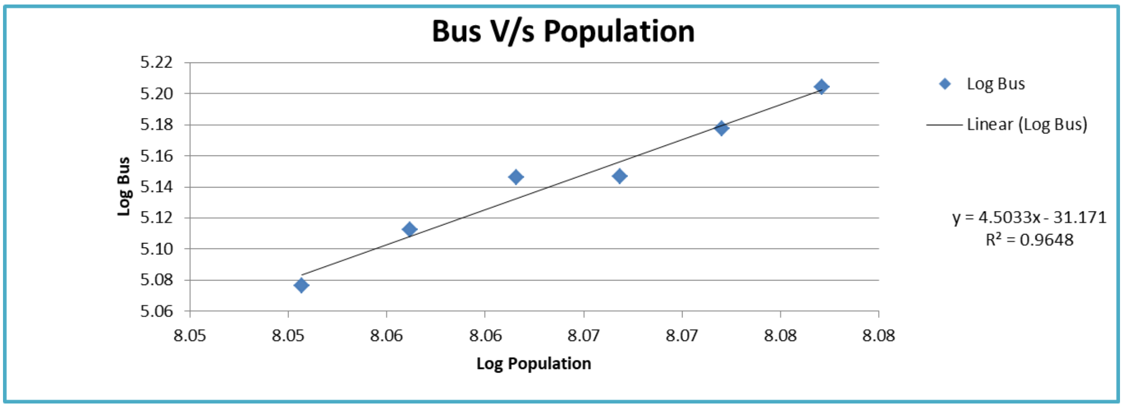

Figure 5-2 : Regression and Elasticity Population vs. Bus – Extrapolation Maharashtra

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-3 : LCV Traffic Vs NSDP Maharashtra

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth (5 Year)
2012	1126595	656407	6.05	5.82		
2013	1189711	739725	6.08	5.87	6%	
2014	1267551	803128	6.10	5.90	7%	
2015	1345341	868632	6.13	5.94	6%	
2016	1452439	927903	6.16	5.97	8%	6.56%

Following figure depict regression analysis and extrapolation.

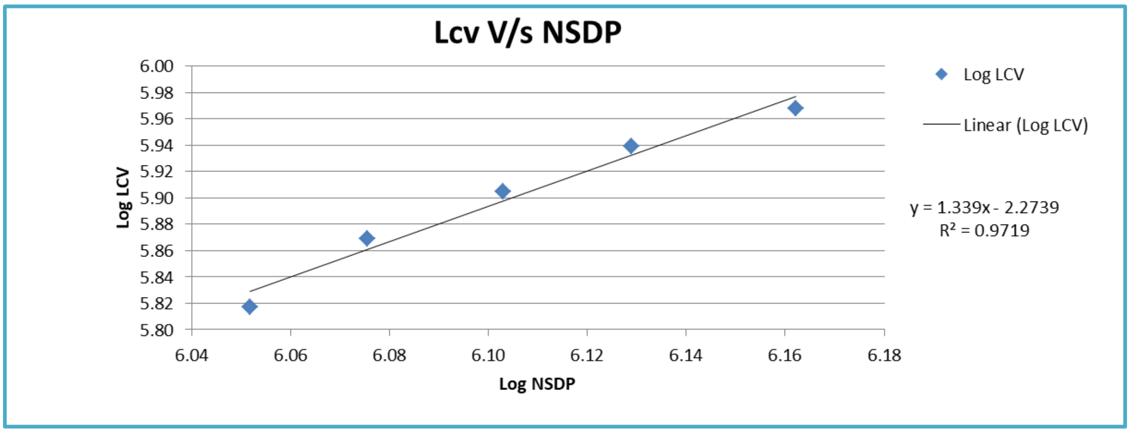

Table 5-4 : Truck Traffic Vs NSDP Maharashtra

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	1126595	411418	6.05	5.61		
2013	1189711	402366	6.08	5.60	6%	
2014	1267551	470128	6.10	5.67	7%	
2015	1345341	491582	6.13	5.69	6%	
2016	1452439	468810	6.16	5.67	8%	
2017	1595514	496439	6.20	5.70	10%	7.22%

Following figure depict regression analysis and extrapolation

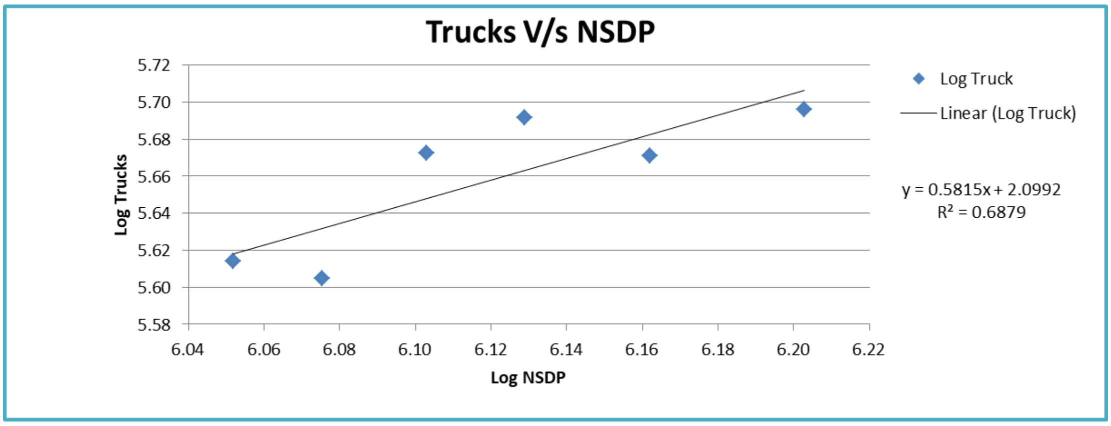

Figure 5-3 : Regression and Elasticity NSDP vs. Truck Traffic - extrapolation Maharashtra

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below.

Table 5-5 : Summary Regression Analysis Maharashtra

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average Growth	Growth Elastic Model
Maharashtra	Car/Jeep	PCI	y = 1.6298x + -1.7665	R^2 = 0.9749	1.6298	5.96%	9.71%
	Bus	Population	y = 4.5033x - - 31.1713	R^2 = 0.9648	4.5033	1.23%	5.52%
	LCV	NSDP	y = 1.339x - - 2.2739	R^2 = 0.9719	1.3390	6.56%	8.78%
	Truck	NSDP	y = 0.5815x - 2.0992	R^2 = 0.6879	0.5815	7.22%	4.20%

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Gujrat State.

Table 5-6 : Per Capita Income Vs Car Gujarat

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	87481	1411898	4.94	6.15		
2013	96683	1602129	4.99	6.20	11%	
2014	102589	1771298	5.01	6.25	6%	
2015	111370	2008748	5.05	6.30	9%	
2016	120683	2260084	5.08	6.35	8%	
2017	129738	2527537	5.11	6.40	8%	8.21%

Regression analysis of same is given in figure below

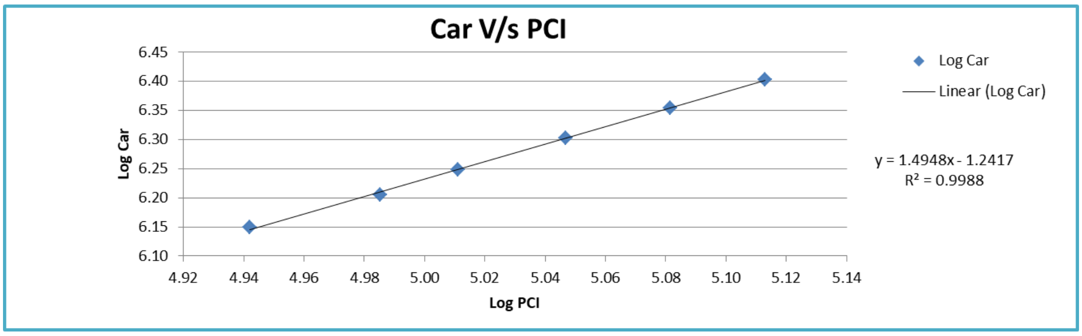

Figure 5-4 : Regression and Elasticity PCI vs. Car – Extrapolation Uttar Pradesh

Table 5-7 : Population Vs Bus Gujrat

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	60439692	67546	7.78	4.83		
2013	61563037	70615	7.79	4.85	2%	
2014	62684375	72998	7.80	4.86	2%	
2015	63803304	76435	7.80	4.88	2%	
2016	64919427	82734	7.81	4.92	2%	
2017	66032362	74855	7.82	4.87	2%	1.79%

Regression analysis of same is given in figure below

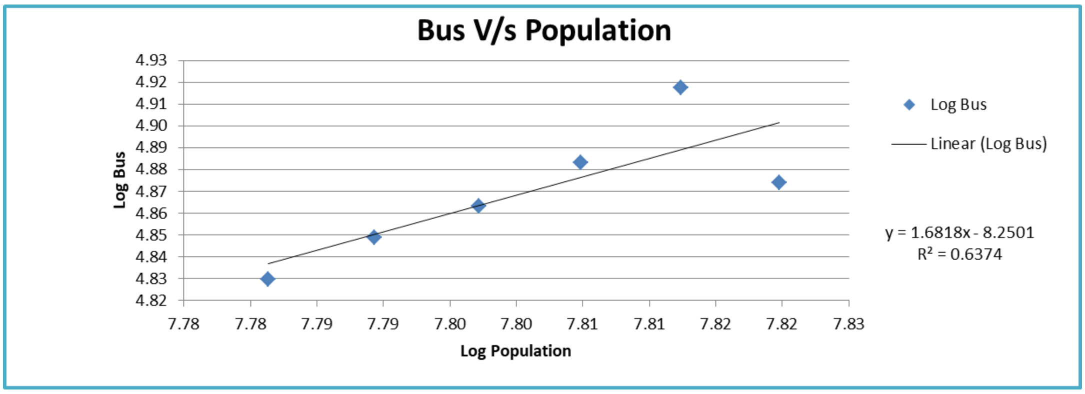

Figure 5-5 : Regression and Elasticity Population vs. Bus – Extrapolation Gujarat

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-8 : LCV Traffic Vs NSDP Gujarat

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth (5 Year)
2012	532809	448958	5.73	5.65		
2013	596659	499277	5.78	5.70	12%	
2014	641489	542918	5.81	5.73	8%	
2015	705629	589984	5.85	5.77	10%	
2016	774775	633599	5.89	5.80	10%	9.82%

Following figure depict regression analysis and extrapolation.

