IRB Infrastructure private limited
(A subsidiary of
IRB INFRASTRUCTURE DEVELOPERS LTD)

Registered Office :
IRB Complex, Chandivali Farm, Chandivali Village, Andheri (E), Mumbai - 400 072.
Tel: 91 - 22 - 6640 4299 • Fax: 91 - 22 - 6640 4274 • e-mail: info@irbfi.co.in • www.irbfi.co.in
CIN : U28920MH1997PTC112628

November 13, 2018

Corporate Relationship Department, BSE Limited Phiroze Jeejeebhoy Towers Dalal Street, Mumbai- 400001. Fax No. 022-22723121/3027/2039/2061/2041.	Listing Department, National Stock Exchange of India Limited Exchange Plaza, C-1 Block G Bandra Kurla Complex, Bandra (E), Mumbai. Fax No. 022-26598237/38;66418126

Dear Sir/Madam,

Ref: Scrip Code: 540526, Symbol: IRBINVIT

Sub: Report for the half year ended September 30, 2018

Pursuant to Regulation 23 of SEBI (Infrastructure Investment Trusts) Regulations, 2014, as amended, please find attached Report of IRB InvIT Fund for the half year ended September 30, 2018.

Kindly take the same on your record.

Thanking you,

Yours faithfully,
For IRB Infrastructure Private Limited
(Investment Manager to IRB InvIT Fund)

U.K.Shah

IRB Infrastructure Pvt. Ltd.

Urmil Shah
Company Secretary & Compliance Officer

Encl: As above

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CIN : U28920MH1997PTC112628

13 NOV 2018

Report for the half year ended September 30, 2018

To,
The Unitholders,
IRB InvIT Fund

We, IRB Infrastructure Private Limited, Investment Manager of IRB InvIT Fund (the Trust) hereby submit the Report for the half year ended September 30, 2018 to the Unitholders of the Trust together with Financial Statements and Valuation Report for the half year ended September 30, 2018.

1) **Investment Manager's brief report of activities of the Trust and summary of the unaudited consolidated financial statements for the period of the Trust.**

The Trust has been settled by IRB Infrastructure Developers Limited (the "Sponsor") pursuant to the Indenture of Trust in Mumbai, India, as an irrevocable trust in accordance with the Trusts Act. The Trust has been registered with SEBI as an infrastructure investment trust under the InvIT Regulations (Registration Number: IN/InvIT/15-16/0001). The object and purpose of the Trust is to carry on the activity of an infrastructure investment trust under the InvIT Regulations, to raise resources in accordance with the InvIT Regulations, and to make investments in accordance with its investment strategy.

The Trust own, operate and maintain a portfolio of seven toll-road assets in the Indian states of Maharashtra, Gujarat, Rajasthan, Karnataka, Tamil Nadu and Punjab. These toll roads are operated and maintained pursuant to concessions granted by the NHAI. The Trust is listed on both the Stock exchanges i.e. Nationals Stock Exchange and Bombay Stock Exchange since 18th May 2017.

The Summary of financial information on Standalone and Consolidated Financial Statement of the Trust are annexed herewith as **"Annexure A".**

2) **Brief details of all the assets of the Trust, project-wise**

Project wise brief details of all the assets of the Trust are annexed herewith as **"Annexure B".**

3) **Details of revenue during the period, project-wise from the underlying projects**

Details of Project wise revenue from the underlying assets are annexed herewith as **"Annexure C".**

4) **Brief summary of the valuation as per full valuation report as at the end of the period**

Please refer Valuation Report issued by M/s. Walker Chandiok & Co LLP, Valuer for the half year ended September 30, 2018 is annexed herewith as **"Annexure D".**

5) **Any information or report pertaining to the specific sector or sub-sector that may be relevant for an investor to invest in units of the Trust**

The Toll Revenue and O&M Cost Projection Report issued by M/s. GMD Consultants, Technical Consultant, for each Project SPV is annexed herewith as **"Annexure E".**

IRB Infrastructure Pvt. Ltd.

6) **Details of changes during the period pertaining to:**

a) **Addition and divestment of assets including the identity of the buyers or sellers, purchase or sale prices and brief details of valuation for such transactions**

During the period, the Trust has neither acquired any assets nor divested any of its Assets.

b) **Valuation of assets and NAV (as per the full valuation reports)**

Statement of Net Assets at Fair Value as at September 30, 2018

Particulars	Amt in Lakhs
A. Assets	775,548.20
B. Liabilities	162,470.40
C. Net Assets	613,077.80
Outstanding units	5,805.00
NAV at Fair Value (Per Unit)	**105.61**

c) **Borrowings or repayment of borrowings (standalone and consolidated)**

Details of Borrowings or repayment of borrowings on standalone and consolidated are annexed herewith as **"Annexure F"**.

d) **Credit rating**

CARE Ratings Limited has reaffirmed "CARE AAA; Stable" to long term bank facilities of Rs.153,636 Lakhs availed by the Trust. For more information, please visit www.careratings.com.

e) **Sponsor, Investment Manager, Trustee, valuer, directors of the Trustee or Investment Manager or sponsor, etc.**

Details of the Investment Manager

IRB Infrastructure Private Limited is the Investment Manager (IM) of the Trust, and has been designated as such pursuant to the Investment Management Agreement dated March 3, 2016. The Investment Manager is responsible for making investment decisions with respect to the underlying assets or projects of the Trust (Project SPVs), including any further investment or divestment of its assets, in accordance with Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014, as amended (the InvIT Regulations) and the Investment Management Agreement.

The details of the Invesment Manager are as follows:

i) **Details of the Investment Manager**

a) **Name:** IRB Infrastructure Private Limited (CIN : U28920MH1997PTC112628);

b) **Registered Office:** IRB Complex, Chandivali Farm, Chandivali Village, Andheri (E), Mumbai - 400 072;

c) **Correspondence Address:** IRB Complex, Chandivali Farm, Chandivali Village, Andheri (E), Mumbai - 400 072;

IRB Infrastructure Pvt. Ltd.

d) **Telephone Number:** +91 22 6640 4299;

e) **Fax:** +91 22 6640 4274; and

f) **Website:** www.irbfl.co.in

g) **E-mail:** info@irbfl.co.in

ii) Details of the Contact Person of the Investment Manager

a) **Name:** Mr. Urmil Shah, Compliance Officer ;

b) **Telephone Number:**+91 22 6640 4299; and

c) **Email:** urmil.shah@irbfl.co.in

iii) Past Experience of the Investment Manager

The Company has adequate net worth, experience, resources and personnel in the development of infrastructure and to perform functions of the Investment Manager. The Board of the Investment Manager comprises of majority of the Independent Directors having extensive experience in Infrastructure Sector and Project financing.

iv) Brief Profiles of the Investment Manager's Directors

a) **Mr. Rajinder Pal Singh (DIN : 02943155)**

Mr. Rajinder Pal Singh, aged 66 years, is an Independent Director and Chairman of the Board of the Investment Manager. He is a retired I.A.S. Officer and has experience in areas of finance, industry and infrastructure development. Previously, he was the chairman and managing director of Punjab & Sind Bank and the secretary to the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, Government of India. Further, he was the chairman of National Highways Authority of India for a period of three years starting from June 2012. Currently, he is also a director on the board of directors of Maruti Suzuki India Limited, Bharti Infratel Limited and Lodha Developers Limited.

b) **Mr. Vinod Kumar Menon (DIN : 03075345)**

Mr. Vinod Kumar Menon, aged 52 years is a whole time director & Chief Executive Officer of the Investment Manager. He holds a Bachelor of Technology degree in Civil Engineering. He has experience in the fields of infrastructure development and management. Previously, he was the president (business development) of the Sponsor. He currently also serves as the vice-president of the National Highway Builder Federation – a non profit organisation.

c) **Mr. B. L. Gupta (DIN : 07175777)**

Mr. B. L. Gupta, aged 63 years, is an independent director of the Investment Manager. He holds a Bachelor's degree in commerce and a Master of Business Administration degree. He is a certificated associate of the Indian Institute of Bankers. He has

experience in banking, corporate and project finance. Previously, he was the chief general manager of India Infrastructure Finance Company Limited.

d) **Mr. Sumit Banerjee (DIN : 00213826)**

Mr. Sumit Banerjee, aged 61 years, is an independent director of the Investment Manager. He holds a Bachelor of Technology degree in Mechanical Engineering and has completed a Management Education Programme. He is a fellow and a Chartered Engineer (India) of the Institution of Engineers. He has experience in the fields of management. Previously, he served as the managing director of ACC Limited.

v) **Brief Profiles of the Investment Manager's Key Personnel**

a) **Mr. Vinod Kumar Menon**

For details in relation to Mr. Vinod Kumar Menon, see "- *Brief Profiles of the Investment Manager's Directors*".

b) **Mr. Tushar Kawedia**

Mr. Tushar Kawedia, aged 38 years, is the chief financial officer of the Investment Manager. Previously, he served as the deputy chief financial officer of the Sponsor group. Mr. Kawedia holds a Bachelor's degree in commerce and is a qualified chartered accountant (ICAI). Prior to joining the Sponsor, he was deputy general manager (accounts and finance) at Reliance Infrastructure Limited. He has experience in the fields of accounts and finance.

c) **Mr. Urmil Shah**

Mr. Urmil Shah, aged 33 years, is the company secretary of the Investment Manager and has been designated as the Compliance Officer by the Investment Manager with respect to the Trust. Previously, he served as the assistant company secretary of the Sponsor. Mr. Shah holds a Bachelor's degree in commerce and is an associate of the ICSI. Prior to joining the Sponsor group in 2011, he was part of the secretarial department of Great Offshore Limited. He has several years of experience in secretarial and compliance functions.

vi) **Details of the Holding or the Proposed Holding by the Investment Manager and its Directors in the Trust**

As on September 30, 2018, as per the disclosures received from the Directors of Investment Manager, except Mr. Rajinder Pal Singh, all the Investment Manager's Directors holds Units of the Trust as follows:

Sr. No.	Name of Director	No. of Units held
1	Mr. Vinod Kumar Menon	30,000
2	Mr. Sumit Banerjee	20,000
3	Mr. B. L. Gupta	5,000

Also, please find below details of Units held by the Key Managerial Personnel (KMP) of the Investment Manager.

Sr. No.	Name of KMP	No. of Units held
1	Mr. Tushar Kawedia (CFO)	25,000
2	Mr. Urmil Shah (CS)	10,000

vii) Summary of the Standalone Financial Statements of the Investment Manager

The Investment Manager has no subsidiaries. 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 Indian GAAP and the Companies Act, as of and for the financial years ended March 31, 2018, please refer website of Investment Manager i.e. www.irbfl.co.in.

During the period, there is no change in the Board of Directors of the Investment Manager.

viii) Codes / Policies

In order to adhere to the good governance practices for the Trust, the Investment Manager has adopted the following policies in relation to the Trust:

Distribution Policy

The Investment Manager has adopted the Distribution Policy as disclosed in Final Offer Document to ensure proper, accurate and timely distribution for the Trust. The Distributable Income of the Trust is calculated in accordance with the Distribution Policy, the InvIT Regulations and any circular, notification or guidance issued thereunder.

Policy on unpublished price-sensitive information and dealing in units by the parties to the Trust (the "UPSI Policy")

The Investment Manager has adopted the UPSI Policy to ensure that the Trust complies with applicable law, including the InvIT Regulations or such other laws, regulations, rules or guidelines prohibiting insider trading and governing disclosure of material, unpublished price sensitive information.

Policy in relation to Related Party Transactions

To ensure proper approval, supervision and reporting of the transactions between the Trust and its Related Parties, the Board of Directors of the Investment Manager has adopted the Policy in relation to Related Party Transactions as disclosed in Final Offer Document, to regulate the transactions between the Trust and its Related Parties.

Representatives on the Board of Directors of each Project SPVs

The Investment Manager, in consultation with the Trustee, has appointed the majority of the board of directors of Project SPVs. Further, the Investment Manager ensures that in every meeting, including annual general meeting of Project SPVs, the voting of the Trust is exercised.

IRB Infrastructure Pvt. Ltd.

ix) Committees

In compliance with requirement of the Companies Act, 2013 and Rules made thereunder, Investment Manager's Board of Directors constituted the following Committees:
i) Audit Committee; and
ii) Nomination and Remuneration Committee

The Chairman of the Board, in consultation with the Company Secretary and the respective Chairman of these Committees, determines the frequency of the meetings of these Committees. The recommendations of the Committees are submitted to the Board for approval.

(i) Audit Committee

The chairperson of the Audit Committee is an independent director. All members of the Audit Committee are financially literate and Chairman of the Committee have accounting and related financial management expertise.

The Composition of Audit Committee as on September 30, 2018 consists of the following members viz.:

1) Mr. B. L. Gupta, Chairman
2) Mr. Sumit Banerjee, Member
3) Mr. Vinod Kumar Menon, Member

The Company Secretary acts as the Secretary of the Audit Committee.

The composition, role, terms of reference as well as powers of the Audit Committee are in accordance with the Section 177 of the Companies Act, 2013 and InvIT Regulations, as applicable.

The brief terms of reference of the Audit Committee, inter alia, includes overseeing of the Company's financial reporting process, reviewing the financial statements with the Management, recommending appointment / re-appointment of auditors, fixation of audit fees, reviewing the adequacy of internal audit function, holding periodic discussions with auditors about their scope and adequacy of internal control systems, discussing on any significant findings made by Internal Auditor's and following it up with action. The Audit Committee also reviews the financials of the Trust and matters related thereto.

(ii) Nomination & Remuneration Committee

The Composition of Nomination & Remuneration Committee as on September 30, 2018 consists of the following members viz.:

1) Mr. Sumit Banerjee, Chairman
2) Mr. B. L. Gupta, Member
3) Mr. R. P. Singh, Member
4) Mr. Vinod Kumar Menon, Member

The Company Secretary acts as the Secretary of the Nomination and Remuneration Committee.

IRB Infrastructure PVT. LTD.

The brief terms of reference of the Nomination and Remuneration Committee are as follows:

To determine, persons who are qualified to become directors and who may be appointed in senior management in accordance with the criteria laid down, recommend to the Board their appointment and removal and shall carry out evaluation of every director's performance, formulate the criteria for determining qualifications, positive attributes and independence of a director and recommend to the Board a policy, relating to the remuneration for the directors, key managerial personnel and other employees.

Remuneration Policy

The Nomination and Remuneration Committee has laid down the criteria for determining qualifications, positive attributes and independence of a person proposed to be appointed as a Director and recommend to the Board a policy, relating to the remuneration for the Directors, Key Managerial Personnel and other employees.

The Policy ensures –

(a) the level and composition of remuneration is reasonable and sufficient to attract, retain and motivate directors of the quality required to run the Company successfully;
(b) relationship of remuneration to performance is clear and meets appropriate performance benchmarks; and
(c) remuneration to Directors, Key Managerial Personnel and Senior Management involves a balance between fixed and incentive pay reflecting short and long-term performance objectives appropriate to the working of the Company and its goals.

x) Functions, Duties and Responsibilities of the Investment Manager

The functions, duties and responsibilities of the Investment Manager are in accordance with the Investment Management Agreement and the InvIT Regulations. The Board of the Investment Manager comprises of majority of the Independent Directors having extensive experience in Infrastructure Sector and Project financing. The business operations of the Investment Manager are managed by a team of professionals with experience in the road infrastructure sector.

Details of the Sponsor

IRB Infrastructure Developers Limited (the Sponsor) is Sponsor of the Trust. 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. The Sponsor has been listed on the Indian Stock Exchanges since 2008.

As of September 30, 2018; the Sponsor has 17 road projects, of which 11 are operational and balance under various phases of development. The Sponsor has a large project portfolio of 12,800 Lane Kilometres of roads and highways in operation, under construction or under development as of September 30, 2018.

During the period, there is no change in the Board of Directors of the Sponsor.

For more details about the Sponsor, please refer website www.irb.co.in

IRB Infrastructure Pvt. Ltd.

Details of the Trustee

As per confirmation received from the Trustee, there is no change in their details except the Board of Directors. The Board of Directors of the Trustee as on September 30, 2018 is as follows:

Sr. No.	Name	Designation	DIN
1.	Mr. G. M. Yadwadkar	Chairman	01432796
2.	Ms. Sashikala Muralidharan	Director	08036523
3.	Mr. Ravishankar G. Shinde	Director	03106953
4.	Ms. Madhuri J. Kulkarni	Director	07787126
5.	Mr. Saurabh Chandra	Director	02726077
6.	Mr. Swapan Kumar Bagchi	Managing Director and CEO	07743570

Details of the Valuer

As per confirmation received from the Valuer, the details of the Valuer are as follows:

WALKER CHANDIOK & CO LLP
L-41, Connaught Circus,
New Delhi – 110 001
Tel: +91 11 4278 7070
Fax: +91 11 4278 7071
Firm Registration No.: 001076N/N500013

f) **Clauses in trust deed, investment management agreement or any other agreement entered into pertaining to activities of the Trust**

During the period, there is no change in Clauses of Trust Deed, Investment Management Agreement or any other agreement entered into pertaining to activities of the Trust since listing of Units of the Trust.

g) **Any regulatory changes that has impacted or may impact cash flows of the underlying projects**

During the period, there are no material regulatory changes that had impacted or may impact cash flows of the underlying projects.

h) **Change in material contracts or any new risk in performance of any contract pertaining to the Trust**

During the period, there is no change in material contracts or any new risk in performance of any contract pertaining to the Trust.

i) **Any legal proceedings which may have significant bearing on the activities or revenues or cash flows of the Trust**

For details in relation to legal proceedings, please see "Brief details of material litigations and regulatory actions, which are pending, against the Trust, sponsor(s), Investment Manager, Project Manager(s), or any of their associates and the Trustee if any, as at the end of the period".

IRB Infrastructure Pvt. Ltd.

j) **Any other material change during the period**

During the period, there are no material changes except as disclosed in this Report.

7) **Revenue of the Trust for the last 5 years, project-wise**

Project wise revenue of the Trust is annexed herewith as **"Annexure C"**.

8) **Update on development of under-construction projects, if any**

The Trust has not invested in under-construction projects.

9) **Details of outstanding borrowings and deferred payments of the Trust including any credit rating(s), debt maturity profile, gearing ratios of the Trust on a consolidated and standalone basis as at the end of the period**

Details of outstanding borrowings and deferred payments of the Trust including any credit rating(s), debt maturity profile, gearing ratios of the Trust on a consolidated and standalone basis as at the end of the period are annexed herewith as **"Annexure F"**.

10) **The total operating expenses of the Trust along with detailed break-up, including all fees and charges paid to the Investment Manager and any other parties, if any during the period**

The total operating expenses of the Trust along with detailed break-up, including all fees and charges paid to the Investment Manager and any other parties, if any during the period are annexed herewith as **"Annexure G"**.

11) **Past performance of the Trust with respect to unit price, distributions made and yield for the last 5 years, as applicable**

Particulars	BSE (Rs.)	NSE (Rs.)
Unit price quoted on the exchange at the beginning (Closing price of April 2, 2018)	82.71	83.29
Unit price quoted on the exchange at the end (Closing price of September 28, 2018)	73.53	74.45
highest unit price (April 17, 2018)	86.00	86.00
lowest unit price (September 25, 2018)		74.00
lowest unit price (September 28, 2018)	73.05	

During the half year ended September 30, 2018 the Investment Manager on behalf of the Trust has made distribution of Rs. 3.05/- per Unit to the Unitholders of the Trust (Rs.2.20/- per Unit in the form of Interest & Re.0.80/- in the form of Return of Capital). The Distribution was paid to Unitholders on August 10, 2018.

IRB Infrastructure Pvt. Ltd.

12) Unit price quoted on the exchange at the beginning and end of the period, the highest and lowest unit price and the average daily volume traded during the period

MONTHLY HIGHEST AND LOWEST UNIT PRICE

Month	BSE		NSE	
	High (Rs.)	Low (Rs.)	High (Rs.)	Low (Rs.)
April, 2018	86.00	81.60	86.00	82.21
May, 2018	85.99	78.00	86.00	78.00
June, 2018	80.75	78.65	81.15	78.50
July, 2018	80.00	78.57	80.25	78.51
August, 2018	79.25	75.31	79.40	75.50
September, 2018	77.65	73.05	77.85	74.00

AVERAGE DAILY VOLUME TRADED

Month	Average daily volume	
	BSE	NSE
April, 2018	1,71,000	3,87,857
May, 2018	2,19,091	6,39,773
June, 2018	1,60,000	4,15,952
July, 2018	45,500	3,92,727
August, 2018	1,50,000	1,80,476
September, 2018	4,80,625	6,69,167

13) Details of all related party transactions during the period, value of which exceeds five per cent of value of the Trust assets

Details of all related party transactions and related party balances are provided in financial press release annexed herewith as **"Annexure A"**.

14) Details of issue and buyback of units during the period, if any

During the Period, the Trust has not issued any additional Units.

15) Brief details of material and price sensitive information

During the period, the Trust, from time to time, has been providing details of material and price sensitive information to the stock exchanges in accordance with InvIT Regulations.

16) Brief details of material litigations and regulatory actions, which are pending, against the Trust, sponsor(s), Investment Manager, Project Manager(s), or any of their associates and the Trustee if any, as at the end of the period

Brief details of material litigations and regulatory actions, which are pending, against the Trust, sponsor(s), Investment Manager, Project Manager(s), or any of their associates and the Trustee if any, as at the end of the period are provided as **"Annexure H"**.

17) Risk factors

Risk factors are annexed herewith as **"Annexure I"**.

IRB Infrastructure Pvt. Ltd.

18) Information of the contact person of the Trust

Mr. Urmil Shah
Compliance Officer
Address: IRB Complex, Chandivali Farm, Chandivali Village, Andheri (East),
Mumbai – 400 072
Tel: +91 22 6640 4299
Fax: +91 22 6640 4274
E-mail: urmil.shah@irbfl.co.in

IRB INVIT FUND
By Order of the Board IRB Infrastructure Private Limited
(as the Investment Manager to IRB InvIT Fund)

IRB Infrastructure Pvt. Ltd.

Vinod Kumar Menon
Whole Time Director of the Investment Manager

Encl.: As above

Annexure A

Registered Office: IRB Complex, Chandivali Farm, Chandivali Village, Andheri (E), Mumbai – 400 072, Maharashtra, India.
Tel: 022 6640 4299; **Fax:** 022 6640 4274;
E-mail: info@irbinvit.co.in; **Website:** www.irbinvit.co.in
SEBI Registration Number: IN/InvIT/15-16/0001;

IRB InvIT Fund

(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)

(Rs. in lakhs, unless otherwise stated)

Part-I

Unaudited Consolidated Interim Financial Information for the half year ended September 30, 2018

Sr. No.	Particulars	Half year ended September 30, 2018 (Unaudited)	Half year ended March 31, 2018 (Unaudited)	Half year ended September 30, 2017 (refer note 7(c)) (Unaudited)	Year ended March 31, 2018 (Audited)
I.	**Incomes and gains**				
	Revenue from operations	58,610.28	59,425.66	39,775.18	99,200.84
	Interest	205.38	51.39	69.26	120.65
	Profit on sale of investments	656.00	615.85	267.19	883.04
	Other income *	222.13	291.74	19.50	311.24
	Total Income and gains	**59,693.79**	**60,384.64**	**40,131.13**	**100,515.77**
II.	**Expenses and losses**				
	Operation expenses	1,080.72	3,834.56	2,223.10	6,057.66
	Valuation expenses	17.09	7.14	-	7.14
	Trustee fees	14.79	-	-	-
	Audit fees	37.75	36.11	31.06	67.17
	Insurance & security expenses	563.39	616.88	445.70	1,062.58
	Employee benefits expenses	1,243.73	1,234.64	792.00	2,026.64
	Project management fees (Refer Note c below)	6,968.50	4,063.38	2,727.39	6,790.77
	Investment management fees (Refer Note b below)	607.85	656.10	397.26	1,053.36
	Depreciation on property, plant and equipment	1.98	3.22	2.48	5.70
	Amortisation of intangible assets	31,780.64	28,008.65	20,698.53	48,707.18
	Finance costs (Interest)	7,572.43	7,207.29	1,842.72	9,050.01
	Finance costs (Others)	246.51	371.96	502.73	874.69
	Repairs and maintenance	99.11	291.10	71.84	362.94
	Other expenses **	582.13	696.49	477.56	1,174.05
	Total Expenses and losses	**50,816.62**	**47,027.52**	**30,212.37**	**77,239.89**
III.	**Profit for the period before income tax (I) - (II)**	**8,877.17**	**13,357.12**	**9,918.76**	**23,275.88**
IV.	Tax expenses (current tax and deferred tax)	80.13	46.95	(13.34)	33.61
V.	**Profit for the period after income tax (III) - (IV)**	**8,797.04**	**13,310.17**	**9,932.10**	**23,242.27**
VI.	Items of Other Comprehensive Income	-	6.26	-	6.26
VII.	**Total Comprehensive Income (V) + (VI)**	**8,797.04**	**13,316.43**	**9,932.10**	**23,248.53**

SURESH SURANA & ASSOCIATES LLP Chartered Accountants MUMBAI

IRB InvIT Fund

* Other income includes fair value gain and other non operative income.
** Other expenses include legal and professional fees, printing and stationery, rent, rates and taxes and other miscellaneous expenses.

Notes to consolidated results:

1. Investors can view the results of the IRB InvIT Fund ('Fund' or 'Trust') on the Trust's website (www.irbinvit.co.in) or on the websites of BSE (www.bseindia.com) or NSE (www.nseindia.com).

2. IRB InvIT Fund was registered as an irrevocable trust under the Indian Trusts Act, 1882 on October 16, 2015 and as an infrastructure investment trust under the Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014 on March 14, 2016. Units of IRB InvIT Fund has been listed on both the stock exchanges on May 18, 2017.

3. The unaudited Consolidated Interim Financial Information comprises of the Consolidated Statement of profit and loss, explanatory notes thereto and additional disclosures as required in paragraph 6 of Annexure A to the SEBI Circular no. CIR/IMD/DF/127/2016 dated November 29, 2016 ('SEBI Circular') of the Fund for the half year ended September 30, 2018 ("Consolidated Interim Financial Information"). The Consolidated Interim Financial Information has been prepared in accordance with recognition and measurement principles prescribed under Indian Accounting Standard – 34, Interim Financial Reporting (Ind AS 34) read with Rule 2(1)(a) of Companies (Indian Accounting Standards) Rules, 2015 ('Ind AS') and the SEBI Circular.

4. (i) Figures for the half year ended March 31, 2018 as reported in this financial result are the balancing figures between audited figures in respect of the financial year March, 2018 and the published year to date figures upto September 30, 2017.

   (ii) The consolidated financial results for the half year ended March 31, 2018 and year ended March 31, 2018 have been prepared on the basis of the consolidated financial results for the half year ended September 30, 2017, the audited annual consolidated Ind AS financial statements as at and for the year ended March 31, 2018, and the relevant requirements of the SEBI (Infrastructure Investment Trusts) Regulations, 2014, as amended from time to time read with SEBI Circular.

5. The unaudited Consolidated Interim Financial Information for the half year ended September 30, 2018 have been reviewed by the Audit Committee of the Investment Manager at their meeting held on October 22, 2018 and thereafter approved by the Board of Directors of the Investment Manager at their meeting held on October 23, 2018.

6. The Board of Directors of the Investment Manager have declared 2nd Distribution of Rs. 3.00 per unit which comprises of Rs. 2.20 per unit as interest and Rs. 0.80 per unit as return of capital in their meeting held on October 23, 2018.

   Total distribution made by the Fund is Rs. 6.05 per unit (including 1st Distribution of Rs. 3.05 per unit) for the half year ended September 30, 2018.

7. (a) Pursuant to the Share Purchase Agreement(s) dated May 9, 2017, the Fund has acquired the six subsidiary companies (Project SPVs) (IRB Surat Dahisar Tollway Limited (ISDTL), IDAA Infrastructure Limited (IDAATL), IRB Talegaon Amravati Tollway Limited (ITATL), IRB Jaipur Deoli Tollway Limited (IJDTL), M.V.R. Infrastructure and Tollways Limited (MITL) and IRB Tumkur Chitradurga Tollway Limited (ITCTL)). Accordingly, the revenue and corresponding expenses in these companies have been included from May 09, 2017 to September 30, 2017 in the Consolidated Interim Financial Information during the previous period.

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IRB InvIT Fund

(b) Pursuant to the Share Purchase Agreement dated September 28, 2017, the Fund has acquired the subsidiary company (Project SPV) IRB Pathankot Amritsar Toll Road Limited (IPATRL). Accordingly, the revenue and corresponding expenses in these companies have been included from September 28, 2017 to September 30, 2017 in the Consolidated Interim Financial Information.

(c) Subsidiaries were acquired from the dates mentioned above. Accordingly the previous period is not comparable.

8. The Statutory Auditors of the Fund have carried out Limited Review of the above Consolidated Interim Financial Information.

Additional Disclosures as required by Paragraph 6 to SEBI Circular No. CIR/IMD/DF/127/2016:

a. **Net Distributable Cash Flows for the half year ended September 30, 2018**

(i) **IRB InvIT Fund (Fund)**

(Rs. in Lakhs)

Sr. No.	Particulars	Half year ended September 30, 2018	Half year ended March 31, 2018	Half year ended September 30, 2017	Year ended March 31, 2018
1	Cash flows received from Project SPVs in the form of Interest	31,367.83	32,045.95	19,076.86	51,122.81
2	Cash flows received from Project 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	607.35	430.69	15.45	446.14
4	Cash flows received from the project SPVs towards the repayment of the debt issued to the Project SPVs by the Trust	13,670.74	13,589.34	8,322.36	21,911.70
5	**Total cash inflow at the Trust level (A)**	**45,645.92**	**46,065.98**	**27,414.67**	**73,480.65**
	Less:				
6	Any payment of fees, interest and expense incurred at the Trust level, including but not limited to the fees of the Investment Manager	7,075.56	7,045.20	501.77	7,546.97
7	Income tax (if applicable) at the Standalone Trust Level	-	(1.36)	1.36	-
8	Repayment of external debt	1,749.50	389.50	-	389.50
9	**Total cash outflows / retention at the Trust level (B)**	**8,825.06**	**7,433.34**	**503.13**	**7,936.47**
10	**Net Distributable Cash Flows (C) = (A-B)**	**36,820.86**	**38,632.64**	**26,911.54**	**65,544.18**

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IRB InvIT Fund

(ii) **IDAA Infrastructure Limited (IDAATL)**

(Rs. in Lakhs)

Sr. No.	Description	For the half year ended September 30, 2018	For the half year ended March 31, 2018	For the half year ended September 30, 2017	For year ended March 31, 2018
1	Profit after tax as per Statement of profit and loss/income and expenditure (A)	(1,672.86)	(61.86)	(1,786.68)	(1,848.54)
2	Add: Depreciation and amortisation as per Statement of profit and loss/income and expenditure	7,760.30	6,649.59	5,563.58	12,213.17
3	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	-	-	-	-
4	Add: Interest paid to the Fund	2,742.21	3,130.41	2,425.05	5,555.46
5	Add :- Provision for Resurfacing Expenses	383.18	272.50	412.98	685.48
6	Less :- Premium to National Highways Authority of India	-	-	-	-
7	Less :- Repayment of external debt	-	-	-	-
8	Total Adjustments (B)	10,885.69	10,052.50	8,401.61	18,454.11
9	**Net Distributable Cash Flows (C) = (A+B)**	**9,212.83**	**9,990.64**	**6,614.93**	**16,605.57**

(iii) **IRB Surat Dahisar Tollway Limited (ISDTL)**

(Rs. in Lakhs)

Sr. No.	Description	For the half year ended September 30, 2018	For the half year ended March 31, 2018	For the half year ended September 30, 2017	For year ended March 31, 2018
1	Profit after tax as per Statement of profit and loss/income and expenditure (A)	(2,550.18)	(1,159.91)	(2,854.70)	(4,014.61)
2	Add: Depreciation and amortisation as per Statement of profit and loss/income and expenditure	13,196.82	11,850.74	9,440.66	21,291.40
3	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	-	-	-	-
4	Add: Interest paid to the Fund	3,942.11	4,300.92	3,663.51	7,964.43
5	Add :- Provision for Resurfacing Expenses	(1,240.50)	(1,031.90)	848.55	(183.35)
6	Less :- Premium to National Highways Anthority of India	-	-	-	-
7	Less :- Repayment of external debt	-	-	-	-
8	Total Adjustments (B)	15,898.43	15,119.76	13,952.72	29,072.48
9	Net Distributable Cash Flows (C) = (A+B)	13,348.25	13,959.85	11,098.02	25,057.87

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IRB InvIT Fund

(iv) IRB Talegaon Amravati Tollway Limited (ITATL)

(Rs. in Lakhs)

Sr. No.	Description	For the half year ended September 30, 2018	For the half year ended March 31, 2018	For the half year ended September 30, 2017	For year ended March 31, 2018
1	Profit after tax as per Statement of profit and loss/income and expenditure (A)	(969.04)	(1,036.46)	(1,037.34)	(2,073.80)
2	Add: Depreciation and amortisation as per Statement of profit and loss/income and expenditure	484.37	428.74	351.79	780.53
3	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	-	-	-	-
4	Add: Interest paid to the Fund	3,002.06	2,985.65	2,231.04	5,216.69
5	Add :- Provision for Resurfacing Expenses	158.00	111.90	171.20	283.10
6	Less :- Premium to National Highways Authority of India	-	-	-	-
7	Less :- Repaymeot of external debt	-	-	-	-
8	Total Adjustments (B)	3,644.43	3,526.29	2,754.03	6,280.32
9	Net Distributable Cash Flows (C) = (A+B)	2,675.39	2,489.83	1,716.69	4,206.52

(v) M.V.R Infrastructure and Tollways Limited (MITL)

(Rs. in Lakhs)

Sr. No.	Description	For the half year ended September 30, 2018	For the half year ended March 31, 2018	For the half year ended September 30, 2017	For year ended March 31, 2018
1	Profit after tax as per Statement of profit and loss/income and expenditure (A)	14.46	109.82	143.15	252.97
2	Add: Depreciation and amortisation as per Statement of profit and loss/income and expenditure	1,032.89	882.65	705.49	1,588.14
3	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	-	-	-	-
4	Add: Interest paid to the Fund	1,674.08	1,659.41	1,113.26	2,772.67
5	Add :- Provision for Resurfacing Expenses	(213.50)	300.76	461.64	762.40
6	Less :- Premium to National Highways Authority of India	-	-	-	-
7	Less :- Repayment of external debt	-	-	-	-
8	Total Adjustments (B)	2,493.47	2,842.82	2,280.39	5,123.21
9	Net Distributable Cash Flows (C) = (A+B)	2,507.93	2,952.64	2,423.54	5,376.18

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IRB InvIT Fund

(vi) IRB Jaipur Deoli Tollway Limited (IJDTL)

(Rs. in Lakhs)

Sr. No.	Description	For the half year ended September 30, 2018	For the half year ended March 31, 2018	For the half year ended September 30, 2017	For year ended March 31, 2018
1	Profit after tax as per Statement of profit and loss/income and expenditure (A)	(3,386.25)	(3,052.68)	(1,274.44)	(4,327.12)
2	Add: Depreciation and amortisation as per Statement of profit and loss/income and expenditure	1,039.75	904.79	721.11	1,625.90
3	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	-	-	-	-
4	Add: Interest paid to the Fund	6,242.07	6,207.96	4,638.92	10,846.88
5	Add :- Provision for Resurfacing Expenses	404.28	284.98	437.42	722.39
6	Less :- Premium to National Highways Authority of India	-	-	-	-
7	Less :- Repayment of external debt	-	-	-	-
8	Total Adjustments (B)	7,686.10	7,397.73	5,797.45	13,195.17
9	**Net Distributable Cash Flows (C) = (A+B)**	**4,299.85**	**4,345.05**	**4,523.01**	**8,868.05**