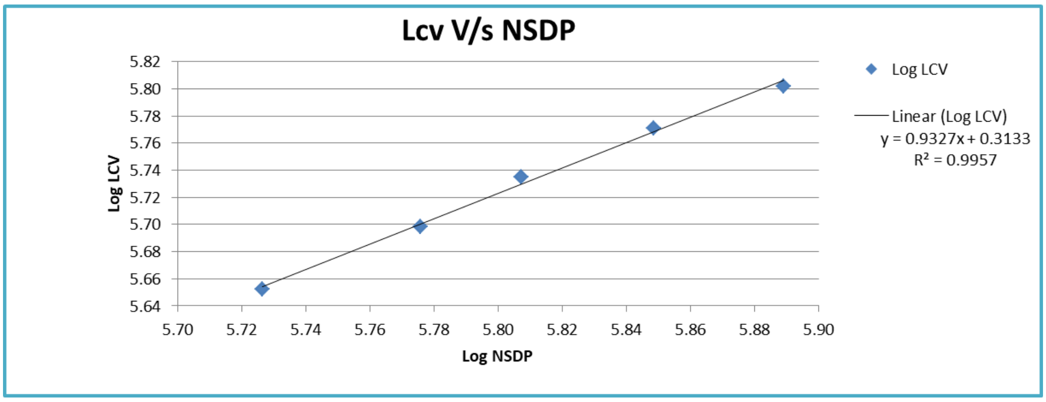

Table 5-9 : Truck Traffic Vs NSDP Gujarat

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	532809	301533	5.73	5.48		
2013	596659	319207	5.78	5.50	12%	
2014	641489	332185	5.81	5.52	8%	
2015	705629	352225	5.85	5.55	10%	
2016	774775	375265	5.89	5.57	10%	
2017	843930	396061	5.93	5.60	9%	9.64%

Following figure depict regression analysis and extrapolation

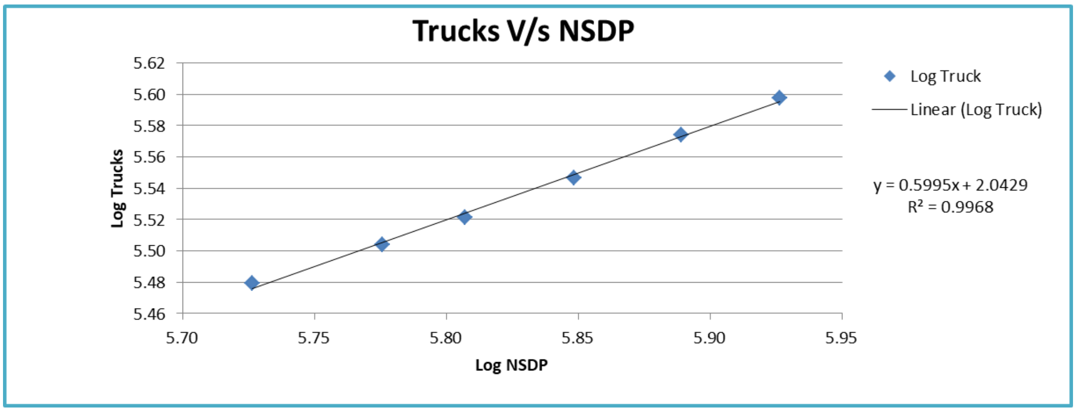

Figure 5-6 : Regression and Elasticity NSDP vs. Truck Traffic - extrapolation Gujarat

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below

Table 5-10 : Summary Regression Analysis Gujrat

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average Growth	Growth Elastic Model
Gujarat	Car/Jeep	PCI	y = 1.4948x + - 1.2417	R² = 0.9988	1.4948	8.21%	12.27%
	Bus	Population	y = 1.6818x - - 8.2501	R² = 0.6374	1.6818	1.79%	3.00%
	LCV	NSDP	y = 0.9327x - 0.3133	R² = 0.9957	0.9327	9.82%	9.16%
	Truck	NSDP	y = 0.5995x - 2.0429	R² = 0.9968	0.5995	9.64%	5.78%

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Haryana State.

Table 5-11 : Per Capita Income Vs Car Haryana

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	106085	1134514	5.03	6.05		
2013	111780	1293065	5.05	6.11	5%	
2014	119791	1454182	5.08	6.16	7%	
2015	125032	1609544	5.10	6.21	4%	
2016	137818	1764448	5.14	6.25	10%	
2017	150241	1879587	5.18	6.27	9%	7.23%

Regression analysis of same is given in figure below

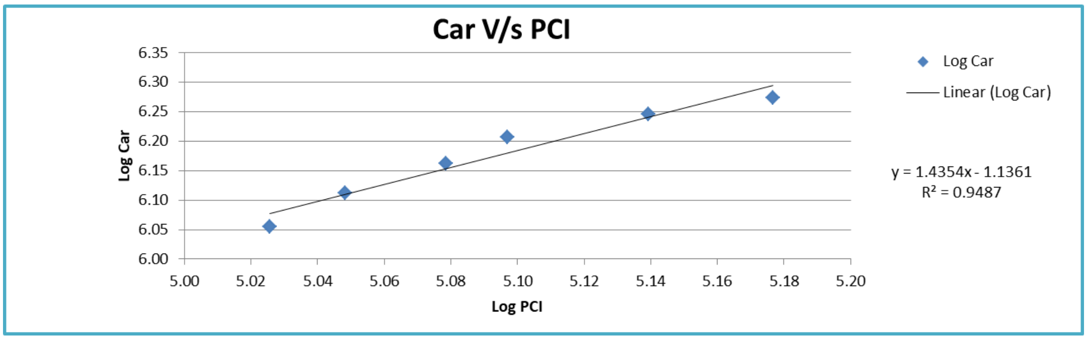

Figure 5-7 : Regression and Elasticity PCI vs. Car – Extrapolation Haryana

Table 5-12 : Population Vs Bus Haryana

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	25351462	39153	7.40	4.59		
2013	25751257	43456	7.41	4.64	2%	
2014	26149236	46558	7.42	4.67	2%	
2015	26545282	52640	7.42	4.72	2%	
2016	26939286	55781	7.43	4.75	1%	
2017	27331141	60129	7.44	4.78	1%	1.52%

Regression analysis of same is given in figure below

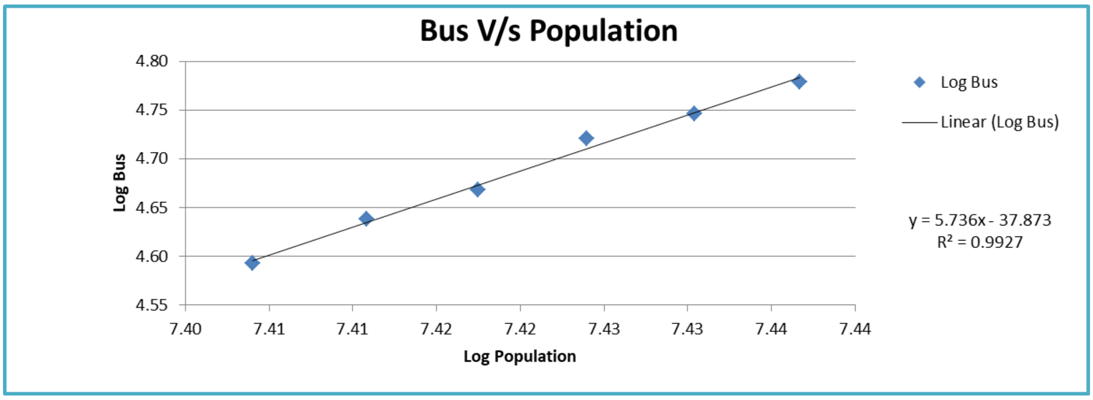

Figure 5-8 : Regression and Elasticity Population vs. Bus – Extrapolation Haryana

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-13 : LCV Traffic Vs NSDP Haryana

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth (5 Year)
2012	271152	124897	5.43	5.10		
2013	289756	137511	5.46	5.14	7%	
2014	314931	152069	5.50	5.18	9%	
2015	333359	167901	5.52	5.23	6%	
2016	372659	182776	5.57	5.26	12%	8.30%

Following figure depict regression analysis and extrapolation.