(vii) IRB Pathankot Amritsar Toll Road Limited (IPATRL)

(Rs. in Lakhs)

Sr. No.	Description	For the half year ended September 30, 2018	For the half year ended March 31, 2018	For the half year ended September 30, 2017	For year ended March 31, 2018
1	Profit after tax as per Statement of profit and loss/income and expenditure (A)	(5,090.84)	(4,763.16)	(62.31)	(4,825.47)
2	Add: Depreciation and amortisation as per Statement of profit and loss/income and expenditure	2,537.95	2,252.60	36.93	2,289.53
3	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	-	-	-	-
4	Add: Interest paid to the Fund	7,102.57	7,069.70	78.01	7,147.71
5	Add :- Provision for Resurfacing Expenses	497.68	494.96	8.16	503.12
6	Less :- Premium to National Highways Authority of India	-	-	-	-
7	Less :- Repayment of external debt	-	-	-	-
8	Total Adjustments (B)	10,138.20	9,817.26	123.10	9,940.36
9	**Net Distributable Cash Flows (C) = (A+B)**	**5,047.36**	**5,054.10**	**60.79**	**5,114.89**

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IRB InvIT Fund

(viii) **IRB Tumkur Chitradurga Tollway Limited (ITCTL)**

(Rs. in Lakhs)

Sr. No.	Description	For the half year ended September 30, 2018	For the half year ended March 31, 2018	For the half year ended September 30, 2017	For year ended March 31, 2018
1	Profit after tax as per Statement of profit and loss/income and expenditure (A)	(2,579.50)	(2,457.17)	(2,157.85)	(4,615.02)
2	Add: Depreciation and amortisation as per Statement of profit and loss/income and expenditure	6,066.00	5,340.96	4,254.76	9,595.72
3	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	-	-	-	-
4	Add: Interest paid to the Fund	6,672.83	6,701.47	4,927.09	11,628.56
5	Add :- Provision for Resurfacing Expenses	480.96	339.03	520.37	859.39
6	Less :- Premium to National Highways Authority of India	(7,026.25)	(7,892.38)	(6,036.37)	(13,928.75)
7	Less :- Repayment of external debt	-	-	-	-
8	Total Adjustments (B)	6,193.54	4,489.08	3,665.85	8154.92
9	**Net Distributable Cash Flows (C) = (A+B)**	**3,604.04**	**2,031.91**	**1,508.00**	**3,539.90**

b. Pursuant to the Investment Management Agreement, the Investment Manager is entitled to an Investment Management fees to be calculated @ 1% per annum, exclusive of Service Tax / GST, of the consolidated toll revenue (net of premium paid / revenue shared with NHAI) of the Fund at the end of the reporting period subject to a floor of Rs. 100 million and a cap of Rs. 250 million.

c. In accordance with the Project Implementation Agreements, the fees and remuneration payable by the Project SPVs to the Project Manager has been worked out and agreed upon for the duration of current financial year, between the Project Manager, Investment Manager and the respective Project SPV, on an arm's length basis, after taking into account the extent of work to be done in respect of maintenance and other services to be provided by the Project Manager to such Project SPV.

d. **Statement of Earnings per unit**

(Rs. in lakhs except for unit data)

Particulars	Half year ended September 30, 2018	Half year ended March 31, 2018	Half year ended September 30, 2017	Year ended March 31, 2018
Profit for the period	8,797.04	13,310.17	9,932.10	23,242.27
Number of units outstanding for computation of basic and diluted earnings per unit	580,500,000	580,500,000	580,500,000	580,500,000
Earnings per unit (basic and diluted)	1.52	2.29	1.71	4.00

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IRB InvIT Fund

e. **Statement of contingent liabilities and commitments**

Contingent liabilities

Contingent liabilities not provided for

(Rs. in Lakhs)

Particnlars	As at September 30, 2018	As at March 31, 2018	As at September 30, 2017
NHAI claim for shortfall in Revenue share	3,289.08	3,289.08	3,289.08
	3,289.08	**3,289.08**	**3,289.08**

Capital commitments

(Rs. in Lakhs)

Particulars	As at September 30, 2018	As at March 31, 2018	As at September 30, 2017
Estimated value of contracts in capital account remaining to be executed	-	34.53	-
Commitment for acquisition of toll equipment & machineries	-	16.74	-
Other commitments	32.98	11.98	-
	32.98	**63.25**	-

f. **Statement of related party transactions**

I. **List of Related Parties**

i. Parties to the Fund	IRB Infrastructure Developers Limited (IRBIDL) (Sponsor)
	IRB Infrastructure Private Limited (IRBFL) (Investment Manager)
	Modern Road Makers Private Limited (MRMPL) (Project Manager)
	IDBI Trusteeship Services Limited (ITSL) (Trustee)

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IRB InvIT Fund

ii. Promoters/ Directors of the parties to the IRB InvIT Fund specified in (i) above				
Particulars	**IRB Infrastructure Developers Limited (Sponsor)**	**IRB Infrastructure Private Limited (Investment Manager)**	**Modern Road Makers Private Limited (Project Manager)**	**IDBI Trusteeship Services Limited (Trustee of the IRB InvIT Fund)**
Promoters	Mr. Virendra D. Mhaiskar Mrs. Deepali V. Mhaiskar Virendra D. Mhaiskar HUF	IRB Infrastructure Developers Limited	IRB Infrastructure Developers Limited	IDBI Bank Limited Life Insurance Corporation General Insurance Corporation
Directors	Mr. Virendra D. Mhaiskar Mrs. Deepali V. Mhaiskar Mr. Mukeshlal Gupta Mr. Sudhir Rao Hoshing **Independent Directors** Mr. C S Kaptan Mr. Sunil H. Talati Mr. Sandeep J. Shah Mr. Sunil Tandon	Mr. Vinodkumar Menon **Independent Directors** Mr. R P Singh Mr. Bajrang Lal Gupta Mr. Sumit Banerjee	Mr. Mukeshlal Gupta Mr. Dhananjay K. Joshi Mr. Ajay P. Deshmukh Mr. Rajpaul S. Sharma **Independent Directors** Mr. C S Kaptan Mrs. Heena Raja	Mr. G.M. Yadwadkar Mr. Ravishankar G. Shinde Ms. Madhuri J. Kulkarni Ms. Sashikala Muralidharan Mr. Saurabh Chandra Mr. Swapan Kumar Bagchi

iii. Directors of Subsidiaries	Mr. Vinodkumar Menon
	Mr. Tushar Kawedia
	Mr. Urmil Shah
	Mr. Bajrang Lal Gupta
	Mr. Sumit Banerjee
	Mr. Jitendra Sharma
	Mrs. Heena Raja
	Mr. Rajpaul S. Sharma (resigned on 10.05.2017)
	Mrs. Kshama Vengsarkar (resigned on 10.05.2017)
	Mr. Sandeep Shah (resigned on 10.05.2017)
	Mr. C S Kaptan (resigned on 10.05.2017)
	Mr. Ajay P. Deshmukh (resigned on 10.05.2017)
	Mr. Darshan Sangurdekar (resigned on 10.05.2017)
	Mr. Naresh Taneja (resigned on 10.05.2017)
	Mr. Mukesh Lal Gupta (resigned on 10.05.2017)
	Mrs. Arati Taskar (resigned on 10.05.2017)
	Mr. Om Prakash Singh (resigned on 10.05.2017)

II. **Transactions with related parties during the period**

(Rs. in lakhs)

Sr. No.	Particulars	Relation	Half year ended September 30, 2018	Half year ended March 31, 2018	Half year ended September 30, 2017	Year ended March 31, 2018
1	**Project Manager Fees**		**6,968.50**	**5,581.43**	**2,727.39**	**8,308.82**
	MRMPL	Project Manager	6,968.50	5,581.43	2,727.39	8,308.82
2	**Investment Manager Fees**		**607.85**	**656.10**	**397.26**	**1,053.36**
	IRBFL	Investment Manager	607.85	656.10	397.26	1,053.36
3	**Repayment of loan given**		-	-	**2,353.21**	**2,353.21**
	IRBIDL	Sponsor	-	-	2,353.21	2,353.21

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IRB InvIT Fund

(Rs. in Lakhs)

Sr. No.	Particulars	Relation	Half year ended September 30, 2018	Half year ended March 31, 2018	Half year ended September 30, 2017	Year ended March 31, 2018
4	**Repayment of loan taken**		-	-	**62,742.77**	**62,742.77**
	IRBIDL	Sponsor	-	-	47,521.20	47,521.20
	MRMPL	Project Manager	-	-	15,221.57	15,221.57
5	**Repayment of subordinate debt**		-	-	**99,431.00**	**99,431.00**
	IRBIDL	Sponsor	-	-	81,305.51	81,305.51
	MRMPL	Project Manager	-	-	18,125.49	18,125.49
6	**Repayment of Retention money/Security Deposit**		-	-	25,750.00	25,750.00
	MRMPL	Project Manager	-	-	25,750.00	25,750.00
7	**Performance security received**		-	-	**2,950.00**	**2,950.00**
	MRMPL	Project Manager	-	-	2,950.00	2,950.00
8	**Sitting fees**	Director	14.72	9.70	**11.19**	**20.89**
	Rajpaul Sharma		-	-	0.60	0.60
	Sandeep Shah		-	-	0.47	0.47
	Chandrashekhar Kaptan		-	-	0.47	0.47
	Kshama Vengsarkar		-	-	0.30	0.30
	Om Prakash Singh		-	-	0.40	0.40
	Mukesh Lal Gupta		-	-	0.29	0.29
	Ajay Deshmukh		-	-	0.70	0.70
	Naresh Taneja		-	-	0.10	0.10
	Arati Taskar		-	-	0.11	0.11
	Darshan Sangurdekar		-	-	0.31	0.31
	Heena Raja		3.90	1.71	0.10	1.81
	Jitendra Sharma		1.00	0.45	0.51	0.96
	Urmil Shah		1.16	1.60	1.96	3.56
	Tushar Kawedia		1.16	1.50	1.96	3.46
	Sumit Banerjee		3.40	1.48	0.30	1.78
	Vinod Kumar Menon		2.60	2.32	2.42	4.74
	Bajrang Lal Gupta		1.50	0.64	0.19	0.83

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IRB InvIT Fund

(Rs. in Lakhs)

Sr. No.	Particulars	Relation	Half year ended September 30, 2018	Half year ended March 31, 2018	Half year ended September 30, 2017	Year ended March 31, 2018
9	**Purchase of equity shares of Subsidiaries through Issue of Unit Capital***		-	-	1,06,501.76	1,06,501.76
	IRBIDL	Sponsor	-	-	1,01,795.26	1,01,795.26
	MRMPL	Project Manager	-	-	4,706.50	4,706.50
10	**Purchase of equity shares of IPATRL**		-	-	9,909.00	9,909.00
	IRBIDL	Sponsor	-	-	8,918.10	8,918.10
	MRMPL	Project Manager	-	-	990.90	990.90
11	**Trading sales**		-	96.12	-	96.12
	MRMPL	Project Manager	-	96.12	-	96.12
12	**Payment against trade payable**		-	1,807.98	-	1,807.98
	MRMPL	Project Manager	-	1,807.98	-	1,807.98
13	**Trusteeship fees**		29.50	-	-	-
	ITSL	Trustee	29.50	-	-	-
14	**Payment against contract expenses**		44.90	-	-	-
	MRMPL	Project Manager	44.90	-	-	-
15	**Distribution in the form of Interest**		4,140.62	3,960.55	914.34	4,874.89
	IRBIDL	Sponsor	4,125.37	3,955.27	914.34	4,869.61
	Mrs. Deepali V. Mhaiskar	Director of Sponsor	5.46	3.74	-	3.74
	Mr. Sudhir Rao Hoshing	Director of Sponsor	3.34	1.32	-	1.32
	Mr. Virendra D. Mhaiskar	Director of Sponsor	5.56	-	-	-
	Mr. B.L.Gupta	Director of Investment Manager	0.22	-	-	-
	Mr. Sumit Banerjee	Director of Investment Manager	0.67	0.22	-	0.22

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IRB InvIT Fund

(Rs. in Lakhs)

Sr. No.	Particulars	Relation	Half year ended September 30, 2018	Half year ended March 31, 2018	Half year ended September 30, 2017	Year ended March 31, 2018
16	**Distribution in the form of return of capital**		1,488.76	1,440.20	435.40	1,875.60
	IRBIDL	Sponsor	1,483.28	1,438.28	435.40	1,873.68
	Mrs. Deepali V. Mhaiskar	Director of Sponsor	1.96	1.36	-	1.36
	Mr. Sudhir Rao Hoshing	Director of Sponsor	1.20	0.48	-	0.48
	Mr. Virendra D. Mhaiskar	Director of Sponsor	2.00	-	-	-
	Mr. B.L.Gupta	Director of Investment Manager	0.08	-	-	-
	Mr. Sumit Banerjee	Director of Investment Manager	0.24	0.08	-	0.08

* IRBIDL and MRMPL has sold units in Offer for sale amounting to Rs. 12,973.66 lakhs and Rs. 4,706.50 lakhs respectively.

III. Related party outstanding balances

(Rs. in lakhs)

Sr. No.	Particulars	Relation	As on September 30, 2018	As on March 31, 2018	As on September 30, 2017
1	**Trade Payables**		132.15	11,382.91	11,788.67
	MRMPL	Project Manager	104.99	11,116.61	11,557.98
	IRBFL	Investment Manager	27.16	266.30	230.69
2	**Other payable**		-	-	192.16
	IRBIDL	Sponsor	-	-	192.16
3	**Other receivable**		-	-	567.25
	IRBIDL	Sponsor	-	-	567.25
4	**Performance security**		-	2,950.00	2,950.00
	MRMPL	Project Manager	-	2,950.00	2,950.00
5	**Sitting fees**	Director	0.52	3.60	0.86
	Urmil Shah		0.05	0.55	0.09
	Tushar Kawedia		0.05	0.50	0.27
	Sumit Banerjee		0.12	0.71	0.09

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IRB InvIT Fund

(Rs. in Lakhs)

Sr. No.	Particulars	Relation	As on September 30, 2018	As on March 31, 2018	As on September 30, 2017
	Heena Raja		0.13	0.71	-
	Jitendra Sharma		0.04	0.14	-
	Bajrang Lal Gupta		0.05	0.14	-
6	**Retention money / Security deposit**		**370.52**	**750.00**	**750.00**
	MRMPL	Project Manager	370.52	750.00	750.00

During the previous half year ended September 30, 2017, the Fund has acquired seven projects i.e. IDAATL, ISDTL, ITATL, IJDTL, MITL, ITCTL and IPATRL from IRBIDL and its subsidiary Companies.

- Pursuant to Share Purchase Agreement(s) dated May 9, 2017, the Fund has acquired six projects i.e. IDAATL, ISDTL, ITATL, IJDTL, MITL and ITCTL from IRBIDL and its subsidiary companies. The investment for the said acquisition was raised through Initial Public Issue.

  Summary of valuation report dated March 29, 2017 issued by the independent valuer under the InvIT Regulations is as follows:

  Fair Enterprise value of 6 SPVs' as on March 31, 2017 is as under:-

  (Rs. in million)

Name of the SPV	Fair enterprise value
IDAATL	7,170.33
IJDTL	23,114.58
ISDTL	13,879.05
ITATL	7,176.06
ITCTL	15,503.79
MITL	3,663.85
Total Enterprise value of all the 6 SPVs'	**70,507.66**

- Pursuant to the Share Purchase Agreement dated September 28, 2017, IRB InvIT Fund has further acquired IPATRL from IRBIDL and MRMPL.

  Summary of valuation report dated August 31, 2017 issued by the independent valuer under the InvIT Regulations is as follows:-

  Fair Enterprise value of IPATRL as on September 30, 2017 is as under:-

  (Rs. in million)

Name of the SPV	Fair enterprise value
IPATRL	17,857.30

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IRB InvIT Fund

After considering the aforesaid Valuation Reports submitted by the relevant independent intermediaries and pursuant to the negotiations between the Investment Manager and the Sponsor, IPATRL has been acquired at an enterprise value of Rs. 15,693.30 million. The acquisition price of IPATRL, negotiated between the Investment Manager and the Sellers, represents a discount of 12% to the Fair Enterprises Value mentioned above.
The project was acquired through external borrowings of Rs. 15,500 million @ 8.15% p.a. rate of interest.

- The following approach and assumptions have been considered for the valuation exercise:-

  a. The Free Cash Flows to Firm under the Discounted Cash Flow Method has been used for the purpose of valuation of each of the above SPVs.

  b. The Weighted Average Cost of Capital for each of the SPVs has been considered as the discount rate for respective SPV for the purpose of valuation.

- There is no material condition or obligation in relation to the transaction.

- No fees or commission were received or to be received by any associate of the related party in relation to the transaction.

For IRB Infrastructure Private Limited
(Investment Manager to IRB InvIT Fund)

Vinodkumar Menon
Whole time Director

Place: Mumbai
Date: October 23, 2018

IRB InvIT Fund

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LLP Identity No. AAB-7509

Review report on Half Yearly Consolidated Interim Financial Information

The Board of Directors
IRB Infrastructure Private Limited
(Investment Manager to IRB InvIT Fund)
IRB Complex, Chandivali Farm,
Chandivali Village,
Andheri (East),
Mumbai 400 072, India.