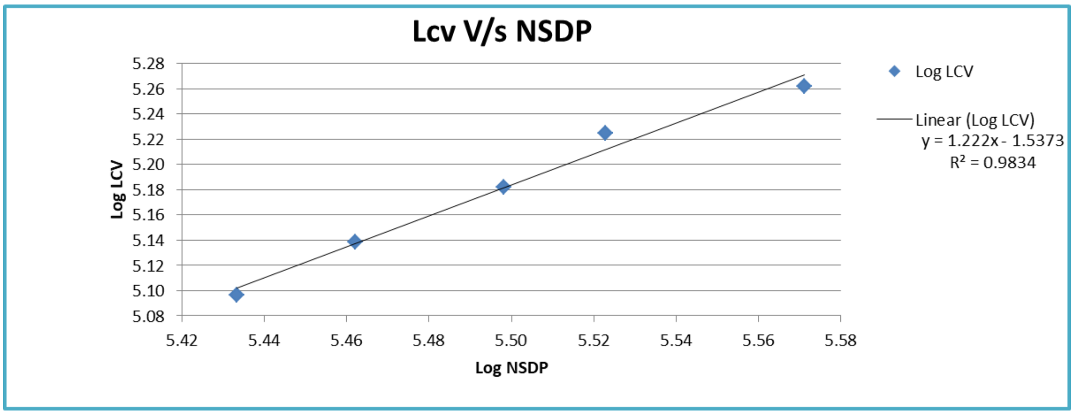

Table 5-14 : Truck Traffic Vs NSDP Haryana

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	271152	292735	5.43	5.47		
2013	289756	307509	5.46	5.49	7%	
2014	314931	327882	5.50	5.52	9%	
2015	333359	348732	5.52	5.54	6%	
2016	372659	367730	5.57	5.57	12%	
2017	412006	390321	5.61	5.59	11%	8.75%

Following figure depict regression analysis and extrapolation

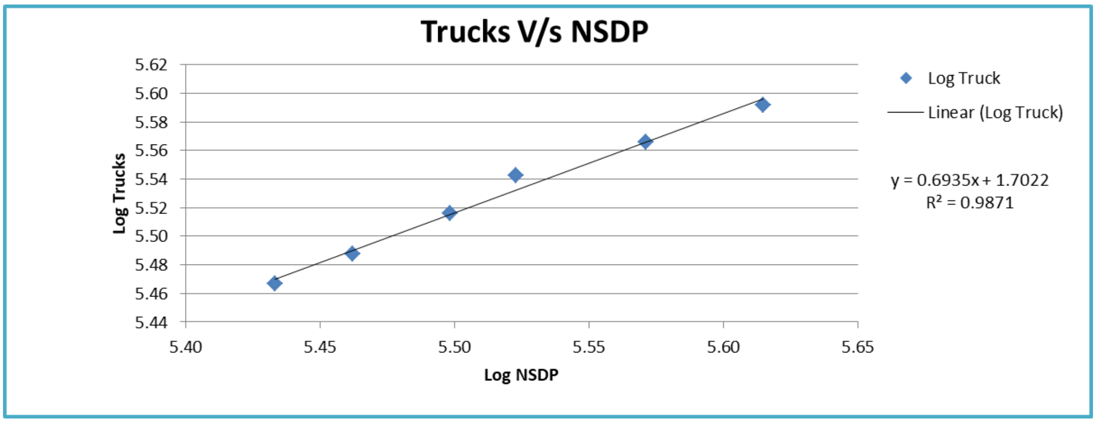

Figure 5-9 : Regression and Elasticity NSDP vs. Goods Traffic - extrapolation Haryana

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below

Table 5-15 : Summary Regression Analysis Haryana

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average Growth	Growth Elastic Model
Haryana	Car/Jeep	PCI	y = 1.4354x - -1.1361	R² = 0.9487	1.4354	7.23%	10.38%
	Bus	Population	y = 5.736x - - 37.8732	R² = 0.9927	5.7360	1.52%	8.69%
	LCV	NSDP	y = 1.222x - - 1.5373	R² = 0.9834	1.2220	8.30%	10.14%
	Truck	NSDP	y = 0.6935x - 1.7022	R² = 0.9871	0.6935	8.75%	6.07%

Following tables and graphs depict regression and elasticity of growth model for stretch falling in Karnataka State.

Table 5-16 : Per Capita Income Vs Car Karnataka

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2012	90269	1454309	4.96	6.16		
2013	94382	1626924	4.97	6.21	5%	
2014	101864	1798035	5.01	6.25	8%	
2015	105703	1992262	5.02	6.30	4%	
2016	116819	2207852	5.07	6.34	11%	
2017	131260	2203562	5.12	6.34	12%	7.83%

Regression analysis of same is given in figure below

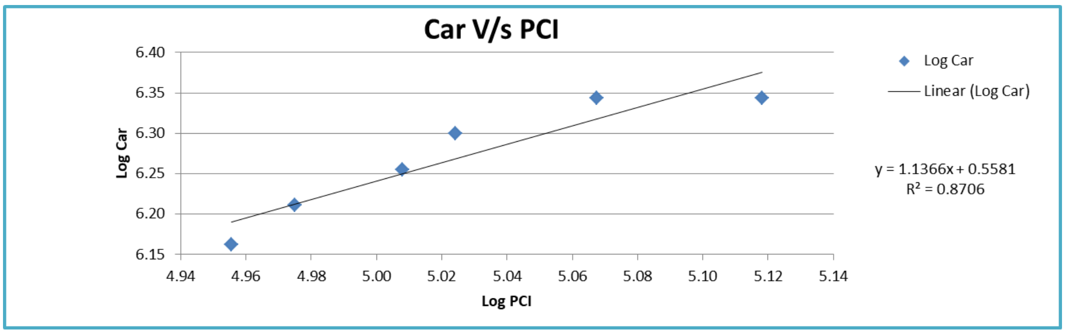

Figure 5-10 : Regression and Elasticity PCI vs. Car – Extrapolation Karnataka

Table 5-17 : Population Vs Bus Karnataka

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2012	61095297	175705	7.79	5.24		
2013	62058777	186705	7.79	5.27	2%	
2014	63017877	195913	7.80	5.29	2%	
2015	63972322	204803	7.81	5.31	2%	
2016	64921845	213699	7.81	5.33	1%	
2017	65866188	224580	7.82	5.35	1%	1.52%

Regression analysis of same is given in figure below

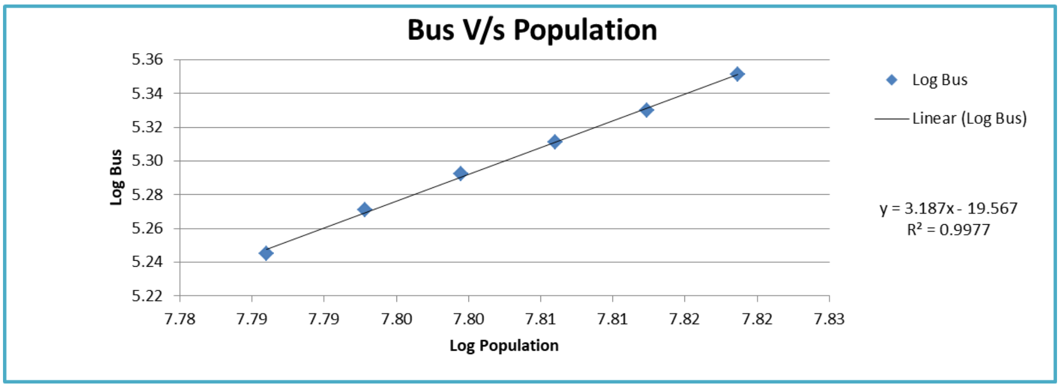

Figure 5-11 : Regression and Elasticity Population vs. Bus – Extrapolation Karnataka

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 5-18 : LCV Traffic Vs NSDP Karnataka

Year	NSDP	LCV	Log NDSP	Log LCV	NSDP Growth	Average Growth (5 Year)
2012	554990	221160	5.74	5.34		

2013	586592	258701	5.77	5.41	6%	
2014	639981	294266	5.81	5.47	9%	
2015	671322	331381	5.83	5.52	5%	
2016	749990	367572	5.88	5.57	12%	8%

Following figure depict regression analysis and extrapolation.

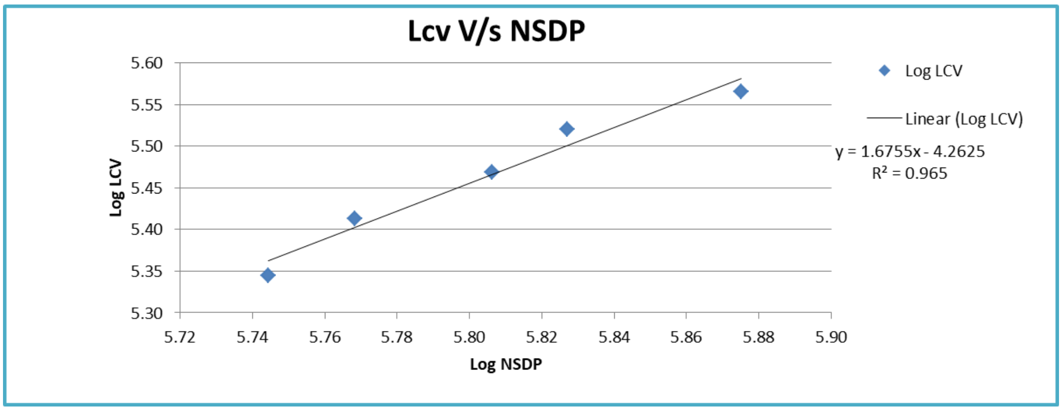

Table 5-19 : Truck Traffic Vs NSDP Karnataka

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2012	554990	233422	5.74	5.37		
2013	586592	247639	5.77	5.39	6%	
2014	639981	260989	5.81	5.42	9%	
2015	671322	274971	5.83	5.44	5%	
2016	749990	290415	5.88	5.46	12%	
2017	851880	306290	5.93	5.49	14%	9.00%

Following figure depict regression analysis and extrapolation

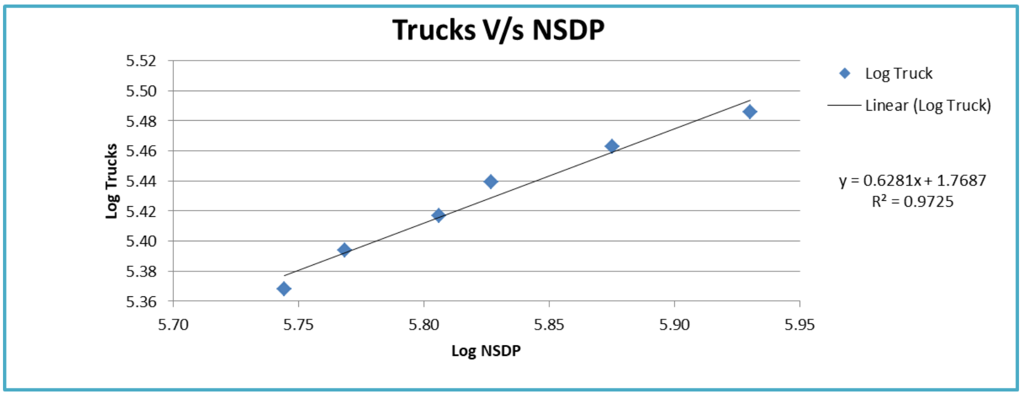

Figure 5-12 : Regression and Elasticity NSDP vs. Goods Traffic - extrapolation Karnataka

Using the regression analysis above, we have arrived at the elasticity of traffic demand for each class of vehicle to a given change in relevant economic indicators. Average traffic growth of a vehicle class is multiplied by the corresponding elasticity coefficient to arrive at traffic growth. R2 statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R2 more representative is the regression model of data.