1. We have reviewed the accompanying statement of unaudited consolidated financial information of IRB InvIT Fund ("Fund") and its subsidiaries (together referred to as the Group), consisting of the Consolidated Statement of profit and loss, explanatory notes thereto and the additional disclosures as required in paragraph 6 of Annexure A to the SEBI Circular No. CIR/IMD/DF/127/2016 dated November 29, 2016 (SEBI Circular") for the half year ended 30 September 2018 ('Statement') attached herewith, being submitted by IRB Infrastructure Private Limited ('Investment Manager') pursuant to the requirements of Regulation 23 of the Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014 as amended, read with the SEBI Circular.

2. The preparation of this Statement in accordance with recognition and measurement principles laid down in Indian Accounting Standard 34, Interim Financial Reporting (Ind AS 34) read with Rule 2(1)(a) of Companies (Indian Accounting Standards) Rules, 2015 and the SEBI Circular, is the responsibility of the Investment Manager and has been approved by the Board of Directors of the Investment Manager. Our responsibility is to issue a report on the Statement based on our review.

3. We conducted our review in accordance with the Standard on Review Engagements (SRE) 2410 – "Review of Interim Financial Information Performed by the Independent Auditor of the Entity" issued by The Institute of Chartered Accountants of India. This standard requires that we plan and perform the review to obtain moderate assurance as to whether the financial statements are free of material misstatement. A review is limited primarily to inquiries of Investment Manager's personnel and analytical procedures applied to financial data and thus provide less assurance than an audit. We have not performed an audit and accordingly, we do not express an audit opinion.

4. This financial information includes the results of the following entities which are subsidiaries of the Fund:

   i. IRB Surat Dahisar Tollway Limited (Formerly known as IRB Surat Dahisar Tollway Private Limited)
   ii. IDAA Infrastructure Limited (Formerly known as IDAA Infrastructure Private Limited)
   iii. IRB Talegaon Amravati Tollway Limited (Formerly known as IRB Talegaon Amravati Tollway Private Limited)
   iv. IRB Jaipur Deoli Tollway Limited (Formerly known as IRB Jaipur Deoli Tollway Private Limited)
   v. M.V.R. Infrastructure and Tollways Limited (Formerly known as M.V.R. Infrastructure and Tollways Private Limited)

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vi. IRB Tumkur Chitradurga Tollway Limited (Formerly known as IRB Tumkur Chitradurga Tollway Private Limited)
vii. IRB Pathankot and Amritsar Toll Road Limited(Formerly known as IRB Pathankot and Amritsar Toll Road Private Limited)

5. We did not review the Interim financial results of Seven subsidiary companies included in the Interim Financial Information, whose Interim financial results reflect total revenues(after eliminating intra-group transactions) of Rs. 59,086.44 Lacs for the half year ended 30 September 2018. These interim financial results have been reviewed by other auditors and whose limited review reports have been furnished to us and our report in respect thereof is based solely on the review reports of such auditors. Our review report is not qualified in respect of this matter.

6. Based on our review conducted as above and upon consideration of review reports of other auditors, nothing has come to our attention that causes us to believe that the accompanying Statement, prepared in accordance with the recognition and measurement principles laid down in the applicable Indian Accounting Standards (Ind AS) as defined in Rule 2(1)(a) of the Companies (Indian Accounting Standards) Rules, 2015 and other recognised accounting practices and policies has not disclosed the information required to be disclosed in terms of Regulation 23 of the Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014 as amended, read with the SEBI Circular, including the manner in which it is to be disclosed, or that it contains any material misstatement.

For Suresh Surana & Associates LLP
Chartered Accountants
Firm's Reg. No.121750W / W-100010

(Ramesh Gupta)
Partner
Membership No.: 102306
Place: Mumbai
Dated: 23 October 2018

Registered Office: IRB Complex, Chandivali Farm, Chandivali Village, Andheri (E), Mumbai – 400 072, Maharashtra, India.
Tel: 022 6640 4299; **Fax:** 022 6640 4274;
E-mail: info@irbinvit.co.in; **Website:** www.irbinvit.co.in
SEBI Registration Number: IN/InvIT/15-16/0001;

IRB InvIT Fund

(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)

(Rs. in lakhs, except per unit data)

Part I

Unaudited Standalone Interim Financial Information for the half year ended September 30, 2018

Sr. No.	Particulars	Half year ended September 30, 2018 (Unaudited)	Half year ended March 31, 2018 (Unaudited)	Half year ended September 30, 2017 (Unaudited)	Year ended March 31, 2018 (Audited)
I	**Incomes and gains**				
	Interest on loan	31,367.83	32,045.95	19,076.86	51,122.81
	Profit on sale of investments	408.88	340.77	8.05	348.82
	Interest on bank deposits	127.38	0.78	-	0.78
	Other income (fair value gain)	71.09	89.14	7.40	96.54
	Total income and gains	**31,975.18**	**32,476.64**	**19,092.31**	**51,568.95**
II	**Expenditure**				
	Valuation expenses	17.09	7.14	-	7.14
	Audit fees	6.84	7.94	4.72	12.66
	Investment management fees (refer note b below)	607.85	656.10	397.26	1,053.36
	Trustee fees	14.79	-	-	-
	Finance cost (interest)	6340.69	6,343.64	69.35	6,412.99
	Legal and professional expenses	69.04	28.93	26.54	55.47
	Other expenses*	19.26	1.45	3.90	5.35
	Total Expenses	7,075.56	7,045.20	501.77	7,546.97
III	**Profit from ordinary activities before tax (I) - (II)**	**24,899.62**	**25,431.44**	**18,590.54**	**44,021.98**
IV	Tax expense (current tax and deferred tax) / reversal	-	(1.58)	1.58	-
V	**Profit for the period after income tax (III) - (IV)**	**24,899.62**	**25,433.02**	**18,588.96**	**44,021.98**
VI	Items of Other Comprehensive Income	-	-	-	-
VII	**Total Comprehensive Income (V) + (VI)**	**24,899.62**	**25,433.02**	**18,588.96**	**44,021.98**

* Other expenses include bank charges, rates & taxes, communication cost, printing & stationery and other miscellaneous expenses.

Notes:

1. Investors can view the results of the IRB InvIT Fund ('Fund' or 'Trust') on the Trust's website (www.irbinvit.co.in) or on the websites of BSE (www.bseindia.com) or NSE (www.nseindia.com).

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2. IRB InvIT Fund was registered as an irrevocable trust under the Indian Trusts Act, 1882 on October 16, 2015 and as an infrastructure investment trust under the Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014 on March 14, 2016. Units of IRB InvIT Fund has been listed on both the stock exchanges on May 18, 2017.

3. The unaudited Standalone Interim Financial Information comprises of the Standalone Statement of profit and loss, explanatory notes thereto and additional disclosures as required in paragraph 6 of Annexure A to the SEBI Circular no. CIR/IMD/DF/127/2016 dated November 29, 2016 ('SEBI Circular') of IRB InvIT Fund ('Fund') for the half year ended September 30, 2018 ("Standalone Interim Financial Information"). The Standalone Interim Financial Information has been prepared in accordance with recognition and measurement principles prescribed under Indian Accounting Standard – 34, Interim Financial Reporting (Ind AS 34) read with Rule 2(1)(a) of Companies (Indian Accounting Standards) Rules, 2015 ('Ind AS') and the SEBI Circular.

4 (i) Figures for the half year ended March 31, 2018 as reported in this financial result are the balancing figures between audited figures in respect of the financial year March, 2018 and the published year to date figures upto September 30, 2017. (ii) The standalone financial results for the half year ended March 31, 2018 and year ended March 31, 2018 have been prepared on the basis of the standalone financial results for the half year ended September 30, 2017, the audited annual standalone Ind AS financial statements as at and for the year ended March 31, 2018, and the relevant requirements of the SEBI (Infrastructure Investment Trusts) Regulations, 2014, as amended from time to time read with SEBI Circular.

5. The unaudited Standalone Interim Financial Information for the half year ended September 30, 2018 have been reviewed by the Audit Committee of the Investment Manager at their meeting held on October 22, 2018 and thereafter approved by the Board of Directors of the Investment Manager at their meeting held on October 23, 2018.

6. The Board of Directors of the Investment Manager have declared 2nd Distribution of Rs. 3.00 per unit which comprises of Rs. 2.20 per unit as interest and Rs. 0.80 per unit as return of capital in their meeting held on October 23, 2018.

   Total distribution made by the Fund is Rs. 6.05 per unit (including 1st Distribution of Rs. 3.05 per unit) for the half year ended September 30, 2018.

7. The Statutory Auditors of the Fund have carried out Limited Review of the above Financial Information.

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Additional Disclosures as required by Paragraph 6 of Annexure A to SEBI Circular No. CIR/IMD/DF/127/2016:

a) Net Distributable Cash Flows at the Standalone Trust Level

(Rs. in Lakhs)

Sr. No.	Particulars	Half year ended September 30, 2018	Half year ended March 31, 2018	Half year ended September 30, 2017	Year ended March 31, 2018
1	Cash flows received from Project SPVs in the form of Interest	31,367.83	32,045.95	19,076.86	51,122.81
2	Cash flows received from Project 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	607.35	430.69	15.45	446.14
4	Cash flows received from the project SPVs towards the repayment of the debt issued to the Project SPVs by the Trust	13,670.74	13,589.34	8,322.36	21,911.70
5	**Total cash inflow at the Trust level (A)**	**45,645.92**	**46,065.98**	**27,414.67**	**73,480.65**
	Less:				
6	Any payment of fees, interest and expense incurred at the Trust level, including but not limited to the fees of the Investment Manager	7,075.56	7,045.20	501.77	7,546.97
7	Income tax (if applicable) at the Standalone Trust Level	-	(1.36)	1.36	-
8	Repayment of external debt	1,749.50	389.50	-	389.50
9	**Total cash outflows / retention at the Trust level (B)**	**8,825.06**	**7,433.34**	**503.13**	**7,936.47**
10	**Net Distributable Cash Flows (C) = (A-B)**	**36,820.86**	**38,632.64**	**26,911.54**	**65,544.18**

b. Pursuant to the Investment Management Agreement, the Investment Manager is entitled to an Investment Management fees to be calculated @ 1% per annum, exclusive of Service Tax / GST, of the consolidated toll revenue (net of premium paid / revenue shared with NHAI) of the Fund at the end of the each quarter subject to a floor of Rs. 100 million and a cap of Rs. 250 million.

c. Statement of contingent liabilities and commitments

(Rs. in Lakhs)

Particulars	Half year ended September 30, 2018	Half year ended March 31, 2018	Half year ended September 30, 2017	Year ended March 31, 2018
Contingent liabilities	Nil	Nil	Nil	Nil
Commitments	Nil	Nil	Nil	Nil

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d. Statement of Earnings per unit

(Rs. in lakhs except for unit data)

Particulars	Half year ended September 30, 2018	Half year ended March 31, 2018	Half year ended September 30, 2017	Year ended March 31, 2018
Profit for the period / year (after tax)	24,899.62	25,433.02	18,588.96	44,021.98
Number of units outstanding for computation of basic and diluted earnings per unit	580,500,000	580,500,000	580,500,000	580,500,000
Earnings per unit (basic and diluted)	4.29	4.38	3.20	7.58

e. Statement of Related party transactions

I. List of Related Parties

i. Subsidiaries/ SPVs	IDAA Infrastructure Limited (IDAATL) (Formerly known as IDAA Infrastructure Private Limited) IRB Jaipur Deoli Tollway Limited (IJDTL) (Formerly known as IRB Jaipur Deoli Tollway Private Limited) IRB Pathankot Amritsar Toll Road Limited (IPATRL) (Formerly known as IRB Pathankot Amritsar Toll Road Private Limited) IRB Surat Dahisar Tollway Limited (ISDTL) (Formerly known as IRB Surat Dahisar Tollway Private Limited) IRB Talegaon Amravati Tollway Limited (ITATL) (Formerly known as IRB Talegaon Amravati Tollway Private Limited) IRB Tumkur Chitradurga Tollway Limited (ITCTL) (Formerly known as IRB Tumkur Chitradurga Tollway Private Limited) M.V.R. Infrastructure & Tollways Limited (MITL) (Formerly known as M.V.R. Infrastructure & Tollways Private Limited)
ii. Parties to the Fund	IRB Infrastructure Developers Limited (IRBIDL) (Sponsor)
	IRB Infrastructure Private Limited (IRBFL) (Investment Manager)
	Modern Road Makers Private Limited (MRMPL) (Project Manager)
	IDBI Trusteeship Services Limited (ITSL) (Trustee)

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IRB InvIT FUND MUMBAI

iii. Promoters/ Directors of the parties to the Fund specified in (ii) above

Particulars	IRB Infrastructure Developers Limited (Sponsor)	IRB Infrastructure Private Limited (Investment Manager)	Modern Road Makers Private Limited (Project Manager)	IDBI Trusteeship Services Limited (Trustee of the IRB InvIT Fund)
Promoters	Mr. Virendra D. Mhaiskar Mrs. Deepali V. Mhaiskar Virendra D. Mhaiskar HUF	IRB Infrastructure Developers Limited	IRB Infrastructure Developers Limited	IDBI Bank Limited Life Insurance Corporation of India General Insurance Corporation of India
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	Mr. Vinodkumar Menon **Independent Directors** Mr. R P Singh Mr. B L Gupta Mr. Sumit Banerjee	Mr. Mukeshlal Gupta Mr. Dhananjay K. Joshi Mr. Ajay P. Deshmukh Mr. Rajpaul S. Sharma **Independent Directors** Mr. Chandrashekhar S. Kaptan Mrs. Heena Raja	Mr. G.M. Yadwadkar Mr. Ravishankar G. Shinde Ms. Madhuri J. Kulkarni Mr. Swapan Kumar Bagchi Mr. Saurabh Chandra Ms. Sashikala Muralidharan

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II. Transactions with related parties

(Rs. in lakhs)

Sr. No.	Particulars	Relation	Half year ended September 30, 2018	Half year ended March 31, 2018	Half year ended September 30, 2017	Year ended March 31, 2018
1	**Subordinate debt given**		-	-	**99,431.00**	**99,431.00**
	IJDTL	Subsidiary	-	-	39,525.00	39,525.00
	IPATL	Subsidiary	-	-	29,581.00	29,581.00
	ITATL	Subsidiary	-	-	14,775.00	14,775.00
	ITCTL	Subsidiary	-	-	15,550.00	15,550.00
2	**Secured loans given (Long term)**		-	-	**428,879.23**	**428,879.23**
	ISDTL	Subsidiary	-	-	66,182.05	66,182.05
	IJDTL	Subsidiary	-	-	92,661.77	92,661.77
	IDAAIL	Subsidiary	-	-	25,115.73	25,115.73
	IPATL	Subsidiary	-	-	93,603.44	93,603.44
	ITATL	Subsidiary	-	-	37,153.84	37,153.84
	ITCTL	Subsidiary	-	-	93,712.76	93,712.76
	MITL	Subsidiary	-	-	20,449.64	20,449.64
3	**Repayment of secured loan (Long term)**		**13,670.74**	**13,589.34**	**8,322.36**	**21,911.70**
	ISDTL	Subsidiary	8,288.84	7,621.76	6,800.00	14,421.76
	IDAAIL	Subsidiary	4,456.68	5,864.62	1,522.36	7,386.98
	IPATL	Subsidiary	144.88	102.96	-	102.96
	MITL	Subsidiary	780.34	-	-	-
4	**Unsecured loans given (Long term)**		-	-	**73,258.47**	**73,258.47**
	ISDTL	Subsidiary	-	-	11,006.23	11,006.23
	IJDTL	Subsidiary	-	-	3,107.71	3,107.71
	IDAAIL	Subsidiary	-	-	25,767.36	25,767.36
	IPATL	Subsidiary	-	-	15,490.04	15,490.04
	ITATL	Subsidiary	-	-	8,905.47	8,905.47
	ITCTL	Subsidiary	-	-	7,338.07	7,338.07
	MITPL	Subsidiary	-	-	1,643.59	1,643.59
5	**Unsecured loans given (Short term)**		**1,000.00**	**6,600.00**	**1,752.20**	**8,352.20**
	ITCTL	Subsidiary	1,000.00	2,300.00	752.20	3,052.20
	MITPL	Subsidiary	-	4,300.00	1,000.00	5,300.00

SURESH SURANA & ASSOCIATES LLP Chartered Accountants MUMBAI

IRB InvIT FUND MUMBAI

(Rs. in lakhs)

Sr. No.	Particulars	Relation	Half year ended September 30, 2018	Half year ended March 31, 2018	Half year ended September 30, 2017	Year ended March 31, 2018
6	**Repayment of unsecured loan given (Short term)**		-	**3,725.00**	-	**3,725.00**
	ITCTL	Subsidiary	-	2,200.00	-	2,200.00
	MITPL	Subsidiary	-	1,525.00	-	1,525.00
7	**Interest income**		**31,377.93**	**32,045.93**	**19,076.88**	**51,122.81**
	ISDTL	Subsidiary	3,942.11	4,300.92	3,663.51	7,964.43
	IJDTL	Subsidiary	6,242.07	6,207.96	4,638.92	10,846.88
	IDAAIL	Subsidiary	2,742.21	3,130.41	2,425.05	5,555.46
	IPATL	Subsidiary	7,102.57	7,060.11	78.01	7,138.12
	ITATL	Subsidiary	3,002.06	2,985.65	2,231.04	5,216.69
	ITCTL	Subsidiary	6,672.83	6,701.47	4,927.09	11,628.56
	MITL	Subsidiary	1,674.08	1,659.41	1,113.26	2,772.67
8	**Investment Management fees (including indirect taxes)**		**607.85**	**656.10**	**397.26**	**1,053.36**
	IRBFL	Investment Manager	607.85	656.10	397.26	1,053.36
9	**Purchase of equity shares of Subsidiaries through Issue of Unit Capital ***		-	-	**106,501.76**	**106,501.76**
	IRBIDL	Sponsor	-	-	101,795.26	101,795.26
	MRMPL	Project Manager	-	-	4,706.50	4,706.50
10	**Purchase of equity shares of IPATRL**		-	-	**9,909.00**	**9,909.00**
	IRBIDL	Sponsor	-	-	8,918.10	8,918.10
	MRMPL	Project Manager	-	-	990.90	990.90

(Rs. in lakhs)

Sr. No.	Particulars	Relation	Half year ended September 30, 2018	Half year ended March 31, 2018	Half year ended September 30, 2017	Year ended March 31, 2018
11	**Distribution in the form of interest**		**4,140.62**	**3,960.55**	**914.34**	**4,874.89**
	IRBIDL	Sponsor	4,125.37	3,955.27	914.34	4,869.61
	Mrs. Deepali V. Mhaiskar	Director of Sponsor	5.46	3.74	-	3.74
	Mr. Sudhir Rao Hoshing	Director of Sponsor	3.34	1.32	-	1.32
	Mr. Virendra D. Mhaiskar	Director of Sponsor	5.56	-	-	-
	Mr. B.L.Gupta	Director of Investment Manager	0.22	-	-	-
	Mr. Sumit Banerjee	Director of Investment Manager	0.67	0.22	-	0.22
12	**Distribution in the form of return of Capital**		**1,488.76**	**1,440.20**	**435.40**	**1,875.60**
	IRBIDL	Sponsor	1,483.28	1,438.28	435.40	1,873.68
	Mrs. Deepali V. Mhaiskar	Director of Sponsor	1.96	1.36	-	1.36
	Mr. Sudhir Rao Hoshing	Director of Sponsor	1.20	0.48	-	0.48
	Mr. Virendra D. Mhaiskar	Director of Sponsor	2.00	-	-	-
	Mr. B.L.Gupta	Director of Investment Manager	0.08	-	-	-
	Mr. Sumit Banerjee	Director of Investment Manager	0.24	0.08	-	0.08
13	**Trustee fee**		**29.50**	-	-	-
	ITSL	Trustee	29.50	-	-	-

* IRBIDL and MRMPL has sold units in Offer for sale amounting to Rs.12,973.66 lakhs and Rs. 4,706.50 lakhs respectively.