The results of these analyses for *the good fit* regression as reflected by R^2 values are presented in the Table below.

Table 5-20 : Summary Regression Analysis Karnataka

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average Growth	Growth Elastic Model
Karnataka	Car/Jeep	PCI	y = 1.1366x - 0.5581	R^2 = 0.8706	1.1366	7.83%	8.90%
	Bus	Population	y = 3.187x - - 19.567	R^2 = 0.9977	3.1870	1.52%	4.83%
	LCV	NSDP	y = 1.6755x - - 4.2625	R^2 = 0.965	1.6755	7.85%	13.16%
	Truck	NSDP	y = 0.6281x - 1.7687	R^2 = 0.9725	0.6281	9.00%	5.65%

Economical model for predicting growth is good tool, however other local, regional, national factors should also be considered before finalizing growth factors. Considering factors such as proposed developments and other influencing economic factors, moderated growth should be considered. These factors are discussed in subsequent sections.

5.4 Analysis of Historic Traffic Data

Historical traffic data forms useful information for any highway project. It provides useful information for establishing past trend of growth. Project stretch of Yedashi to Aurangabad has recently been commissioned and is under tolling operation since March 2019. As traffic data available for last two years was affected due to COVID-19 the same cannot be taken as representative. A minimum of about 5 -6 years' consistent traffic data is required for establishing a reliable past trend.

5.5 Other Factors Influencing Growth

There are many factors which have impact on traffic growth. As discussed previously these factors can be economical, social, educational, and industrial.

Potentiality of such factors for project highway is discussed as under.

ECONOMY

After witnessing a slowdown during 2011-12, the economy recovered in 2013-14, and a high growth rate of GDP was recorded in up to 2018-19. Pandemic of COVID-19 impacted all economies of world including India. Following figure show trend of GDP growth in India.

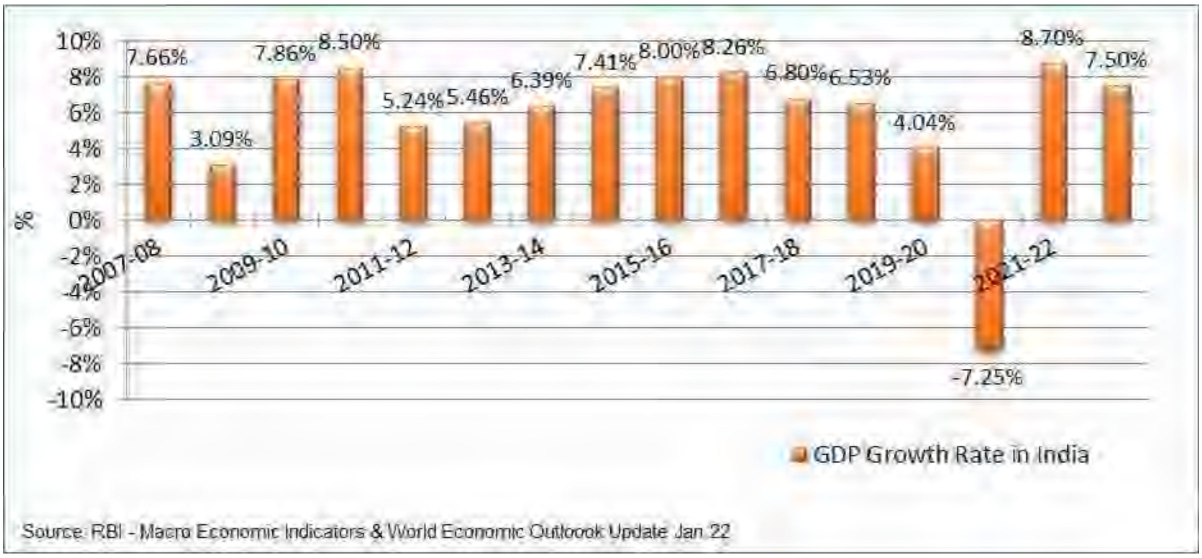

Figure 5-13 : Growth of GDP in India

FY 2017-18 recorded a growth of 6.7% which had slight impact of GST and demonetization. Indian economy appears on recovery path with estimated growth of 6.8% in FY 2018-19. Government took major policy decision including tax infrastructure reforming, banking sector improvement and ease of doing business.

Major economies of world collapsed due to pandemic COVID-19 including India. Indian economy is also registered negative growth in financial year 2020-21. After that Indian economy recovered handsomely and registered a growth of about 9% in Year 2021-22. This was partly due to low base of year 2020-21 as well.

Honorable Prime Minister has announced a major relief package of Rs. 20 lakh crores which is about 10% of GDP. This is aimed at turning this major crisis of COVID-19 into opportunity by providing major impetus to industrial production to the limit of becoming a self-reliant economy. With major thrust of this package being on **Make -In- India** it is expected that industry in India would grow at rapid pace and recover handsomely in post COVID-19 scenario. World Economic Outlook update also has predicted a growth rate of about 7.5 % in year 2022-23.

5.6 Developments along and around the Project Corridor & State

Aurangabad: is the fifth largest city in Maharashtra. It lies on a major trade route that used to connect north-west India's sea and land ports to the Deccan region. Aurangabad is administrative headquarters of the Aurangabad Division or Marathwada region.

Beed: Agriculture is the main business in Beed, and it is largely dependent on monsoon rain. Beed also is a district which provides a large number of laborers in India specially in the form of sugarcane cutters.

Jalna: is connected to major towns of the state by state highways. Road connectivity is excellent, roads connecting to Aurangabad, Pune, Ahmednagar, Nagpur, Beed, Mumbai having been upgraded to four-lane highways. A New Nagpur-Aurangabad-Mumbai highway, passing through Jalna, is being developed. There are various cotton-ginning & oil-pressing factories in Jalna.

Until 1960 Aurangabad was a undeveloped city and industrially backward area. After 1960 Growth began when the Maharashtra Industrial Development Corporation (MIDC) began acquiring land and setting up industrial estates. Aurangabad is a now classic example of efforts of a state government towards the balanced industrialisation of the state. Major Industrial areas of Aurangabad are Chikhalthana MIDC, Shendra MIDC and Waluj MIDC. Many of the large India and multinational firms have established themselves in Industrial areas of Shendra, Waluj, Paithan.

Some of the big names include Audi, Skoda, Videocon, Siemens, Bajaj, Forbes, Goodyear, Wockhardt, Johnson & Johnson, Kenstar which have set up their production houses in Industrial areas of Aurangabad.

DMIC

Delhi Mumbai Industrial Corridor (DMIC) which is passing close to PIA envisaged to influence the pattern of development and industrialization of the region. To tap the development potential of the proposed freight corridor, an area spanning 150 kilometers wide on both sides of the freight corridor has been identified as Influence Region and is proposed to be developed as Delhi-Mumbai Industrial Corridor (DMIC). One of the Nashik Sinnar Igatpuri Investment Region's identified early bird projects is an industrial area comprising of total 40 sq. km to be developed into two parts one of 8 sq. km in Shendra and other with an area of 32 sq. km at Bidkin some 24 km from Aurangabad on the Paithan road.

The Aurangabad Industrial City (AURIC) Bidkin Industrial Area (BIA) is strategically positioned and directly connected to the major state highways which are Paithan Road, NH-211 and SH-178 (Jalna Road). Nearest major city is Aurangabad which is served by NH-211, Major State Highway (MSH) 6 and MSH-8, and SH-16, SH-60 and SH-148.

Considering the scenario, it may be assumed that the traffic growth on project highway would remain high and there are minimal risks in terms of growth.

5.7 Recommended Growth Rates of Traffic

Based on the above analysis and after giving due consideration to the entire listed factors, the following overall growth rates are recommended for each category of vehicle as under. Rate of growth is moderated in light of overall regional trend. Growth of Multi-Axle is kept slightly higher as trend of technological advances in logistic industry favors multi-axle over 2/3 axle carriage. It is also expected that as the economy moves from developing to developed, rate of growth diminishes. Same growth rate is not sustainable for long. Traffic growth has been suitably stepped down for future years.

Growth rates are recommended for three scenarios for sensitivity analysis namely **Optimistic, Pessimistic** and **Most Likely** with a positive and negative variation 0.25% from Most Likely case for corridor in both states.