SURESH SURANA & ASSOCIATES LLP Chartered Accountants

IRB InvIT FUND MUMBAI

III. Related party outstanding balances

(Rs. in lakhs)

Sr. No.	Particulars	Relation	As on September 30,2018	As on March 31,2018	As on September 30,2017
1	**Equity Investment**		**127,505.48**	**127,505.48**	**127,505.48**
	ISDTL	Subsidiary	53,232.48	53,232.48	53,232.48
	IJDTL	Subsidiary	13,175.00	13,175.00	13,175.00
	IDAAIL	Subsidiary	19,812.00	19,812.00	19,812.00
	IPATRL	Subsidiary	9,909.00	9,909.00	9,909.00
	ITATL	Subsidiary	4,925.00	4,925.00	4,925.00
	ITCTL	Subsidiary	15,550.00	15,550.00	15,550.00
	MITL	Subsidiary	10,902.00	10,902.00	10,902.00
2	**Subordinated debt**		**99,431.00**	**99,431.00**	**99,431.00**
	IJDTL	Subsidiary	39,525.00	39,525.00	39,525.00
	IPATRL	Subsidiary	29,581.00	29,581.00	29,581.00
	ITATL	Subsidiary	14,775.00	14,775.00	14,775.00
	ITCTL	Subsidiary	15,550.00	15,550.00	15,550.00
3	**Secured loan receivable (Long term)**		**393,296.78**	**406,967.53**	**420,556.88**
	ISDTL	Subsidiary	43,471.45	51,760.29	59,382.05
	IJDTL	Subsidiary	92,661.77	92,661.77	92,661.77
	IDAAIL	Subsidiary	13,272.08	17,728.75	23,593.38
	IPATRL	Subsidiary	93,355.59	93,500.48	93,603.44
	ITATL	Subsidiary	37,153.84	37,153.84	37,153.84
	ITCTL	Subsidiary	93,712.76	93,712.76	93,712.76
	MITL	Subsidiary	19,669.29	20,449.64	20,449.64
4	**Unsecured loan receivable (Long term)**		**73,258.47**	**73,258.47**	**73,258.47**
	ISDTL	Subsidiary	11,006.23	11,006.23	11,006.23
	IJDTL	Subsidiary	3,107.71	3,107.71	3,107.71
	IDAAIL	Subsidiary	25,767.36	25,767.36	25,767.36
	IPATRL	Subsidiary	15,490.04	15,490.04	15,490.04
	ITATL	Subsidiary	8,905.47	8,905.47	8,905.47
	ITCTL	Subsidiary	7,338.07	7,338.07	7,338.07
	MITL	Subsidiary	1,643.59	1,643.59	1,643.59

SURESH SURANA & ASSOCIATES LLP Chartered Accountants MUMBAI

IRB InvIT FUND MUMBAI

(Rs. in lakhs)

Sr. No.	Particulars	Relation	As on September 30, 2018	As on March 31, 2018	As on September 30, 2017
5	**Unsecured loan receivable (Short term)**		**5,627.20**	**4,627.20**	**1,752.20**
	ITCTL	Subsidiary	1,852.20	852.20	752.20
	MITL	Subsidiary	3,775.00	3,775.00	1,000.00
6	**Interest receivable**		-	-	**78.01**
	IPATRL	Subsidiary	-	-	78.01
7	**Trade payables**		**271.63**	**266.30**	**230.69**
	IRBFL	Investment Manager	271.63	266.30	230.69

During the year ended March 31, 2018, the Fund has acquired seven projects i.e. IDAATL, ISDTL, ITATL, IJDTL, MITL, ITCTL and IPATRL from IRBIDL.

- Pursuant to Share Purchase Agreement(s) dated May 9, 2017, the Fund has acquired six projects i.e. IDAATL, ISDTL, ITATL, IJDTL, MITL and ITCTL from IRBIDL and its subsidiary companies. The investment for the said acquisition was raised through Initial Public Issue.

  Summary of valuation report dated March 29, 2017 issued by the independent valuer under the InvIT Regulations is as follows:-

  Fair Enterprise value of 6 SPVs' as on March 31, 2017 is as under:-

  (Rs. in million)

Name of the SPV	Fair enterprise value
IDAAIL	7,170.33
IJDTL	23,114.58
ISDTL	13,879.05
ITATL	7,176.06
ITCTL	15,503.79
MITL	3,663.85
Total Enterprise value of all the 6 SPVs'	**70,507.66**

- Pursuant to the Share Purchase Agreement dated September 28, 2017, the Fund has further acquired IPATRL from IRBIDL and MRMPL.

  Summary of valuation report dated August 31, 2017 issued by the independent valuer under the InvIT Regulations is as follows:-

  Fair Enterprise value of IPATRL as on September 30, 2017 is as under:-

  (Rs. in million)

Name of the SPV	Fair enterprise value
IPATRL	17,857.30

SURESH SURANA & ASSOCIATES LLP Chartered Accountants MUMBAI

IRB InvIT FUND MUMBAI

After considering the aforesaid Valuation Reports submitted by the relevant independent intermediaries and pursuant to the negotiations between the Investment Manager and the Sponsor, IPATRL has been acquired at an enterprise value of Rs. 15,693.30 million. The acquisition price of IPATRL, negotiated between the Investment Manager and the Sellers, represents a discount of 12% to the Fair Enterprises Value mentioned above.

IPATRL was acquired through external borrowings of Rs. 15,500 million @ 8.15% p.a. rate of interest.

- The following approach and assumptions have been considered for the valuation exercise:-

  a. The Free Cash Flows to Firm under the Discounted Cash Flow Method has been used for the purpose of valuation of each of the above SPVs.

  b. The Weighted Average Cost of Capital for each of the SPVs has been considered as the discount rate for respective SPV for the purpose of valuation.

- There is no material condition or obligation in relation to the transaction.

- No fees or commission were received or to be received by any associate of the related party in relation to the transaction

For IRB Infrastructure Private Limited
(Investment Manager to IRB InvIT Fund)

Vinodkumar Menon
Whole time Director

Place: Mumbai
Date: October 23, 2018

SURESH SURANA & ASSOCIATES LLP * MUMBAI * Chartered Accountants

IRB InvIT FUND MUMBAI

Suresh Surana & Associates LLP
Chartered Accountants

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LLP Identity No. AAB-7509

Review report on Half Yearly Standalone Interim Financial Information

The Board of Directors
IRB Infrastructure Private Limited
(Investment Manager to IRB InvIT Fund)
IRB Complex, Chandivali Farm,
Chandivali Village,
Andheri (East),
Mumbai 400 072, India.

1. We have reviewed the accompanying statement of unaudited standalone financial information of IRB InvIT Fund ("Fund"), consisting of the Statement of profit and loss, explanatory notes thereto and the additional disclosures as required in paragraph 6 of Annexure A to the SEBI Circular No. CIR/IMD/DF/127/2016 dated November 29, 2016 (SEBI Circular") for the half year ended 30 September 2018 ('Statement') attached herewith, being submitted by IRB Infrastructure Private Limited ('Investment Manager') pursuant to the requirements of Regulation 23 of the Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014 as amended, read with the SEBI Circular.

2. The preparation of this Statement in accordance with recognition and measurement principles laid down in Indian Accounting Standard 34, Interim Financial Reporting (Ind AS 34) read with Rule 2(1)(a) of Companies (Indian Accounting Standards) Rules, 2015 and the SEBI Circular, is the responsibility of the Investment Manager and has been approved by the Board of Directors of the Investment Manager. Our responsibility is to issue a report on the Statement based on our review.

3. We conducted our review in accordance with the Standard on Review Engagements (SRE) 2410 – "Review of Interim Financial Information Performed by the Independent Auditor of the Entity" issued by The Institute of Chartered Accountants of India. This standard requires that we plan and perform the review to obtain moderate assurance as to whether the financial statements are free of material misstatement. A review is limited primarily to inquiries of Investment Manager's personnel and analytical procedures applied to financial data and thus provide less assurance than an audit. We have not performed an audit and accordingly, we do not express an audit opinion.

SURESH SURANA & ASSOCIATES LLP ★ MUMBAI ★ Chartered Accountants

4. Based on our review conducted as above, nothing has come to our attention that causes us to believe that the accompanying Statement, prepared in accordance with the recognition and measurement principles laid down in the applicable Indian Accounting Standards (Ind AS) as defined in Rule 2(1)(a) of the Companies (Indian Accounting Standards) Rules, 2015 and other recognised accounting practices and policies has not disclosed the information required to be disclosed in terms of Regulation 23 of the Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014 as amended, read with the SEBI Circular, including the manner in which it is to be disclosed, or that it contains any material misstatement.

For Suresh Surana & Associates LLP
Chartered Accountants
Firm's Reg. No.121750W / W-100010

(Ramesh Gupta)
Partner
Membership No.: 102306
Place: Mumbai
Dated: 23 October 2018

SURESH SURANA & ASSOCIATES LLP
Chartered Accountants
MUMBAI

Annexure B – Project wise details of all assets

Particulars	IDAA Infrastructure Limited (IDAA)	IRB Surat Dahisar Tollway Limited (IRBSD)	IRB Talegaon Amravati Tollway Limited (IRBTA)	IRB Jaipur Deoli Tollway Limited (IRBJD)	IRB Tumkur Chitradurga Tollway Limited (IRBTC)	M.V.R. Infrastructure And Tollways Limited (MVR)	IRB Pathankot Amritsar Toll Road Limited (IRBPA)
Concession period (in years)	15	12	22	25	26	20	20
Concession start date	January 2, 2007	February 20, 2009	September 3, 2010	June 14, 2010	June 4, 2011	August 14, 2006	December 30, 2010
Tolling start date	September 25, 2009	February 20, 2009	April 24, 2013	September 27, 2013	June 4, 2011	August 14, 2006	November 27, 2014
Total project cost (Rs. in Lakhs)	140,549.00	252,857.40	89,259.50	177,469.60	114,200.00	30,759.90	144,531.00
No. of Toll plazas	1	4	1	2	2	1	2
Km Length	65.00	239.00	66.73	148.77	114.00	68.63	102.42
Lane Km	390.00	1,434.00	267.00	595.00	684.00	275.00	410.00
State	Gujarat	Gujarat	Maharashtra	Rajasthan	Karnataka	Tamil Nadu	Punjab
National Highway	NH 8	NH 8	NH 6	NH 12	NH 4	NH 7	NH 15

Annexure C – Details of Project-wise Gross Toll revenue

(Amt in lakhs)

Particulars	Quarter ended September, 2018	Quarter ended June, 2018	Half year ended September, 2018	Year ended March 31, 2018
IDAA*	5,377.80	5,620.17	10,997.97	19,502.80
IRBSD*	16,054.25	16,552.52	32,606.77	57,344.20
IRBTA*	1,607.82	1,678.15	3,285.97	5,489.80
IRBJD*	2,309.53	2,600.39	4,909.92	10,530.50
IRBTC*	6,105.96	6,258.67	12,364.63	20,582.60
MVR*	2,272.46	2,340.87	4,613.33	7,641.20
IRBPA**	2,936.50	3,126.47	6,062.96	6,060.70
Total	**36,664.32**	**38,177.24**	**74,841.56**	**1,27,151.80**

*Toll collection for the year ended March 31, 2018 is considered from May 9, 2017 to March 31, 2018.
**Toll collection for the year ended March 31, 2018 is considered from September 28, 2017 to March 31, 2018 i.e. date of acquisition.

IRB Infrastructure Pvt. Ltd.

Annexure D

Walker Chandiok & Co LLP

IRB InvIT Fund
IRB Complex third floor,
Chandivli Farm, Chandivli Village,
Andheri (East),
Mumbai 400 072
India

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IRB Infrastructure Private Limited
IRB Complex third floor,
Chandivli Farm, Chandivli Village,
Andheri (East),
Mumbai 400 072
India

23 October 2018

For the kind attention of Mr V. K. Menon, Executive Director, IRB Infrastructure Private Limited

Re: Valuation Services

Dear Sir,

With reference to our Engagement Letter ("EL") dated 19 August 2016 , confirming the appointment of Walker Chandiok & Co LLP (hereinafter referred to as "WCC" or the "Firm") as an independent valuer for the purpose of fair valuation of IRB InvIT Fund (hereinafter referred to as "InvIT") comprising 7 Subsidiaries or Special Purpose Vehicles (hereinafter referred to as "SPVs") which were acquired by the InvIT acting through IRB Infrastructure Private Limited its "Investment Manager" (where InvIT and Investment Manager collectively hereinafter referred to as the "Client") from IRB Infrastructure Developers Limited (hereinafter referred to as "IRB") and its wholly owned subsidiaries as on 30 September 2018 (hereinafter referred to as the "Valuation Date") in accordance with the SEBI (Infrastructure Investment Trusts) Regulations, 2014 as amended from time to time including any minimum mandatory disclosures mentioned therein ("SEBI InvIT Regulations, 2014").

We have relied on explanations and information provided by the management of Investment Manager of IRB InvIT fund (hereinafter referred to as "Management"). Although we have reviewed such data for consistency, we have not independently investigated or otherwise verified the data provided. We have no present or planned future interest in InvIT, SPVs or Client and the fee for our Valuation Report ("Report") is not contingent upon the values reported herein. Our valuation analysis should not be construed as investment advice specifically; we do not express any opinion on the suitability or otherwise of entering into any financial or other transaction with the InvIT.

WALKER CHANDIOK & CO LLP MUMBAI CHARTERED ACCOUNTANTS

Walker Chandiok & Co LLP is registered with limited liability with identification number AAC-2085 and its registered office at L-41 Connaught Circus, New Delhi, 110001, India

Please note that all comments in our Report must be read in conjunction with the Caveats to the Report, which are contained in Section XII of this Report.

The Report and the Summary Valuation included herein, and any extracts thereof, may be reproduced, refereneed or included, in full or part, to the stock exchanges on whieh InvIT is listed, may be uploaded on the website of the InvIT and will form part of the half yearly valuation report of the InvIT as specified in the SEBI InvIT Regulations, 2014.

Limitation of liability: We draw your attention to the limitation of liability clauses in Section XII (l) of the Report.

Yours sincerely,

Walker Chandiok & Co LLP
(Formerly Walker, Chandiok and & Co.)
Chartered Accountants
Firm Registration No. 001076N/N500013

Rahul Contractor
Partner
Membership No: 41456

Place: Mumbai
Dated: 23 October 2018

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I. SUMMARY OF VALUATION

I. a) Background & Scope

IRB Infrastructure Developers Limited (hereinafter referred to as "IRB") is a listed infrastructure development company, undertaking development of various infrastructure projects via the Public Private Partnership ("PPP") model in the toll road sector.

IRB has sponsored and floated an Infrastructure Investment Trust ("Trust") which has been registered as IRB InvIT Fund (hereinafter referred to as the "InvIT") under the SEBI (Infrastructure Investment Trusts) Regulations, 2014 and subsequent amendment ("SEBI InvIT Regulations, 2014"). The Units issued by the InvIT were listed on both the BSE Limited and the National Stock Exchange of India Limited on 18 May 2017.

Based on the discussions with the management of InvIT, we understand that as per chapter V and regulation 21(5) of the SEBI InvIT Regulations, 2014, a half yearly valuation of the assets of the Trust shall be conducted by an independent valuer for half year ending as on 30 September 2018 for a publicly offered InvIT for incorporating any key changes in the previous six months.

For this purpose, the InvIT, and IRB Infrastructure Private Limited ("Investment Manager") (hereinafter both together referred to as "Client") had requested for the assistance of the Firm to act as the "Valuer of the InvIT" and carry out fair valuation of the InvIT in accordance with the SEBI InvIT Regulations, 2014 as on 30 September 2018 ("Valuation Date").

The Firm declares that:

- It is competent to undertake the valuation
- It is independent and has prepared the Report on a fair and unbiased basis

(This section has intentionally been left blank)

I. b) Valuation Approach & Assumptions

We have estimated the fair value of the InvIT using Sum of the Parts method by adding the individual Enterprise Value of each SPV and adjusting with below the line items of the consolidated provisional financials of the InvIT as on 30 September 2018. Enterprise Value of each SPV has been estimated using Discounted Cash Flows ("DCF") method under the Income Approach.

For the purpose of this valuation exercise, the Firm has been provided with the financial projections of the SPVs under Indian Accounting Standard ("IND AS") by the management of Investment Manager of IRB InvIT Fund (hereinafter referred to as the "Management") as on the Valuation Date. The projections are based on the best judgement of the Management on the future cash flows supported by the traffic surveys conducted by an independent traffic consultancy firm GMD Consultants, i.e. the technical report consultant.

In addition to the aforementioned financial projections, the following approach and assumptions have been considered for the valuation exercise:

- The Free Cash Flows to Firm under the Discounted Cash Flow Method has been used for the purpose of the valuation of each of the SPVs.
- The Weighted Average Cost of Capital for each of the SPVs has been considered as the discount rate for respective SPV for the purpose of valuation.

(This section has intentionally been left blank)

I. c) Conclusion of Value

Based on the methodology and assumptions discussed above, we have arrived at the Fair Enterprise Value ("EV") of all the 7 SPVs as on the Valuation Date

Table 1.1: Fair Enterprise Value of all the 7 SPVs as on the Valuation Date (INR Millions ("Mn"))

Name of the SPV	Fair Enterprise Value
IRB Surat Dahisar Tollway Limited	12,033.2
IDAA Infrastructure Limited	5,758.1
IRB Jaipur Deoli Tollway Limited	16,270.5
IRB Tumkur Chitradurga Tollway Limited	13,267.0
IRB Talegaon Amravati Tollway Limited	8,155.3
MVR Infrastructure & Tollways Limited	4,285.0
IRB Pathankot Amritsar Toll Road Limited	14,350.4
Total Fair Enterprise Value of all the 7 SPVs	**74,119.7**

The Total Fair Enterprise Value of all the 7 SPVs has further been adjusted for net debt, working capital and other long term assets/ liabilities based on the consolidated provisional financial statements of the InvIT as on 30 September 2018 to arrive at the Fair Value of the InvIT as on the Valuation Date.

Table 1.2: Fair Value of IRB InvIT Fund as on the Valuation Date (INR Mn)

Name of the SPV	Fair Equity Value
Total Fair Enterprise Value of all the 7 SPVs	**74,119.7**
Less: Net Debt	(14,604.5)
Add/Less: Net Working Capital adjustments*	1,783.9
Add: Other long term assets / liabilities (h)	7.4
Fair Value of the InvIT	**61,306.4**

**Net working capital adjustment mainly consists of investments in mutual funds which is non-operating in nature*

Refer Appendix II for the detailed workings.

II. CONTEXT AND PURPOSE

Incorporated in 1998, IRB Infrastructure Developers Limited (hereinafter referred to as "IRB") is an infrastructure development company that undertakes development of various infrastructure projects via the PPP model in the toll road sector. The company is currently listed on both the BSE Limited and the National Stock Exchange of India Limited.

IRB has sponsored an Infrastructure Investment Trust named IRB InvIT Fund (hereinafter referred to as "InvIT"), which has been registered under the SEBI InvIT Regulations, 2014. IDBI Trusteeship Services Limited has been appointed as the Trustee to the above mentioned InvIT. IRB Infrastrueture Private Limited has been appointed as the "Investment Manager" to the InvIT by the Trustee and will be responsible to carry out the duties of such person as mentioned in Regulation 10 of the SEBI InvIT Regulations, 2014.

We understand that the InvIT, acting through its Investment Manager, IRB Infrastructure Private Limited (collectively hereinafter referred to as the "Client") has acquired 100% stakes held by IRB and its wholly owned subsidiaries (as the case may be) in the following 6 SPVs on 9 May 2017, following which units were issued to IRB, which are listed on one or more Indian Stock Exchanges consequent to an IPO process.

The 6 SPVs which are transferred from IRB to InvIT are:

1. IRB Surat Dahisar Tollway Limited ("IRBSD")
2. IDAA Infrastructure Limited ("IDAA")
3. IRB Jaipur Deoli Tollway Limited ("IRBJD")
4. IRB Tumkur Chitradurga Tollway Limited ("IRBTC")
5. IRB Talegaon Amravati Tollway Limited ("IRBTA")
6. MVR Infrastructure & Tollways Limited ("MVR")

Additionally, InvIT acquired 100% stake held by IRB and one of its wholly owned subsidiary in IRB Pathankot Amritsar Toll Road Limited ("IRB PATRL") based on the share purchase agreement executed on 28 September 2017.

As per chapter V and regulation 21(5) of the SEBI InvIT Regulations, 2014, a half yearly valuation of the assets of the Trust shall be conducted by an independent valuer for half year ending as on 30 September 2018 for a publicly offered InvIT for incorporating any key changes in the previous six months.

For this purpose, the Client has requested for the assistance of the Firm to act as the "Valuer of the InvIT" and carry out fair valuation of the InvIT accordance with the SEBI InvIT Regulations, 2014 as on 30 September 2018 ("Valuation Date").

(This section has intentionally been left blank)

III. OVERVIEW OF THE SPVs

The details of the individual SPVs are as given below:

- **IRB Surat Dahisar Tollway Limited**

  IRBSD project covers the Surat and Dahisar section of NH-8 from 263.0 km to 502.0 km. The project has been awarded to IRBSD on a revenue sharing basis with the National Highways Authority of India ("NHAI").

  The project highway passes through two states namely Gujarat and Maharashtra. Approximately 120 km of stretch lies in the state of Gujarat and the balance 120 km lies in the state of Maharashtra. The project is joined and/or intersected by number of State Highways, Major District Roads and Other District Roads.

  IRBSD project which has been awarded for a concession period of 12 years starting from 20 February 2009 has been commissioned and is currently in the operation / maintenance phase.

Table 3.1: Details of IRBSD

Parameters	Details
Length of the project	239 km
Project Cost	INR 25,285.74 Mn
Concession Period – Start	20 February 2009
Concession Period – End	01 January 2023
Tolling Start Date	20 February 2009
InvIT's stake	100%

Source: Management

Modification in the Concession Period

As per the Clause 29 of the concession agreement between NHAI and IRBSD provided to us by the Management, if the actual traffic falls short or exceeds target traffic on a defined date, the concession period shall be revised subject to calculation specified therein. The target date and target traffic as provided in the concession agreement along with the projected traffic as on the target date are given below:

Target Date - 1 January 2017

Target Traffic – 82,043 Passenger Car Units ("PCUs")

Actual Traffic as on Target Date – 73,272 PCUs

As per the actual traffic provided by the Management, the traffic volume fell short of the target traffic as on the target date. This warrants for an extension of the concession period. Further, due to the suspension in toll for a period of 24 days in the year FY17 due to demonetization IRBSD would be entitled to

extension of additional 24 days. Hence, the total concession period has been extended to 13.87 years (from the original 12 years) up to 1 January 2023 by the Management.

- **IDAA Infrastructure Limited**

  IDAA project covers the Bharuch and Surat section of NH-8 from 198.0 km to 263.0 km. The project has been implemented on a Build Operate Transfer ("BOT") basis by the NHAI. This project has been awarded to IDAA for a concession period of 15 years starting from 2 January 2007 and ending on 1 January 2022 on the basis of the negative grant of INR 5040.0 Mn paid upfront to NHAI.

  The project is in the state of Gujarat and passes through the districts of Surat and Bharuch. IDAA project has been commissioned and is currently in the operation / maintenance phase.

Table 3.2: Details of IDAA

Parameters	Details
Length of the project	65 km
Project Cost	INR 14,054.9 Mn
Concession Period – Start	2 January 2007
Concession Period – End	25 January 2022
Tolling Start Date	25 September 2009
InvIT's stake	100%

Source: Management

Modification in the Concession Period

Due to suspension in toll for a period of 24 days in FY17 due to demonetization IDAA would be entitled to extension of additional 24 days in its concession period. Hence, the concession period for IDAA has been extended up to 25 January 2022.

- **IRB Jaipur Deoli Tollway Limited**

  IRBJD project covers the Jaipur and Deoli section of NH-12 from km 18.7 to km 165.0. IRBJD project has been implemented on a BOT basis by the NHAI. The project is in the state of Rajasthan and passes through districts, viz. Jaipur and Tonk. En-route, it passes few major/minor urban centres, viz. Shivdaspura, Chaksu, Tonk, and Deoli.

  This project has been awarded to IRBJD for a concession period of 30 years starting from 14 June 2010 on the basis of a grant given by NHAI of INR 3060.0 Mn during the concession period. The project has been commissioned and is currently in the operation / maintenance phase.

Table 3.3: Details of IRBJD

Parameters	Details
Length of the project	146.3 km
Project Cost	INR 17,746.96 Mn
Concession Period – Start	14 June 2010
Concession Period – End	6 July 2040
Tolling Start Date	27 September 2013
InvIT's stake	100%

Source: Management

Modification in the Concession Period

As per the Clause 29 of the concession agreement between NHAI and IRBJD provided to us by the Management, if the actual traffic falls short or exceeds target traffic on a defined date, the concession period shall be revised subject to calculation specified therein. The target date and target traffic as provided in the concession agreement along with the projected traffic as on the target date are given below:

Target Date - 1 October 2018

Target Traffic – 30,344 PCUs

Projected Traffic as on Target Date – 19,602 PCUs

As per the traffic projections provided by the Management, the traffic volume falls short of the target traffic as on the target date. This warrants for an extension of the concession period. Further, due to suspension of toll for a period of 24 days in the year FY17 due to demonetization, IRBJD would be entitled to extension of additional 24 days. Hence, the total concession period has been extended to 30.08 years (from the original 25 years) up to 6 July 2040 by the Management.

- **IRB Tumkur Chitradurga Tollway Limited**

  IRBTC project covers the Tumkur and Chitradurga section of NH-4 from 75.0 km to 189.0 km. The project has been implemented on a BOT basis by the NHAI. This project has been awarded for a concession period of 26 years starting from 4 June 2011 on the basis of a premium of INR 1,404.0 Mn payable to the NHAI in the first year of concession period increased annually at 5%.

  The project is in the state of Karnataka and passes through districts, viz. Tumkur and Chitradurga. En-route, it passes few major/minor urban centres, viz. Tumkur, Sira, Hiriyur and Chitradurga.

The project has been commissioned and is currently in the operation / maintenance phase.

Table 3.4: Details of IRBTC

Parameters	Details
Length of the project	114 km
Project Cost	INR 11,420.0 Mn
Concession Period – Start	4 June 2011
Concession Period – End	27 June 2037
Tolling Start Date	4 June 2011
InvIT's stake	100%

Source: Management

Modification in the Concession Period

As per the Clause 29 of the concession agreement between NHAI and IRBTC provided to us by the Management, if the actual traffic falls short or exceeds target traffic on a defined date, the concession period shall be revised subject to calculation specified therein. The target date and target traffic as provided in the concession agreement along with the projected traffic as on the target date are given below:

Target Date - 1 April 2020

Target Traffic – 54,558 PCUs

Projected Traffic as on Target Date – 58,220 PCUs

As per the traffic projections provided by the Management, the traffic volume exceeds the target traffic as on the target date. This warrants for a reduction of the concession period. However, it has also been stipulated that in case the actual traffic exceeds the design capacity of the project corridor, NHAI may at its discretion cause IRB Tumkur Chitradurga Tollway Private Limited ("Concessionaire") to undertake suitable capacity augmentation of the project corridor.

The concession agreement states that the concession period would be suitably increased over and above the existing concession period to yield a post-tax equity IRR of 16% to the Concessionaire for incurring this additional cost of capacity augmentation. The concession agreement also clarifies that in case of capacity augmentation, there shall be no reduction in concession period as may have been originally accepted under relevant provisions of the concession agreement.

In the case of the IRBTC, as mentioned earlier, it is seen that the projected traffic exceeds the design capacity in the years of original concession period which would stand curtailed considering reduction in concession period based on Target Traffic. However, as per the Management, it is highly likely that NHAI may cause the Concessionaire to undertake capacity augmentation. In which case, the loss of concession period would be set off by the additional IRR generated by the capacity augmentation.

Hence, traffic and toll revenue have been considered up to end of original concession period. Further, due to suspension of toll for a period of 24 days in FY17 due to demonetization, IRBTC would be entitled to an extension of additional 24 days. Hence, the total concession period has been extended up to 27 June 2037.

- **IRB Talegaon Amravati Tollway Limited**

  IRBTA project covers the Talegaon and Amravati section of NH-6 from 100 km to 166.7 km. The project has been implemented on a BOT basis by the NHAI. This project has been awarded to IRBTA for a concession period of 22 years starting from 3 September 2010 on the basis of a grant of INR 2,160 Mn receivable from the NHAI during the construction period.

  The project is in the state of Maharashtra and passes through Amravati district. En-route, it passes few major/minor urban centres, viz. Nandgaon Peth, Mozri, Tivsa, and Ramdara etc. before reaching end of project stretch at Talegaon. The corridor of the project is also known as Amravati – Nagpur Highway.

The project has been commissioned and is currently in the operation / maintenance phase.

Table 3.5: Details of IRBTA

Parameters	Details
Length of the project	66.7 km
Project Cost	INR 8,925.95 Mn
Concession Period – Start	3 September 2010
Concession Period – End	19 February 2037
Tolling Start Date	24 April 2013
InvIT's stake	100%

Source: Management

Modification in the Concession Period

As per the Clause 29 of the concession agreement between NHAI and IRBTA provided to us by the Management, if the actual traffic falls short or exceeds target traffic on a defined date, the concession period shall be revised subject to calculation specified therein. The target date and target traffic as provided in the concession agreement along with the projected traffic as on the target date are given below:

Target Date - 1 April 2020

Target Traffic – 41,052 PCUs

Projected Traffic as on Target Date – 26,288 PCUs

As per the traffic projections provided by the Management, the traffic volume falls short of the target traffic as on the target date. This warrants for an extension of the concession period. Further, due to the suspension in toll for a period of 24 days in FY17 due to demonetization, IRBTA would be entitled to an extension of additional 24 days. Hence, the total concession period has been extended to 26.9 years (from the original 22 years) up to 19 February 2037 by the Management.

- **MVR Infrastructure & Tollways Limited**

MVR project covers the Omalur and Namakkal section of NH-7 from 180.0 km to 248.6 km. The project has been implemented on a BOT basis by the NHAI and is a combination of construction and maintenance packages as given under:

Maintenance package – From 180 km to 207.5 km
Construction & Maintenance Package – From 207.5 km to 248.625 km

The project covers the stretch from Omalur to Namakkal and passes through two districts namely Salem and Namakkal. This project has been awarded for a concession period of 20 years starting from 14 August 2006. The project has been commissioned and is currently in the operation / maintenance phase.

Table 3.6: Details of MVR

Parameters	Details
Length of the project	68.6 km
Project Cost	INR 3,076.0 Mn
Concession Period – Start	14 August 2006
Concession Period – End	21 September 2026
Tolling Start Date	6 August 2009
IRB InvIT's stake	100%

Source: Management

Modification in the Concession Period

Due to suspension in toll for a period of 24 days in FY17 on account of demonetization, MVR would be entitled to an extension of additional 24 days in the concession period. Further, there has been an extension of 15 additional days in the concession period due to floods in Chennai. Hence, the concession period for MVR has been extended up to 21 September 2026.

- **IRB PATHANKOT AMRITSAR TOLL ROAD LIMITED (IRB PATRL")**

IRB PATRL project covers the Pathankot and Amritsar section of NH-15 from 6.082 km to 108.502 km. The project has been awarded to IRB PATRL for a concession period of 20 years starting from 31 December 2010 on the basis of grant given by National Highways Authority of India ("NHAI") of INR 1,269.0 Mn.

The project is in the state of Punjab, and passes through the districts of Gurudaspur, Amritsar, Firozpur, Faridkot, Moga, Mukatsar & Bhatinda. The project stretch provides connectivity for traffic from the states of Punjab and Rajasthan to Jammu and Kashmir. The project has been commissioned and is currently in the operation/ maintenance phase.

Table 3.7: Details of IRB PATRL

Parameters	Details
Length of the project	102.4 Km
Project Cost	INR 14,453.1 Mn
Concession Period – Start	31 Deeember 2010
Concession Period – End	22 January 2035
Tolling Start Date	27 November 2014
IRB InvIT's stake	100%

Source: Management

Modification in the Concession Period

As per the Clause 29 of the concession agreement between NHAI and IRB PATRL provided to us by the Management, if the actual traffic falls short or exceeds target traffic on a defined date, the concession period shall be revised subject to calculation specified therein. The target date and target traffic as provided in the concession agreement along with the projected traffic as on the target date are given below:

Target Date - 1 January 2019
Target Traffic – 34,498 PCUs
Projected Traffic as on Target Date – 21,218 PCUs

As per the traffic projections provided by the Management, the traffic volume falls short of the target traffic as on the target date. This warrants for an extension of the concession period. Further, due to suspension of toll for a period of 24 days in FY17, due to demonetization, IRB PATRL would be entitled to an extension of additional 24 days. Accordingly, the total concession period has been extended to 24.08 years i.e. up to 22 January 2035 (from the original 20 years) by the Management.

IV. Impact of Litigations For All The 7 SPVs

As informed to us by the Management, there are no key changes from the previous six months of the full year valuation report in the list of all material litigations, (including tax litigations, if any) against the project SPVs. We have been informed by the Management that the sponsor i.e. IRB would indemnify the InvIT and its SPVs against any financial losses suffered or incurred in connection with any pending or threatened claims against the Project SPVs made prior to the transfer of the assets to the InvIT, hence no impact has been factored on the valuation of the SPVs.