5.7.1 Recommended Growth Rates of Traffic for Maharashtra Part of Stretch

Table 5-21 : Recommended Growth Rates Optimistic

Category / Year	2021-2025	2025-2030	2031-2035	2036-2040	2041-2045	2046-2050
Car/Jeep/Van	9.46%	7.71%	7.08%	6.77%	6.72%	6.47%
Bus	6.00%	4.79%	4.27%	4.01%	4.01%	3.96%
Minibus	6.00%	4.79%	4.27%	4.01%	4.01%	3.96%
LCV	5.98%	4.10%	3.41%	3.07%	3.00%	2.68%
2- Axle	4.92%	3.69%	3.17%	2.91%	2.86%	2.62%
3 - Axle	6.19%	4.75%	4.05%	3.71%	3.65%	3.33%
4 to6 Axle	6.82%	4.75%	4.05%	3.71%	3.65%	3.33%
7 and Above Axle	6.82%	4.75%	4.05%	3.71%	3.65%	3.33%

Table 5-22 : Recommended Growth Rates Pessimistic

Category / Year	2021-2025	2025-2030	2031-2035	2036-2040	2041-2045	2046-2050
Car/Jeep/Van	8.96%	7.21%	6.58%	6.27%	6.22%	5.97%
Bus	5.50%	4.29%	3.77%	3.51%	3.51%	3.46%
Minibus	5.48%	3.60%	2.91%	2.57%	2.50%	2.18%
LCV	4.42%	3.19%	2.67%	2.41%	2.36%	2.12%
2- Axle	5.69%	4.25%	3.55%	3.21%	3.15%	2.83%
3 - Axle	6.32%	4.25%	3.55%	3.21%	3.15%	2.83%
4 to6 Axle	6.32%	4.25%	3.55%	3.21%	3.15%	2.83%
7 and Above Axle	6.32%	4.25%	3.55%	3.21%	3.15%	2.83%

Table 5-23 : Recommended Growth Rates Most Likely

Category / Year	2021-2025	2025-2030	2031-2035	2036-2040	2041-2045	2046-2050
Car/Jeep/Van	9.21%	7.46%	6.83%	6.52%	6.47%	6.22%
Bus	5.75%	4.54%	4.02%	3.76%	3.76%	3.71%
Minibus	5.75%	4.54%	4.02%	3.76%	3.76%	3.71%
LCV	5.73%	3.85%	3.16%	2.82%	2.75%	2.43%
2- Axle	4.67%	3.44%	2.92%	2.66%	2.61%	2.37%
3 - Axle	5.94%	4.50%	3.80%	3.46%	3.40%	3.08%
4 to6 Axle	6.57%	4.50%	3.80%	3.46%	3.40%	3.08%
7 and Above Axle	6.57%	4.50%	3.80%	3.46%	3.40%	3.08%

Traffic and revenue has been worked out on the basis of above growths and same is presented in subsequent chapter of report.

5.8 COVID -19 Impact

All All social and economic activities had been completely disrupted due worldwide pandemic of Corona Virus. This had affected traffic on project stretch as well. Traffic was severely affected form March-2020 due to lockdown and then in second wave and third waves.

Government has announced a mega economic stimulate and package of Rs. 20 Lakh Crore to bring the economy back on track and recover the losses. Traffic has shown impressive recovery post lockdown period and has recovered to normal level.

Taking recommended traffic growth and additional factors as discussed above into consideration traffic forecast for concession period is done and presented in next chapter.

CHAPTER 6

TRAFFIC FORECAST

6.1 Traffic Projections

Growth rates recommended in previous section of report are used to arrive at traffic projections for future years. Toll plaza wise futuristic traffic projection is given in tables below.

These projections have been done for following three cases of growth up to concession period

1. Optimistic Scenario
2. Pessimistic Scenario
3. Most Likely Scenario

Table 6-1 : Total Tollable Traffic @ Toll Plaza 1- Chainage 134.000 KM (Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2022-23	3077	291	216	944	970	1965	30	7492	18878
2023-24	3368	308	229	991	1030	2099	32	8057	20170
2024-25	3686	326	242	1039	1094	2242	34	8663	21542
2025-26	3970	339	254	1077	1146	2349	36	9171	22642
2026-27	4277	352	266	1116	1200	2461	38	9710	23797
2027-28	4606	366	279	1157	1257	2578	40	10283	25015
2028-29	4961	381	292	1200	1316	2700	42	10892	26296
2029-30	5343	397	305	1244	1379	2828	44	11540	27647
2030-31	5721	410	318	1283	1435	2943	46	12156	28895
2031-32	6125	423	331	1323	1493	3062	48	12805	30196
2032-33	6558	437	346	1365	1553	3186	50	13495	31568
2033-34	7021	452	361	1408	1616	3315	52	14225	33006
2034-35	7518	467	377	1453	1681	3449	54	14999	34515

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2035-36	8026	481	392	1496	1744	3577	56	15772	35992
2036-37	8569	496	408	1540	1809	3709	58	16589	37536
2037-38	9149	511	424	1585	1876	3846	60	17451	39148
2038-39	9767	527	441	1631	1945	3989	62	18362	40838
2039-40	10427	543	458	1678	2017	4137	64	19324	42605
2040-41	11127	559	477	1726	2090	4288	66	20333	44438
2041-42	11874	576	496	1775	2166	4444	68	21399	46353
2042-43	12671	593	516	1826	2245	4606	70	22527	48364
2043-44	13521	610	537	1878	2327	4774	73	23720	50474
2044-45	14429	628	558	1932	2411	4948	76	24982	52682
2045-46	15362	645	581	1983	2491	5112	79	26253	54854

Table 6-2 : Total Tollable Traffic @ Toll Plaza 2- Chainage 194.000 KM (Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2022-23	5818	420	477	1088	1148	2071	25	11047	24021
2023-24	6367	445	505	1142	1219	2212	27	11917	25708
2024-25	6969	472	535	1199	1295	2363	29	12862	27528
2025-26	7505	492	561	1242	1356	2475	30	13661	28993
2026-27	8084	513	588	1288	1421	2592	31	14517	30548
2027-28	8708	535	616	1335	1488	2715	32	15429	32189
2028-29	9379	557	645	1385	1559	2843	34	16402	33928
2029-30	10102	580	675	1436	1634	2977	36	17440	35766
2030-31	10817	600	703	1481	1700	3097	37	18435	37472
2031-32	11582	621	732	1528	1768	3222	39	19492	39272
2032-33	12402	643	763	1576	1840	3352	41	20617	41172
2033-34	13279	665	796	1626	1915	3487	43	21811	43173
2034-35	14219	687	830	1678	1993	3629	45	23081	45286
2035-36	15181	709	863	1727	2068	3763	47	24358	47364
2036-37	16208	731	897	1777	2145	3903	49	25710	49546

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2037-38	17305	753	933	1829	2224	4048	51	27143	51838
2038-39	18476	776	970	1883	2306	4198	53	28662	54247
2039-40	19726	800	1009	1938	2392	4353	55	30273	56779
2040-41	21051	824	1049	1994	2479	4511	57	31965	59409
2041-42	22465	849	1091	2051	2569	4675	59	33759	62175
2042-43	23973	874	1134	2110	2663	4846	61	35661	65087
2043-44	25583	900	1179	2170	2761	5023	63	37679	68150
2044-45	27301	927	1226	2232	2861	5206	65	39818	71368
2045-46	29066	952	1274	2290	2956	5379	67	41984	74561

Table 6-3 : Total Tollable Traffic @ Toll Plaza 3- Chainage 254.000 KM

(Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2022-23	4762	261	335	811	798	1657	24	8649	18554
2023-24	5212	276	356	850	847	1770	26	9337	19867
2024-25	5704	293	377	892	899	1890	28	10083	21279
2025-26	6144	305	395	925	941	1980	29	10719	22425
2026-27	6617	318	414	959	985	2074	30	11397	23636
2027-28	7127	331	434	994	1032	2173	31	12122	24922
2028-29	7676	344	455	1031	1081	2276	32	12895	26279
2029-30	8268	358	477	1069	1132	2384	34	13722	27720
2030-31	8853	371	497	1103	1178	2481	35	14518	29066
2031-32	9478	384	518	1138	1226	2582	36	15362	30481
2032-33	10148	397	540	1174	1276	2687	37	16259	31972
2033-34	10867	410	563	1212	1327	2796	39	17214	33546
2034-35	11636	424	588	1251	1380	2909	41	18229	35204
2035-36	12423	437	611	1288	1431	3017	43	19250	36839
2036-37	13264	450	636	1326	1484	3129	45	20334	38560
2037-38	14161	464	662	1365	1539	3245	47	21483	40369
2038-39	15119	478	689	1405	1595	3365	49	22700	42266
2039-40	16143	492	717	1446	1654	3490	51	23993	44267
2040-41	17227	506	746	1487	1714	3618	53	25351	46347
2041-42	18384	522	776	1529	1776	3750	55	26792	48533
2042-43	19619	538	808	1572	1841	3887	57	28322	50837
2043-44	20938	554	841	1617	1908	4029	59	29946	53263
2044-45	22343	571	875	1663	1977	4176	61	31666	55811
2045-46	23788	587	910	1706	2042	4315	63	33411	58344

Table 6-4 : Total Tollable Traffic @ Toll Plaza 1- Chainage 134.000 KM (Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2022-23	3077	291	216	944	970	1965	30	7492	18878
2023-24	3353	307	228	986	1025	2088	31	8018	20066
2024-25	3654	323	240	1030	1083	2220	33	8583	21336
2025-26	3917	335	251	1063	1128	2314	34	9042	22312
2026-27	4199	347	262	1097	1176	2412	35	9528	23336
2027-28	4502	359	273	1132	1226	2515	36	10043	24413
2028-29	4827	372	285	1168	1278	2622	38	10590	25548
2029-30	5174	385	297	1205	1332	2734	40	11167	26737
2030-31	5514	396	308	1238	1380	2831	41	11708	27810
2031-32	5876	407	320	1271	1429	2931	42	12276	28925
2032-33	6262	419	332	1305	1480	3036	43	12877	30097
2033-34	6673	431	344	1340	1532	3144	45	13509	31318
2034-35	7112	443	357	1376	1586	3256	47	14177	32597
2035-36	7557	454	369	1409	1637	3361	49	14836	33828
2036-37	8030	466	382	1443	1689	3469	51	15530	35111
2037-38	8534	478	395	1478	1743	3581	53	16262	36452
2038-39	9069	490	409	1514	1799	3696	55	17032	37850
2039-40	9637	502	424	1550	1856	3815	57	17841	39304
2040-41	10236	514	439	1586	1914	3935	59	18683	40797
2041-42	10872	527	454	1623	1975	4059	61	19571	42359
2042-43	11547	540	470	1661	2037	4186	63	20504	43982
2043-44	12265	553	486	1700	2101	4317	65	21487	45675
2044-45	13027	566	503	1740	2167	4452	67	22522	47442
2045-46	13804	578	520	1777	2228	4578	69	23554	49158

Table 6-5 : Total Tollable Traffic @ Toll Plaza 2- Chainage 194.000 KM (Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2022-23	5818	420	477	1088	1148	2071	25	11047	24021
2023-24	6340	443	502	1137	1213	2201	27	11863	25587
2024-25	6908	468	529	1188	1282	2340	29	12744	27268
2025-26	7406	484	551	1226	1337	2439	30	13473	28585
2026-27	7939	501	574	1265	1394	2542	31	14246	29968
2027-28	8512	519	598	1305	1454	2650	32	15070	31431
2028-29	9126	537	624	1346	1516	2763	33	15945	32972
2029-30	9784	556	651	1388	1581	2880	34	16874	34591
2030-31	10428	572	675	1425	1637	2982	35	17754	36074
2031-32	11113	588	701	1463	1696	3087	36	18684	37629
2032-33	11845	605	727	1502	1756	3197	37	19669	39261

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2033-34	12624	623	754	1542	1818	3311	38	20710	40971
2034-35	13453	641	782	1583	1883	3429	39	21810	42765
2035-36	14296	657	809	1621	1944	3539	40	22906	44509
2036-37	15191	673	837	1660	2006	3653	41	24061	46333
2037-38	16143	690	866	1700	2071	3770	42	25282	48243
2038-39	17154	708	896	1741	2137	3891	43	26570	50241
2039-40	18229	726	927	1782	2205	4016	44	27929	52330
2040-41	19361	744	960	1824	2274	4142	45	29350	54493
2041-42	20565	762	994	1866	2346	4272	46	30851	56757
2042-43	21843	781	1029	1909	2421	4406	47	32436	59130
2043-44	23200	800	1065	1954	2497	4545	48	34109	61617
2044-45	24643	820	1102	2000	2575	4688	50	35878	64225
2045-46	26113	838	1140	2042	2648	4820	51	37652	66780

Table 6-6 : Total Tollable Traffic @ Toll Plaza 3- Chainage 254.000 KM (Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2022-23	4762	261	335	811	798	1657	24	8649	18554
2023-24	5189	275	353	847	843	1762	26	9295	19777
2024-25	5654	291	373	885	891	1873	28	9995	21092
2025-26	6062	301	389	914	929	1952	29	10576	22124
2026-27	6499	312	405	943	968	2035	30	11192	23208
2027-28	6968	323	422	973	1009	2121	31	11847	24349
2028-29	7470	334	441	1004	1051	2212	32	12544	25557
2029-30	8009	346	460	1036	1095	2306	33	13285	26827
2030-31	8536	356	477	1064	1134	2388	34	13989	27994
2031-32	9097	366	495	1093	1174	2472	35	14732	29214
2032-33	9695	376	514	1122	1215	2559	36	15517	30490
2033-34	10332	387	534	1152	1258	2650	37	16350	31836
2034-35	11012	398	554	1183	1302	2745	38	17232	33250
2035-36	11702	408	574	1212	1343	2834	39	18112	34630
2036-37	12436	418	594	1241	1386	2925	40	19040	36069
2037-38	13215	429	615	1271	1430	3019	41	20020	37577
2038-39	14043	440	636	1302	1476	3116	42	21055	39156
2039-40	14922	451	658	1333	1524	3216	43	22147	40809
2040-41	15850	462	681	1364	1572	3317	44	23290	42519
2041-42	16836	473	704	1396	1622	3421	45	24497	44309
2042-43	17882	485	729	1429	1673	3529	46	25773	46190
2043-44	18994	498	755	1462	1725	3640	47	27121	48159
2044-45	20176	511	782	1496	1779	3754	48	28546	50223
2045-46	21379	522	809	1528	1829	3860	49	29976	52251

Traffic projections for Most Likely scenario are given as under

Table 6-7 : Total Tollable Traffic @ Toll Plaza 1- Chainage 134.000 KM (Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2022-23	3077	291	216	944	970	1965	30	7492	18878
2023-24	3361	307	229	988	1027	2093	31	8036	20112
2024-25	3670	324	242	1034	1088	2230	33	8621	21432
2025-26	3943	336	253	1070	1137	2330	34	9103	22465
2026-27	4236	349	265	1107	1188	2435	36	9616	23559
2027-28	4552	362	277	1145	1241	2545	38	10160	24708
2028-29	4892	375	289	1184	1296	2660	40	10736	25912
2029-30	5256	389	302	1224	1354	2780	42	11347	27179
2030-31	5614	401	314	1260	1405	2886	44	11924	28338
2031-32	5997	413	326	1297	1458	2996	46	12533	29549
2032-33	6406	426	339	1335	1513	3110	48	13177	30817
2033-34	6843	439	352	1374	1570	3228	50	13856	32141
2034-35	7310	452	367	1414	1629	3351	52	14575	33532
2035-36	7786	464	380	1451	1685	3467	54	15287	34875
2036-37	8294	477	395	1489	1743	3587	56	16041	36284
2037-38	8835	490	410	1528	1803	3711	58	16835	37754
2038-39	9411	503	426	1568	1866	3839	60	17673	39291
2039-40	10024	517	442	1609	1931	3971	62	18556	40894
2040-41	10672	531	458	1650	1997	4105	64	19477	42544
2041-42	11362	545	475	1693	2065	4244	66	20450	44274
2042-43	12097	560	492	1737	2135	4389	68	21478	46086
2043-44	12879	576	511	1782	2207	4538	70	22563	47979
2044-45	13711	592	530	1828	2282	4692	72	23707	49957
2045-46	14563	606	550	1872	2352	4837	74	24854	51894

Table 6-8 : Total Tollable Traffic @ Toll Plaza 2- Chainage 194.000 KM (Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2022-23	5818	420	477	1088	1148	2071	25	11047	24021
2023-24	6353	445	504	1139	1216	2206	27	11890	25646
2024-25	6938	470	533	1193	1288	2351	29	12802	27395
2025-26	7455	488	556	1234	1347	2456	30	13566	28785
2026-27	8012	506	581	1276	1408	2567	31	14381	30257
2027-28	8609	526	607	1319	1471	2683	32	15247	31807
2028-29	9251	547	634	1364	1537	2804	33	16170	33443
2029-30	9941	569	662	1411	1606	2930	34	17153	35170
2030-31	10620	587	689	1452	1667	3042	35	18092	36771

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2031-32	11345	605	716	1494	1730	3158	36	19084	38446
2032-33	12119	623	744	1537	1796	3278	37	20134	40202
2033-34	12946	643	773	1582	1864	3402	38	21248	42048
2034-35	13830	664	803	1628	1935	3531	39	22430	43989
2035-36	14731	682	833	1671	2002	3653	40	23612	45891
2036-37	15691	701	864	1715	2071	3779	41	24862	47883
2037-38	16714	721	897	1761	2143	3909	42	26187	49978
2038-39	17804	742	931	1808	2218	4044	43	27590	52180
2039-40	18965	764	966	1856	2295	4184	44	29074	54488
2040-41	20192	786	1002	1904	2373	4326	45	30628	56878
2041-42	21497	808	1039	1953	2453	4473	47	32270	59384
2042-43	22888	830	1078	2003	2536	4625	49	34009	62017
2043-44	24367	853	1118	2054	2623	4782	51	35848	64780
2044-45	25943	877	1160	2108	2712	4944	53	37797	67685
2045-46	27557	899	1203	2157	2795	5096	55	39762	70550

Table 6-9 : Total Tollable Traffic @ Toll Plaza 3- Chainage 254.000 KM (Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Bus	Truck	3-Axle Commercial vehicle	Multi axle	Oversized Vehicles	Total Tollable Traffic	PCU (Including Exempted)
2022-23	4762	261	335	811	798	1657	24	8649	18554
2023-24	5201	276	355	849	845	1766	26	9318	19826
2024-25	5679	292	375	889	895	1882	28	10040	21189
2025-26	6103	303	392	920	935	1966	29	10648	22276
2026-27	6558	315	410	952	977	2055	30	11297	23430
2027-28	7047	327	429	985	1020	2148	31	11987	24645
2028-29	7573	340	449	1019	1066	2245	32	12724	25932
2029-30	8138	353	469	1054	1114	2346	33	13507	27284
2030-31	8694	364	488	1085	1156	2436	34	14257	28542
2031-32	9287	375	508	1117	1199	2529	35	15050	29860
2032-33	9920	387	528	1149	1245	2625	36	15890	31241
2033-34	10598	400	549	1182	1292	2725	37	16783	32696
2034-35	11322	413	571	1216	1341	2829	38	17730	34227
2035-36	12060	425	592	1248	1388	2927	39	18679	35729
2036-37	12845	437	614	1281	1436	3028	40	19681	37300
2037-38	13682	450	637	1315	1486	3133	41	20744	38954
2038-39	14573	463	661	1350	1537	3241	42	21867	40685
2039-40	15523	476	686	1385	1590	3353	43	23056	42502
2040-41	16527	489	712	1421	1644	3467	44	24304	44391
2041-42	17595	502	739	1458	1699	3584	45	25622	46367
2042-43	18732	516	767	1496	1757	3706	47	27021	48455
2043-44	19944	530	796	1535	1817	3832	49	28503	50648
2044-45	21234	544	826	1575	1879	3962	51	30071	52949
2045-46	22554	557	856	1613	1937	4084	53	31654	55224

6.2 Modification in Concession Period

As per Article 29 of the concession agreement, if actual traffic on the project falls short or exceeds Target Traffic on project highway on defined date, concession period shall be modified subject to calculation stipulated therein. For Yedeshi – Aurangabad project, the Target Date and Target Traffic are defined as under:

Target Date - 1st October 2023

Target Traffic -24407 in PCU

It was observed that as per traffic projections, average traffic volume falls short of target traffic in all scenarios. Probable extension of concession period is estimated according to article 29 of concession agreement which comes to about 4-5 years Traffic forecast and revenue projections are done for probable extended period accordingly.

Most Likely

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2023	24407	21895	-10%	15%	15%	26	4.0

Optimistic

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2023	24407	21950	-10%	15%	15%	26	3.9

Pessimistic

Target Year	Target Traffic	Actual Traffic	% of Excess / Short traffic	% Revision (+ or -) in CP as per CA	% Variation in CP	Original CP	Change in CP (In Years)
2023	24407	21842	-11%	16%	16%	26	4.1

CHAPTER 7

FORECAST OF TOLL REVENUE

7.1 General

This chapter presents the tolling rate calculations, categories and toll revenue of the project.