V. Disclosures of Permits & Licenses For All The 7 SPVs

We have been informed by the Management that no key changes have occurred from the previous six months of the full year valuation report in the permits and licenses of the individual SPVs. We understand from the Management that there are no permit and lieenses pending as on the Valuation Date which may

affect the operations of the SPVs. We have not independently verified the documents related to the permits and licenses and have relied on the representation by the Management regarding the same.

VI. DISCLOSURES OF ESTIMATED MAJOR REPAIRS OF THE 7 SPVS

We have been informed by the Management that no key changes have occurred from the previous six months of the full year valuation report in the estimates and timing of the proposed major repairs to be carried out by the SPVs which have been represented in the Appendix X. We have not independently verified the documents related to these estimates and have relied on the representation by the Management regarding the same.

VII. INDUSTRY OVERVIEW

Overview of the Road Infrastructure Industry in India

The Indian road network, comprising of National Highways, Expressways, State Highways, Major District Roads, Other District Roads and Village Roads and is globally the second largest network spanning 5.6 million km[1]. Over 64.5% of all the goods in the country are transported through roads, while, 90% of the total passenger traffic uses road network to commute. Road network in India is sub-divided into three categories as shown in the chart below.

India's road infrastructure has seen consistent improvement in the last few years. Connectivity has improved and road transportation has become a focus of rapid development. Recognizing the significance of a reliable and swift road network in the country and the role it plays in influencing its economic development, the Ministry of Road Transport and Highways (MORTH) has taken up the responsibility of building quality roads and highways across the country.

[1] Roads and Highways – Make in India

In FY18, national highway construction hit record of 26.93 km per day with the construction of national highways of 9,829 kms[1] in length achieving a 20% growth from 8,231 km in FY16-17[2]. For FY19, 45 km per day construction target has been set up by the government. The government of India further plans to increase the length of national highways from current 122,434 km to 200,000 km[3]. The growth in length of national highways over the last few years is shown the chart below.

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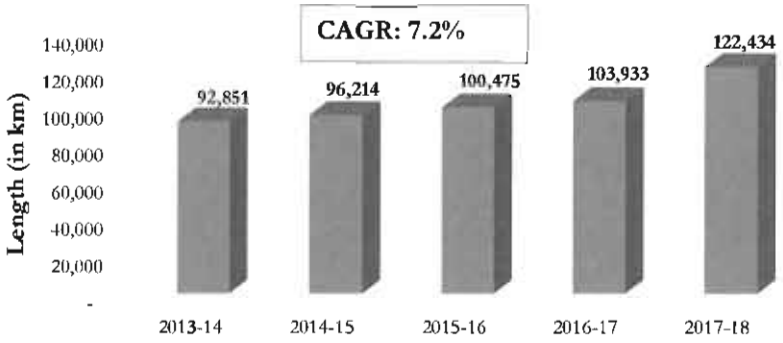
Length of National Highways in km



Source: Ministry of Road Transport and Highways

The private sector has emerged as a key player in the development of road infrastructure in India. Public Private Partnership ("PPP") has several advantages such as huge investment in public infrastructure, efficient delivery of services, cost effectiveness, performance based contracts, risks sharing, optimum use assets and long term investment opportunities. As of August 2018, there were 1,529 PPP projects in India, of which 740 were related to roads.[2] During FY17-18, NHAI received an all-time high target of awarding 7,400 km NH projects consisting of 150 road projects worth INR 1,220 billion[3].

Total PPP projects in India

Source: IBEF Industry Report, September'18

[2] IBEF Industry Report, September 2018
[3] https://www.investindia.gov.in/sector/roads-highways

Major Growth Drivers for the Road Industry

The market for roads and highways is projected to exhibit a CAGR of 36.2%[3] during 2016-2025, on account of growing government initiatives to improve transportation infrastructure in the country. The growth in the Road Infrastructure Industry in India is mainly driven by the following factors:

Demand	Government Policy Support	Higher Investments	Incentives
•Growth in automobiles and freight movement demanding a better road network •Increasing traffic due to rise in the number of 2 and 4 wheelers •Increase in demand driven by the need for greater connectivity between different cities, towns and villages	•Road Infrastructure Sector has received strong budgetary support from the government over the years •Financial Institutions received government approval to raise money through tax-free bonds •100 per cent FDI is allowed under the automatic route	•The Government of India is expected to invest highly in the infrastructure sector, mainly highways and urban transport in 2019. •Between 2014-15 and 2018-19, the overall budgetary allocation to the highways sector has increased from INR 320 billion to INR 710 billion[2]. •The Government of India plans to invest US$ 22.4 billion[3] towards road infrastructure in North-East region between 2018-2020	•Growing participation of the private sector through Public-Private partnership •The Government is planning to offer a bonus of 10%[2] of the total project cost to firms that construct and deliver highway projects before deadline

Key developments in the Road Infrastructure Industry

Some of the recent key developments in the Road Infrastructure Industry in India are as follows[4]:

- As of August 2018, a total length of 34,800 km road projects has been proposed to be constructed, under Bharatmala Pariyojana Phase-I. The programme envisages new initiatives like development of Border and International connectivity roads, coastal and port connectivity roads and improvements in National Corridors Efficiency Economic corridors.
- The Government of India has also approved highway projects worth INR 2 billion (USD 29.83 million) to improve connectivity among Gujarat, Maharashtra, Madhya Pradesh and Diu.
- In May 2018, the Government of India signed USD 500 million loan agreement with World Bank to provide additional funding for construction of 7,000 km climate resilient roads out of which 3,500 km will be built using green technologies under Pradhan Mantri Gram Sadak Yojana (PMGDY).
- In May 2018, IIFCL Mutual Fund launched infrastructure debt fund (IDF) scheme with Corporation Bank, Oriental Bank of Commerce & IIFCL as investors and Canara Bank & HUDCO as strategic investors.

[4] https://www.ibef.org/industry/roads-india.aspx

- In May 2018, the Government of India approved construction of a 9.9 km 6 lane bridge project across Ganga in Uttar Pradesh on NH-36 with a total capital cost of INR 194.83 million. The construction of the project is expected to be completed by December 2021.
- In April 2018, the Government of India signed a USD 210 million deal with World Bank to improve rural roads at a stretch of 10,510 km in Madhya Pradesh under the Gram Sadak Yojana Programme.
- The government has also approved the Road Requirement Plan (RRP) for the development of NHs and State Highways in 34 remote districts in states of Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha and Uttar Pradesh.
- The Ministry of Road Transport and Highways has enforced certain green initiatives during the last few years including vehicle fleet monetization programme to enable replacement of old vehicles to reduce pollution, Ethanol fuelled Bus, increasing the use of vehicles fuelled by Bio-CNG and Bio-Diesel and Green Highways Division in NHAI where over 2.5 lakh trees have been planted in order to make National Highways green and pollution free.

Future Outlook

The transport infrastructure sector in India is expected to grow at a CAGR of 5.9% through the year 2021, thereby becoming the fastest-expanding section of the country's infrastructure sector. The government through a series of initiatives, is working on policies to attract significant investor interest. A total of 200,000 km national highways are expected to be completed by 2022[2].

The MoRTH has fixed an overall target to award 15,000 km projects and construction of 10,000 km of national highways in FY 2019[4]. A total of about 295 major projects including bridges and roads are expected to be completed during the same period. The Indian government plans to develop a total of 66,117 km of roads under different programs such as National Highways Development Project (NHDP), Special Accelerated Road Development Programme in North-East (SARDP-NE) and Left Wing Extremism (LWE). The government has identified development of 2,000 km of coastal roads to improve the connectivity between ports and remote villages[5].

With the objective of reviving private investment in the roads sector, the MoRTH is now working on two more models for attracting capital. One model proposes allowing bidding of a road project on the basis of the least present value, and the other envisages selling off road projects that have been built using government funds.

The Road infrastructure sector is a significant sector contributing to the overall growth and development of the Indian economy. The government is implementing various projects across the length and breadth of the country and is undertaking initiatives for revitalizing the sector, streamlining systems and processes to fast track the implementation of National Highway projects.

[5] http://www.mepinfra.com/pdf/financial-reports/annual-reports/MEP-Annual-Report-2017-18.pdf

WALKER CHANDIOK & CO LLP CHARTERED ACCOUNTANTS

VIII. VALUATION METHODOLOGY AND APPROACH

The basis of value used in our analysis is fair value which is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the valuation date.

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 the valuation of the SPVs as on 30 September 2018.

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.

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 Based

- *Market Price Method*

  This valuation method reflects the price that the market, at a point in time, is prepared to pay for the shares of an entity. It is therefore influenced by the condition of the stock market, and the concerns and opportunities that are seen for the business in the sector or market in which it operates. The market price also reflects the investor's view of the ability of management to deliver a return on the capital it is using. In case of companies not frequently traded, this value may be very different from the inherent value of the shares, but nevertheless forms a benchmark value. Clearly, this method can be used only in case of shares of a company listed on a stock exchange.

  Though the shares of InvIT are listed on stock exchanges, our scope involves updating the valuation done earlier to take into account any material developments during the previous half year. Accordingly, we have estimated the valuation using only the DCF approach consistent with our earlier valuation. However, market price of InvIT is an important benchmark of value and should be

considered by investors in conjunction with the value estimated in this report.

- *Market Multiple Method*

  Under this methodology, appropriate valuation multiples of comparable listed companies are computed and applied to the financials of the company being valued in order to arrive at a multiple based valuation.

  This method applies a reasonable multiple to the relevant operating performance metrics of the company being valued to estimate its Equity Value. The relevant multiple is derived from reference to market based conditions of similar quoted companies. The methodology is considered appropriate to use for an established business with an identifiable stream of continuing revenues that are considered maintainable.

  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.

- *Precedent Transaction Multiple Method*

  This method is similar to the above Market Multiple Method, with the exception that the companies used as guidelines are those that have been recently acquired. Under this method, acquisitions or divestitures involving similar companies are identified, and the multiples implied by their purchase prices are used to assess the subject company's value. There is no rule of thumb for the appropriate age of a reasonable transaction; however, it is important to be aware of the competitive market at the time of the transaction and factor any changes in the marketplace environment into the analysis. All other things being equal, the more recent the transaction, the more reliable the value arrived at using this technique. We have not considered this method for the valuation of the SPVs due to lack of availability of the recent transactions involving road projects in India having similar geographical locations, stage of growth, size, terms and profitability as that of the 7 SPVs.

Asset Based

- *Adjusted Net Asset Value Method (NAV)*

  The value arrived at under this approach is based on the audited / provisional financial statements of the business and may be defined as Shareholders' Funds or Net Assets owned by the business. The NAV method is generally used as the minimum break-up value for the transaction since this methodology ignores the future return the assets can produce and is calculated using historical accounting data that may not reflect the worth of the business to someone who may buy or invest in the business as a going concern. We have therefore not considered this method for valuation of the SPVs.

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Income Based

- *Discounted Cash flow Method (DCF)*

  Under the DCF method, forecasted cash flows for a reasonably long period are discounted back at an appropriate discount rate, to the present date, generating a net present value for the cash flow stream of the business during the forecast period. The rates at which future cash flows are discounted reflect not only the time value of the cash flows but also the risk associated with the business' future operations. Typically, under this method, forecasted cash flows are developed based on several inputs which tend to be subjective particularly for dynamic companies. Considering that this method is based on future potential of the SPVs and is widely accepted method in road sector, we have used this approach in the valuation of the SPVs

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IX. 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 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 site visits, 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 7 SPVs. Nothing has come to our attention to indicate that the information provided by the Management had material mis-statements 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:

Discounting Factor

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

Cost of Equity ("ke")

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 an investment with zero risk where actual returns are equal to the expected return. Rf at 8.2% has been considered for each SPV based on the 10 Year 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 companies in the construction and engineering segment, and having more than 50% revenues from the road infrastructure. Beta has been considered based on 5 year trailing Beta of comparable companies, re-levered based on debt to equity ratio of the InvIT and effective taxes. Refer Appendix I for a list of comparable companies.

- Debt to Equity Ratio (DER) – The DER is based on the capital structure of the InvIT as on the Valuation Date.

- Income Tax – Effective tax rate has been applied after considering 80IA benefits and applicable MAT credit (if any) in the projected period as confirmed to us by the Management for each SPV.

- Equity Risk Premium (ERP) – ERP is considered at 7.4% for each SPV based on Grant Thornton research for India.

Cost of Debt ("kd")

The cost of debt represents the marginal cost of raising debt for each SPV which in turn is based on the actual borrowing rate of the company and the prevailing interest rate of similar rated bonds as on the Valuation Date.

The WACC Calculation for the SPVs is based on the DER as explained earlier.

X. VALUATION ANALYSIS OF THE INDIVIDUAL SPVS

As discussed above, we have estimated the value of the SPVs using the Discounted Cash Flow Method. The consolidated Enterprise Value of InvIT has been estimated using sum of the parts approach by adding the Enterprise Value of each of the SPVs. The consolidated Enterprise Value of the InvIT has been adjusted with below the line items of the consolidated provisional financials of the InvIT as on 30 September 2018 in order to arrive at the fair value of the InvIT. We have considered projections estimated by the Management for the individual SPVs.

The key inputs of the projections provided to us by the Management are:

Traffic Volume – The growth in traffic volumes for each SPV were provided to us by the Management supported by the technical reports of the traffic consultant (prepared by GMD Consultants) for the 7 SPVs. As confirmed by the Management, the traffic volumes for each SPV has been estimated in the technical reports of the traffic consultant after considering overall structure and condition of the projects including analysis of demand and supply and strategic geographical locations of the individual road projects.

Toll Rates – As informed to us by the Management, there has been no change in the current toll for all the 7 SPVs compared to last valuation. The toll rates have been projected to grow in the manner stipulated in the individual concession agreements of the SPVs. The variable determinant supporting the toll rate forecast is "Wholesale price Index" (WPI) and is projected to grow by 5% through FY 20-22 followed by 4% growth in the balance projected period annually based on the discussion with the Management.

Operations & Maintenance ("O&M") – O&M expenditures estimated by the Management over the Projected Period are based on the future estimates provided by the contractor of each SPV which are conservative assumptions compared to the estimates considered by the traffic consultant.

Amortisation – The toll collection rights, (including premium payable and negative grant to NHAI as applicable) for the 7 SPVs have been amortised over the period of concession, using revenue based amortisation as per exemption provided in IND AS 101.

Debt Repayment – As informed by Management, the total debt in the SPVs has been replaced by debt from the InvIT. The debt given by InvIT to the SPVs is using the proceeds of the listing. As mentioned

above, we have estimated the Enterprise Value of each of the SPVs, hence we have not made any adjustments pertaining to the intercompany debt.

Non-Cash Net Working Capital – As per the nature of the business of operating toll road projects, there is no requirement of working capital to run the business and hence the Management has considered it to be nil for the entire projected period.

- **Valuation of IRBSD**

The FCFF for IRBSD has been calculated based on the financial projections provided by the Management for the period 1 October 2018 through FY23.

The base cost of equity for IRBSD is considered to be 13.9% based on the factors mentioned above in Section IX. The pre-tax cost of debt is considered to be 8.6% as on the Valuation Date. An Effective tax rate of 21.5% has been considered as applicable throughout the projected period, resulting in a post-tax cost of debt of 6.7%.

Based on DER of 0.36 of the InvIT as on the Valuation Date, the WACC arrived at for the purpose of valuation is 12.0%.

As on the Valuation Date, we have discounted the free cash flows of IRBSD using the WACC leading to a Fair Enterprise Value ("EV") of INR 12,033.2 Mn.

Refer Appendix III for the detailed Discounted Cash Flow workings of IRBSD.

- **Valuation of IDAA**

The FCFF for IDAA project has been calculated based on the financial projections provided by the Management for the period 1 October 2018 through FY22.

The base cost of equity for IDAA is considered to be 13.9% based on the factors mentioned above in Section IX. The pre-tax cost of debt is considered to be 8.6% as on the Valuation Date. An effective tax rate of 21.5% has been considered as applicable throughout the projected period, resulting in a post-tax cost of debt of 6.7%.

Based on DER of 0.36 of the InvIT as on the Valuation Date, the WACC arrived at for the purpose of valuation is 12.0%.

As on the Valuation Date, we have discounted the free cash flows of IDAA using the WACC leading to a EV of INR 5,758.1 Mn.

Refer Appendix IV for the Discounted Cash Flow workings of IDAA project.

- **Valuation of IRBJD**

The FCFF for IRBJD has been calculated based on the financial projections provided by the Management for the period 1 October 2018 through FY40.

The WACC has been calculated based on the applicable tax rate in the projected and terminal period.

In the years where MAT rate i.e. 21.5% is applicable, the base cost of equity for IRBJD is considered to be 13.9% based on the factors mentioned above in Section IX. The pre-tax cost of debt is considered to be 8.6% as on the Valuation Date, resulting in a post-tax cost of debt of 6.7%. In the years where the corporate tax rate i.e. 34.9% is applicable, the base cost of equity for IRBJD is considered to be 14.2% based on the factors mentioned above in Section IX. The pre-tax cost of debt is considered to be 8.6% as on the Valuation Date, resulting in a post-tax cost of debt of 5.6%.

Based on DER of 0.36 of the InvIT as on the Valuation Date, the WACC arrived at for the purpose of valuation is 11.97% and 11.96% based on the MAT rate and corporate tax rate, respectively.

As on the Valuation Date, we have discounted the free cash flows of IRBJD project using the appropriate WACC leading to a EV of INR 16,270.5 Mn.

Refer Appendix V for the Discounted Cash Flow workings of IRBJD.

- **Valuation of IRBTC**

The FCFF for IRBTC has been calculated based on the financial projections provided by the Management for the period 1 October 2018 through FY38.