7.2 Discount Categories

The fee schedule in the CA of Surat- Dahisar section of NH-8 is based on the old toll policy. As per the Toll Notification (Schedule - G) the discounts and special provisions have been considered. In addition to discounts as per Fee Notification concessionaire has declared special category rates also. Salient features of toll rate structure are given as under

1. Monthly Pass: For frequent users monthly pass would be issued at fee at 2/3rd rate for 50 single journey trips.
2. Multiple Journeys (for Return Trip): Will be charged at 1.5 times single journey.
3. Single Journey: Full single journey toll would be charged to this category of vehicles who are infrequent travellers or whose frequency does not yield any discount from the above categories.
4. Local Discounts: There are several categories of local discounts.
    a) Local Car Jeep Van - Rs. 275 per month (for locals residing within a radius of 20 kms from toll plaza)

Building of inflation and escalation of rate on the basis of WPI are done as per toll notification (Schedule G) as given under as extract from concession agreement.

The formula for determining the applicable rate of fee shall be as follows:-

$$\text{Applicable rate of fee} = \text{base rate} + \text{base rate} \times \left\{ \frac{\text{WPI A} - \text{WPI B}}{\text{WPI B}} \right\} \times 0.4$$

Factor of inflation / growth has been incorporated as per Schedule R. WPI numbers (2011-12 series) are available up to 2018-19. A moderate growth in Wholesale Price Index (WPI) has been assumed after that. The following graph provides historical rate of inflation (WPI) in India. Data has been sourced from the Office of Economic Advisor web site (www.eaindustry.nic.in) WPI for year 2017-18 and 2018-2019 is worked back by applying a correlation factor for 2004-05 series as 2017-18 and 2018-2019 data is available in 2011-12 series only. Ratio of WPI for year 2016-17 for both series is used for conversion of WPI in 2004-05 series

Figure 7-1 : Historical Rate of WPI Inflation in India

Average inflation in WPI in last few years is steadily growing. It grew in range of 4% - 5% in previous years. For future years initially it is takes 5% and Suitably Stepped down for future years.

7.3 Estimation of Toll Rates

As per the applicable MORTH notification and Schedule R of contract agreement, the following Base rate of fee for the categories mentioned in the table stands true in the National Highways Fee Rules applicable for contract.

Table 7-1 : Base Toll Rates June 2007-08

Type of Vehicle	Base Rate of Fee / Km (in Rs.)
Car, Jeep, Van or Light Motor Vehicle	0.65
Light Commercial Vehicle, Light Goods Vehicle or Mini Bus	1.05
Bus or Truck (Two Axles)	2.20
Three Axle Commercial Vehicles	2,40
Heavy Construction Machinery (HCM) or Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 axles)	3.45
Oversized Vehicles (7 or more Axles)	4.20

Toll rates are calculated as per guidelines provided in schedule R (rounded to nearest Rs. five) for the concession period and are given below. Since applicable length of highway length is equal for both plazas, applicable toll rates are also same

Thus, worked out rates for various categories of vehicle and discounts are given as under.

Table 7-2 : Toll Rates for Single Journey @ Km 134.000

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	75	120	250	250	275
2023-24	80	125	265	265	285
2024-25	80	130	275	275	300
2025-26	85	140	290	290	315
2026-27	90	145	305	305	335
2027-28	95	155	320	320	350
2028-29	100	160	335	335	365
2029-30	105	170	350	350	385
2030-31	110	175	370	370	400
2031-32	115	185	385	385	420
2032-33	120	195	405	405	440
2033-34	125	205	425	425	465
2034-35	130	215	445	445	485
2035-36	140	225	470	470	510
2036-37	145	235	490	490	535
2037-38	150	245	515	515	560
2038-39	160	260	540	540	590
2039-40	170	270	565	565	620

2040-41	175	285	595	595	650
2041-42	185	300	625	625	680
2042-43	195	315	655	655	715
2043-44	205	330	690	690	750
2044-45	215	345	725	725	790
2045-46	225	365	760	760	830

Table 7-3 : Toll Rates for Single Journey @ Km 194.000

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	100	165	345	345	380
2023-24	110	175	365	365	395
2024-25	115	185	385	385	415
2025-26	120	190	400	400	440
2026-27	125	200	425	425	460
2027-28	130	210	445	445	485
2028-29	135	220	465	465	505
2029-30	145	230	485	485	530
2030-31	150	245	510	510	555
2031-32	160	255	535	535	585
2032-33	165	270	560	560	610
2033-34	175	280	590	590	640
2034-35	180	295	615	615	675
2035-36	190	310	645	645	705
2036-37	200	325	680	680	740
2037-38	210	340	715	715	775
2038-39	220	355	750	750	815
2039-40	230	375	785	785	855
2040-41	245	395	825	825	900
2041-42	255	415	865	865	945
2042-43	270	435	910	910	990
2043-44	280	455	955	955	1040
2044-45	295	480	1000	1000	1090
2045-46	310	500	1050	1050	1145

Table 7-4 : Toll Rates for Single Journey @ Km 243.00

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	100	160	340	340	370

2023-24	105	170	355	355	390
2024-25	110	180	375	375	410
2025-26	115	190	395	395	430
2026-27	120	195	415	415	450
2027-28	130	205	435	435	470
2028-29	135	215	455	455	495
2029-30	140	225	475	475	520
2030-31	145	240	500	500	545
2031-32	155	250	525	525	570
2032-33	160	260	550	550	600
2033-34	170	275	575	575	630
2034-35	180	290	605	605	660
2035-36	185	300	635	635	690
2036-37	195	315	665	665	725
2037-38	205	335	695	695	760
2038-39	215	350	730	730	800
2039-40	225	365	765	765	835
2040-41	240	385	805	805	880
2041-42	250	405	845	845	920
2042-43	260	425	890	890	970
2043-44	275	445	930	930	1015
2044-45	290	465	980	980	1070
2045-46	305	490	1030	1030	1120

Table 7-5 : Toll Rates for Return Journey @ Km 134.000

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	110	180	375	375	410
2023-24	115	190	395	395	430
2024-25	125	200	415	415	455
2025-26	130	210	435	435	475
2026-27	135	220	460	460	500
2027-28	140	230	480	480	525
2028-29	150	240	505	505	550
2029-30	155	250	530	530	575
2030-31	165	265	555	555	605
2031-32	170	275	580	580	635
2032-33	180	290	610	610	665
2033-34	190	305	640	640	695
2034-35	200	320	670	670	730
2035-36	205	335	700	700	765
2036-37	220	350	735	735	805
2037-38	230	370	775	775	845
2038-39	240	385	810	810	885
2039-40	250	405	850	850	930

2040-41	265	425	895	895	975
2041-42	275	450	940	940	1025
2042-43	290	470	985	985	1075
2043-44	305	495	1035	1035	1130
2044-45	320	520	1085	1085	1185
2045-46	335	545	1140	1140	1245

Table 7-6 : Toll Rates for Return journey @ Km 194.000

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	155	250	520	520	565
2023-24	160	260	545	545	595
2024-25	170	275	575	575	625
2025-26	180	290	605	605	660
2026-27	185	305	635	635	690
2027-28	195	315	665	665	725
2028-29	205	330	695	695	760
2029-30	215	350	730	730	795
2030-31	225	365	765	765	835
2031-32	235	385	800	800	875
2032-33	250	400	840	840	920
2033-34	260	420	880	880	965
2034-35	275	440	925	925	1010
2035-36	285	465	970	970	1060
2036-37	300	485	1020	1020	1110
2037-38	315	510	1070	1070	1165
2038-39	330	535	1120	1120	1225
2039-40	350	560	1175	1175	1285
2040-41	365	590	1235	1235	1350
2041-42	385	620	1295	1295	1415
2042-43	400	650	1360	1360	1485
2043-44	420	680	1430	1430	1560
2044-45	445	715	1500	1500	1640
2045-46	465	755	1575	1575	1720

Table 7-7 : Toll Rates for Return journey @ Km 243.000

Year	CAR	Minibus /LCV	Truck/Bus	Multi axle	Oversized Vehicles
2022-23	150	245	510	510	555
2023-24	160	255	535	535	585
2024-25	165	270	560	560	610
2025-26	175	280	590	590	645
2026-27	185	295	620	620	675
2027-28	190	310	650	650	710
2028-29	200	325	680	680	745
2029-30	210	340	715	715	780
2030-31	220	355	750	750	815
2031-32	230	375	785	785	855
2032-33	245	395	825	825	900
2033-34	255	410	865	865	940
2034-35	265	430	905	905	985
2035-36	280	455	950	950	1035
2036-37	295	475	995	995	1085
2037-38	310	500	1045	1045	1140
2038-39	325	525	1095	1095	1195
2039-40	340	550	1150	1150	1255
2040-41	355	575	1210	1210	1320
2041-42	375	605	1270	1270	1385
2042-43	395	635	1330	1330	1455
2043-44	415	665	1400	1400	1525
2044-45	435	700	1470	1470	1600
2045-46	455	735	1540	1540	1680

Table 7-8 : Toll Rates for Monthly Pass Local@ all Toll Plaza

Year	Car	Mini Bus /LCV
2022-23	315	315
2023-24	330	330
2024-25	345	345
2025-26	365	365
2026-27	385	385
2027-28	400	400
2028-29	420	420
2029-30	440	440
2030-31	460	460
2031-32	485	485
2032-33	510	510
2033-34	535	535

2034-35	560	560
2035-36	585	585
2036-37	615	615
2037-38	645	645
2038-39	675	675
2039-40	710	710
2040-41	745	745
2041-42	785	785
2042-43	825	825
2043-44	865	865
2044-45	905	905
2045-46	955	955

Table 7-9 : Toll Rates for Monthly Pass @ Km 134.000

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2022-23	2470	3985	8355	8355	9115
2023-24	2595	4190	8775	8775	9575
2024-25	2725	4400	9220	9220	10060
2025-26	2865	4625	9690	9690	10570
2026-27	3010	4860	10185	10185	11110
2027-28	3155	5095	10675	10675	11645
2028-29	3305	5340	11190	11190	12205
2029-30	3465	5595	11730	11730	12795
2030-31	3635	5870	12295	12295	13415
2031-32	3810	6155	12890	12890	14065
2032-33	3995	6450	13520	13520	14745
2033-34	4190	6765	14175	14175	15465
2034-35	4395	7095	14870	14870	16220
2035-36	4610	7445	15595	15595	17015
2036-37	4835	7810	16365	16365	17850
2037-38	5075	8195	17170	17170	18730
2038-39	5325	8600	18020	18020	19655
2039-40	5585	9025	18910	18910	20630
2040-41	5865	9475	19850	19850	21655
2041-42	6155	9945	20835	20835	22730
2042-43	6465	10440	21880	21880	23865
2043-44	6785	10965	22975	22975	25060
2044-45	7130	11515	24125	24125	26320
2045-46	7485	12095	25340	25340	27645

Table 7-10 : Toll Rates for Monthly Pass @ Km 194.000

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2022-23	3415	5515	11555	11555	12605
2023-24	3585	5795	12140	12140	13245
2024-25	3770	6090	12755	12755	13915
2025-26	3960	6395	13405	13405	14620
2026-27	4160	6725	14090	14090	15370
2027-28	4360	7045	14765	14765	16105
2028-29	4570	7385	15475	15475	16885
2029-30	4795	7745	16225	16225	17700
2030-31	5025	8115	17005	17005	18555
2031-32	5270	8510	17830	17830	19455
2032-33	5525	8925	18700	18700	20400
2033-34	5795	9360	19610	19610	21390
2034-35	6075	9815	20570	20570	22440
2035-36	6375	10295	21575	21575	23535
2036-37	6690	10805	22635	22635	24695
2037-38	7015	11335	23750	23750	25910
2038-39	7365	11895	24925	24925	27190
2039-40	7730	12485	26160	26160	28535
2040-41	8110	13105	27455	27455	29955
2041-42	8515	13755	28825	28825	31445
2042-43	8940	14445	30265	30265	33015
2043-44	9390	15165	31780	31780	34665
2044-45	9860	15930	33370	33370	36405
2045-46	10355	16730	35050	35050	38235

Table 7-11 : Toll Rates for Monthly Pass @ Km 243.000

Year	Car	Mini Bus /LCV	Truck/Bus	Multi Axle	Oversized Vehicle
2022-23	3340	5395	11300	11300	12325
2023-24	3505	5665	11870	11870	12950
2024-25	3685	5950	12470	12470	13605
2025-26	3870	6255	13105	13105	14295
2026-27	4070	6575	13775	13775	15025
2027-28	4265	6890	14435	14435	15750
2028-29	4470	7220	15130	15130	16510
2029-30	4685	7570	15860	15860	17305
2030-31	4915	7935	16630	16630	18140
2031-32	5150	8320	17435	17435	19020
2032-33	5400	8725	18285	18285	19945
2033-34	5665	9150	19175	19175	20915
2034-35	5940	9600	20110	20110	21940
2035-36	6235	10070	21095	21095	23015
2036-37	6540	10565	22130	22130	24145
2037-38	6860	11085	23220	23220	25335
2038-39	7200	11630	24370	24370	26585

2039-40	7555	12205	25575	25575	27900
2040-41	7930	12815	26845	26845	29285
2041-42	8325	13450	28185	28185	30745
2042-43	8745	14125	29590	29590	32280
2043-44	9180	14830	31070	31070	33895
2044-45	9640	15575	32630	32630	35595
2045-46	10125	16355	34270	34270	37385

7.4 Toll Revenue

As indicated earlier, toll revenue on the Project Road has been calculated in all three scenarios based on above rates and projected traffic. The estimates of toll revenue under ***Optimistic***, ***Pessimistic*** and ***Most Likely*** growth scenarios are presented in the following section.

7.5 Toll Revenue at all toll plazas under Scenarios

Toll Revenue estimates under most likely scenario at each of the toll plaza up to 2024-25 (5 years from the end of original Concession Period) starting from the year 2022-23 are shown in tables below.

Table 7-12 : Toll Revenue Optimistic Scenario

(Rs. Crores)

Year	TP-1	TP2	TP3	Total
2022-23	57.99	96.35	73.68	**228.02**
2023-24	63.77	106.23	81.60	**251.60**
2024-25	70.95	119.27	91.11	**281.34**
2025-26	78.18	131.75	100.84	**310.76**
2026-27	86.59	145.51	111.66	**343.77**
2027-28	95.27	160.79	123.55	**379.61**
2028-29	104.71	176.70	135.67	**417.08**
2029-30	115.26	195.39	149.62	**460.26**
2030-31	126.55	213.80	163.94	**504.28**
2031-32	138.25	235.84	180.93	**555.03**
2032-33	151.10	257.79	198.18	**607.07**
2033-34	165.56	283.43	217.58	**666.58**
2034-35	181.36	310.88	239.18	**731.42**
2035-36	199.27	340.65	262.02	**801.95**
2036-37	216.87	372.69	286.85	**876.41**
2037-38	236.84	408.08	314.99	**959.91**

Year	TP-1	TP2	TP3	Total
2038-39	259.40	447.83	344.93	**1052.16**
2039-40	284.35	492.14	379.16	**1155.65**
2040-41	309.76	538.71	415.78	**1264.24**
2041-42	338.38	590.56	455.44	**1384.38**
2042-43	370.62	648.06	499.64	**1518.32**
2043-44	406.64	711.48	550.43	**1668.54**
2044-45	444.08	779.91	603.78	**1827.76**
2045-46	484.12	853.58	660.70	**1998.40**

Table 7-13 : Toll Revenue Pessimistic Scenario

(Rs. Crores)

Year	TP-1	TP2	TP3	Total
2022-23	57.99	96.35	73.68	**228.02**
2023-24	63.45	105.73	81.19	**250.38**
2024-25	70.30	118.19	90.23	**278.71**
2025-26	77.09	129.96	99.38	**306.42**
2026-27	84.96	142.85	109.55	**337.36**
2027-28	93.01	157.07	120.65	**370.73**
2028-29	101.77	171.79	131.90	**405.47**
2029-30	111.51	189.02	144.79	**445.32**
2030-31	121.86	205.86	157.89	**485.60**
2031-32	132.47	225.98	173.46	**531.91**
2032-33	144.10	245.80	189.09	**578.99**
2033-34	157.11	268.94	206.61	**632.67**
2034-35	171.29	293.53	226.07	**690.89**
2035-36	187.27	320.06	246.49	**753.82**
2036-37	202.81	348.45	268.55	**819.81**
2037-38	220.46	379.72	293.46	**893.63**
2038-39	240.36	414.69	319.84	**974.88**
2039-40	262.19	453.52	349.88	**1065.59**
2040-41	284.24	494.15	381.80	**1160.19**
2041-42	309.03	539.06	416.14	**1264.23**
2042-43	336.81	588.64	454.26	**1379.71**
2043-44	367.67	643.06	497.90	**1508.63**
2044-45	399.51	701.57	543.44	**1644.52**
2045-46	433.40	764.12	591.76	**1789.28**

Table 7-14 : Toll Revenue Most Likely Scenario

(Rs. Crores)

Year	TP-1	TP2	TP3	Total
2022-23	57.99	96.35	73.68	**228.02**
2023-24	63.58	105.99	81.40	**250.97**
2024-25	70.59	118.71	90.67	**279.97**
2025-26	77.60	130.83	100.10	**308.53**
2026-27	85.75	144.18	110.63	**340.56**
2027-28	94.11	158.93	122.14	**375.19**
2028-29	103.22	174.24	133.83	**411.29**
2029-30	113.35	192.21	147.25	**452.80**
2030-31	124.17	209.85	160.96	**494.98**
2031-32	135.35	230.92	177.22	**543.49**
2032-33	147.60	251.80	193.64	**593.04**
2033-34	161.30	276.18	212.07	**649.55**
2034-35	176.27	302.13	232.54	**710.93**
2035-36	193.14	330.26	254.13	**777.52**
2036-37	209.67	360.43	277.47	**847.57**
2037-38	228.46	393.74	303.94	**926.14**
2038-39	249.65	431.08	332.04	**1012.76**
2039-40	272.95	472.60	364.08	**1109.63**
2040-41	296.56	516.08	398.30	**1210.93**
2041-42	323.12	564.30	435.10	**1322.51**
2042-43	353.13	617.63	476.04	**1446.80**
2043-44	386.49	676.47	523.10	**1586.06**
2044-45	421.03	739.85	572.42	**1733.30**
2045-46	457.91	807.65	624.85	**1890.41**

CHAPTER 8

CONCLUSION & RECOMMENDATIONS

8.1 Conclusion & Recommendations

Project stretch of Yedeshi to Aurangabad section of NH-211 in state of Maharashtra from km 100.000 to km 290.200 is currently four lane road. The road is in sound condition and serves healthy traffic volumes. Project corridor is a part of the important regional network connecting Maharashtra with Karnataka and other southern states. There are large number of townships, industrial corridors and other business establishment coming up along project corridor. As discussed, dominant portion of traffic is long route traffic, which is more sensitive towards the growth of national economy. As Indian economy is poised to grow at 7%+ post COVID-19, the project corridor is expected to pick up the same trend in terms of traffic flow. All these developments have potential to give positive impact to traffic flow on project. The following can be considered as major outcomes of the study

a) There is good amount of tollable traffic running on project

b) Project corridor has potential to witness traffic growth @ 6-8% annually in near future due to various development in area and overall development of economy

c) Project corridor has committed traffic as long route traffic and does not run a risk of traffic leakage due to quality competing road

Based on above it can be considered a stable healthy project from traffic and revenue point of view.

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