The base cost of equity for IRBTC is considered to be 13.9% based on the factors mentioned above in Section IX. The pre-tax cost of debt is considered to be 8.6% as on the Valuation Date. An effective tax rate of 21.5% has been considered as applicable throughout the projected period, resulting in a post-tax cost of debt of 6.7%.

Based on DER of 0.36 of the InvIT as on the Valuation Date, the WACC arrived at for the purpose of valuation is 12.0%.

As on the Valuation Date, we have discounted the free cash flows of IRBTC using the WACC leading to a EV of INR 13,267.0 Mn.

Refer Appendix VI for the Discounted Cash Flow workings of IRBTC.

- **Valuation of IRBTA**

The FCFF for IRBTA has been calculated based on the financial projections provided by the Management for the period 1 October 2018 through FY37.

The base cost of equity for IRBTA is considered to be 13.9% based on the factors mentioned above in Section IX. The pre-tax cost of debt is considered to be 8.6% as on the Valuation Date. An effective tax rate of 21.5% has been considered as applicable throughout the projected period, resulting in a post-tax cost of debt of 6.7%.

Based on DER of 0.36 of the InvIT as on the Valuation Date, the WACC arrived at for the purpose of valuation is 12.0%.

As on the Valuation Date, we have discounted the free cash flows of IRBTA project using the WACC leading to a EV of INR 8,155.3 Mn.

Refer Appendix VII for the Discounted Cash Flow workings of IRBTA.

- **Valuation of MVR**

The FCFF for MVR has been calculated based on the financial projections provided by the Management for the period 1 October 2018 through FY27.

The base cost of equity for MVR is considered to be 13.9% based on the factors mentioned above in Section IX. The pre-tax cost of debt is considered to be 8.6% as on the Valuation Date. An effective tax rate of 21.5% has been considered as applicable throughout the projected period, resulting in a post-tax cost of debt of 6.7%.

Based on DER of 0.36 of the InvIT as on the Valuation Date, the WACC arrived at for the purpose of valuation is 12.0%.

As on the Valuation Date, we have discounted the free cash flows of MVR using the WACC leading to a EV of INR 4,285.0 Mn.

Refer Appendix VIII for the Discounted Cash Flow workings of MVR.

- **Valuation of IRB PATRL**

The FCFF for IRB PATRL has been calculated based on the financial projections provided by the Management for the period 1 October 2018 through FY35.

The base cost of equity for IRB PATRL is considered to be 13.9% based on the factors mentioned above in Section IX. The pre-tax cost of debt is considered to be 8.6% as on the Valuation Date. An effective tax rate of 21.5% has been considered as applicable throughout the projected period, resulting in a post-tax cost of debt of 6.7%.

Based on DER of 0.36 of the InvIT as on the Valuation Date, the WACC arrived at for the purpose of valuation is 12.0%.

As on the Valuation Date, we have discounted the free cash flows of IRB PATRL using the WACC leading to a EV of INR 14,350.4 Mn.

Refer Appendix IX for the Discounted Cash Flow workings of IRB PATRL.

XI. SOURCES OF INFORMATION

We have relied on the following sources of information:

- 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.
  - Letter to NHAI for the deferment of premium by IRBTC.
  - Provisional standalone and consolidated financials of the InvIT as on 30 September 2018.
  - Audited financial statements on a standalone basis from the date of operation of individual SPV till FY 2018.
  - The provisional financial statements as on the 30 September 2018 for all the SPVs.
  - Financial projections of the SPVs from 30 September 2018 till the end of the concession period of the respective SPV as provided by the Management.
  - Traffic Consultant Reports prepared by GMD Consultants for each SPV 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.
  - Effective cost of debt of 8.35% of the InvIT as on 30 September 2018.
- International databases
- 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.

XII. CAVEATS

a) Provision of valuation recommendations and considerations of the issues described herein are areas of our regular corporate advisory practice. The services do not represent accounting, audit, and financial due diligence review, consulting, transfer pricing or domestic tax-related services that may otherwise be provided by WCC.

b) Our analysis and review of the SPVs does not constitute an audit in accordance with Auditing Standards. We have relied on explanations and information provided by the Management and accepted the information provided to us as accurate. Although, we have reviewed such data for consistency and reasonableness, we have not independently investigated or otherwise verified the data provided. Nothing has come to our attention to indicate that the information provided

contains material mis-statements or would not afford reasonable grounds upon which to base the Report.

c) We must emphasize that the Financial Projections are prepared by the Management and provided to us for the purpose of our analysis. The fact that we have considered the Financial Projections in this exercise should not be construed or taken as our being associated with or a party to such projections. Realisations of free cash flow forecast used in the analysis will be dependent on the continuing validity of assumptions on which they are based. Our analysis, therefore, will not, and cannot be directed to provide any assurance about the achievability of the Financial Projections. Since the Financial Projections relate to future, actual results are likely to be different from the projected results because events and circumstances do not occur as expected, and the differences may be material.

d) In accordance with the terms of our engagement, we have assumed and relied upon, without independent verification, the accuracy of the information that was publicly available and formed a substantial basis for this Report. These sources, although considered to be reliable, are external and hence, we assume no liability for the accuracy of the data. We have assumed that the business continues normally without any disruptions due to statutory or other external/internal occurrences.

e) Further, except as specifically stated to the contrary, this Report has given no consideration to matters of a legal nature, including issues of legal title and compliance with local laws, and litigation and other contingent liabilities that are not recorded in the audited/ unaudited balance sheet of the Companies. Our conclusion assumes that the assets and liabilities of the Companies, reflected in their respective latest balance sheets remain intact as of the Report date.

f) We are not advisors with respect to legal tax and regulatory matters for the proposed transaction. No investigation of the SPVs' claim to title of assets has been made for the purpose of this Report and the SPVs' claim to such rights have 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.

g) The scope of our work has been limited both in terms of the areas of the business and operations which we have reviewed and the extent to which we have reviewed them. There may be matters, other than those noted in this Report, which might be relevant in the context of the transaction and which a wider scope might uncover. It may be noted that valuation is not an exact science and ultimately depends upon what the business is worth to a serious investor or buyer who may be prepared to pay a substantial goodwill.

h) The valuation analysis recommendation contained herein is not intended to represent the value at any time other than the date that is specifically stated in this Report. This Report is issued on the understanding that the Management have drawn our attention to all matters of which they are aware concerning the financial position of the businesses, which may have an impact on our Report up to the date of issue. We have no responsibility to update this Report for events and circumstances occurring after the date of this Report.

i) This Report does not look into the business/ commercial reasons behind the proposed 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 could be achieved or are available.

j) We have no present or planned future interest in the Client, Trustee, Investment Manager, IRB or the SPVs and the fee for this Report is not contingent upon the values reported herein. Our valuation analysis should not be construed as investment advice; specifically, we do not express any opinion on the suitability or otherwise of entering into any financial or other transaction with the Client, IRB or the SPVs.

k) The fee for the engagement is not contingent upon the results reported.

l) Limitation of Liability of Walker Chandiok & Co LLP (referred as the "Firm") as per paragraphs 8 i) to 8 iii) to Appendix 3 of our Engagement Letter with the Client

i. The aggregate liability of the Firm, its partners, directors, consultants, employees, agents, affiliates and other personnel for damage shall be limited to the amount of the fees that the Firm has received in connection with the engagement. If the engagement is of a recurring nature, then the aggregate liability shall not exceed the amount received by the Firm in the immediately preceding year.

ii. For the purposes of this engagement "damage" shall mean the aggregate of all losses or damages and costs suffered or incurred, directly or indirectly, by the Client under or in connection with the engagement or its subject matter (as the same may be amended or varied) and any report prepared pursuant to it, including as a result of breach of contract, breach of statutory duty, tort (including negligence), or other act or omission by the Firm but excluding any such losses, damages or costs arising from the fraud or dishonesty of the Firm or in respect of liabilities which cannot lawfully be limited or excluded.

iii. It is agreed that, having regard to the Firm's interest in limiting the personal liability and exposure to litigation of its personnel, the Client will not bring any claim in respect of any damage against any of the Firm's personnel personally.

WALKER CHANDIOK & CO LLP MUMBAI CHARTERED ACCOUNTANTS

(This section has intentionally been left blank)

XIII. DISTRIBUTION OF REPORT

This Report is confidential and is provided exclusively for the addressee. It should not be used, reproduced or circulated to any other person or for any purpose other than as mentioned above, in whole or in part, without the prior written consent of WCC. Such consent will only be given after full consideration of the circumstances at the time. The Report and the Summary Valuation included herein, and any extracts thereof, may be reproduced, referenced or included, in full or part, to the stock exchanges on which InvIT is listed, may be uploaded on the website of the InvIT and will form part of the half yearly valuation report of the InvIT as specified in the SEBI InvIT Regulations, 2014.

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 having access to this Report, please note 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 his purpose

XIV. CONCLUSION

Based on the above analysis and subject to the assumptions and limitations stated in this Report and in our Engagement Letter, the Fair Enterprise Value as on the Valuation Date of all the 7 SPVs is illustrated in Table 14.1.

Table 14.1: Fair Enterprise Value of all the 7 SPVs as on the Valuation Date (INR Millions ("Mn"))

Name of the SPV	Fair Enterprise Value
IRB Surat Dahisar Tollway Limited	12,033.2
IDAA Infrastructure Limited	5,758.1
IRB Jaipur Deoli Tollway Limited	16,270.5
IRB Tumkur Chitradurga Tollway Limited	13,267.0
IRB Talegaon Amravati Tollway Limited	8,155.3
MVR Infrastructure & Tollways Limited	4,285.0
IRB Pathankot Amritsar Toll Road Limited	14,350.4
Total Fair Enterprise Value of all the 7 SPVs	**74,119.7**

The Fair Enterprise Value of all the 7 SPVs have been further been adjusted for net debt, working capital and other long term assets/ liabilities based on the consolidated provisional financial statements of the InvIT as on 30 September 2018 to arrive at the Fair Value of the InvIT as on the Valuation Date.

Table 14.2: Fair Value of IRB InvIT Fund
as on the Valuation Date (INR Mn)

Name of the SPV	Fair Equity Value
Total Fair Enterprise Value of all the 7 SPVs	**74,119.7**
Less: Net Debt	(14,604.5)
Add/Less: Net Working Capital adjustments*	1,783.9
Less: Net Impact of other long term assets / liabilities	7.4
Fair Value of the InvIT	**61,306.4**

**Net working capital adjustment mainly consists of investments in mutual funds which is non-operating in nature*

Yours faithfully,

For Walker Chandiok & Co LLP
(Formerly Walker, Chandiok & Co)
Chartered Accountants
Firm Registration No. 001076N/N500013

Huned Contractor
Partner
Membership No: 41456

Place: Mumbai
Dated: 23 October 2018

APPENDICES

APPENDIX I

List of Comparable Companies used for the computation of Beta

Ashoka Buildcon Ltd.
Atlanta Ltd.
IRB Infrastructure Developers Limited
MEP Infrastructure Developers Limited
Sadbhav Engineering Ltd.

Appendix II - IRB InvIT Fund

Fair Value of IRB InvIT Fund ("InvIT")

Particulars	30-Sep-18
Enterprise Value of the SPVs	
IRB Surat Dahisar Tollway Private Limited (a)	12,033.2
IDAA Infrastructure Private. Limited (b)	5,758.1
IRB Jaipur Deoli Tollway Private. Limited (c)	16,270.5
IRB Tumkur Chitradurga Tollway Private. Limited (d)	13,267.0
IRB Talegaon Amravati Tollway Private. Limited (e)	8,155.3
MVR Infrastructure & Tollway Private. Limited (f)	4,285.0
IRB Pathankot Amritsar Toll Road Limited (g)	14,350.4
Total Fair Enterprise Value of the 7 SPVs (INR Mns.)	**74,119.7**
Less: Net Debt (h)	(14,604.5)
Add/Less: Working Capital adjustments (h)	1,783.9
Less: Net Impact of other long term assets / liabilities (h)	7.4
Fair Value of the InvIT (INR Mns.)	**61,306.4**

Footnotes:

INR: Indian Rupees; Mns.: Millions

(a) Please refer Appendix III.

(b) Please refer Appendix IV.

(c) Please refer Appendix V.

(d) Please refer Appendix VI.

(e) Please refer Appendix VII.

(f) Please refer Appendix VIII.

(g) Please refer Appendix IX.

(h) Based on the provisional consolidated balance sheet of InvIT as on the 30 September 2018 as provided by the Management.

Appendix III - IRB Surat Dahisar Tollway Limited

Discounted Cash Flow analysis

Particulars (Free Cash Flows to Firm or FCFF Model)		FY19	FY20	FY21	FY22	FY23
No of days operational		182	366	365	365	276
Net Sales (a)		2,109.0	4,112.5	4,510.4	4,945.3	4,110.4
Growth Rate			*nmf*	*9.7%*	*9.6%*	*-16.9%*
Earnings Before Interest, Depreciation & Amortization and Tax (a)		1,497.0	3,112.5	3,960.4	4,367.8	3,909.4
Margin		*71.0%*	*75.7%*	*87.8%*	*88.3%*	*95.1%*
Less: Depreciation & Amortization		780.9	2,251.3	2,469.1	2,707.2	2,250.2
Earnings Before Interest and Tax		**716.1**	**861.2**	**1,491.3**	**1,660.6**	**1,659.2**
Income Tax (b)		90.15	185.6	321.3	357.8	357.5
Gross Free Cash Flows to Firm		**626.0**	**675.6**	**1,170.0**	**1,302.8**	**1,301.7**
Add: Depreciation & Amortization		780.9	2,251.3	2,469.1	2,707.2	2,250.2
Less/(Add): Increase/ (Decrease) in Working Capital		0.0	0.0	0.0	0.0	0.0
Net Free Cash Flows to Firm		**1,406.8**	**2,926.9**	**3,639.1**	**4,010.0**	**3,551.9**
Present Value Periods in Years (Mid Year Discounting)						
Present Value Factors (c)	12.0%	0.97	0.89	0.80	0.71	0.65
Present Value of Free Cash Flows to Firm		**1,367.7**	**2,614.3**	**2,903.0**	**2,856.9**	**2,291.3**

Gross Enterprise Value of Surat-Dahisar (INR Mns.)	12,033.2

Footnotes:

INR: Indian Rupees; Mns.: Millions; FY: Financial Year; Surat-Dahisar: Surat Dahisar Tollway Pvt. Ltd.

(a) Projections for the Financial Years from FY19 to FY23 based on the expected tenure of the project, as provided by the management of IRB Infrastructure Private Limited ("Management").

(b) Effective tax rate has been applied after considering 80IA benefits and applicable MAT credit (if any) in the projected period as confirmed to us by the Managment.

(c) Present Value factors have been considered based on the WACC of the Project.

Walker Chandiok & Co LLP

Weighted Average Cost of Capital

Cost of Equity Calculation	Value
Risk Free Rate (a)	8.2%
Relevered Beta (b)	0.76
Equity Risk Premium (c)	7.4%
Base Cost of Equity	**13.9%**
Project Specific Risk Premium	0.0%
Adjusted Cost of Equity	**13.9%**

Cost of Debt Calculation	Value
Cost of Debt (d)	**8.6%**
Less: Tax (e)	21.5%
Post-tax Cost Of Debt	6.7%

WACC Calculation	Weight (f)	Value
Debt	26.4%	6.7%
Equity	73.6%	13.9%
Adjusted Cost Of Capital		**12.0%**

Footnotes:

ERP: Equity Risk Premium; CSRP: Company Specific Risk Premium; D/E: Debt to Equity

(a) Risk Free Rate is based on 10 Year Wholesale Debt Market Zero Coupon Bond Yield as of 28 September 2018. Source: CCIL

(b) Companies in the construction and engineering segment, and having more than 50% revenues from the road infrastructure have been selected. Beta has been considered based on 5 yr trailing average Beta of comparable companies, relevered for company D/E of InvIT and effective taxes.

(c) Equity Risk Premium based on Grant Thornton research on ERP for emerging markets.

(d) Marginal cost of raising debt for each SPV is based on the prevailing interest rate as on the Valuation Date.

(e) Effective tax rate has been considered as applicable throughout the projected period.

(f) Debt to equity ratio is based on the capital structure of the IRB InvIT Fund as on the Valuation Date.

Appendix IV - IDAA Infrastructure Limited

Discounted Cash Flow analysis

DISCOUNTED CASH FLOW ANALYSIS (Free Cash Flows to Firm or FCFF Model) No of days operational		FY19 182	FY20 366	FY21 365	FY22 300
Net Sales (a)		1,317.6	2,657.9	2,973.2	2,737.3
	Growth Rate		*nmf*	*11.9%*	*-7.9%*
Earnings Before Interest, Depreciation & Amortization and Tax (a)		1,147.1	1,867.9	2,515.7	1,537.3
	Margin	*87.1%*	*70.3%*	*84.6%*	*56.2%*
	Less: Depreciation & Amortization	867.0	1,803.5	2,017.4	1,857.3
Earnings Before Interest and Tax		**280.1**	**64.5**	**498.3**	**(320.0)**
	Income Tax (b)	41.9	13.9	107.4	-
Gross Free Cash Flows to Firm		**238.3**	**50.6**	**390.9**	**(320.0)**
	Add: Depreciation & Amortization	867.0	1,803.5	2,017.4	1,857.3
	Less/(Add): Increase/(Decrease) in Working Capital	-	-	-	-
Net Free Cash Flows to Firm		**1,105.3**	**1,854.0**	**2,408.3**	**1,537.3**
	Present Value Periods in Years (Mid Year Discounting)				
	Present Value Factors (c) 12.0%	0.972	0.893	0.798	0.720
Present Value of Free Cash Flows to Firm		**1,074.5**	**1,656.1**	**1,921.2**	**1,106.3**
Gross Enterprise Value of IDAA (INR Mns.)		**5,758.1**			

Footnotes:

INR: Indian Rupees; Mns.: Millions; FY: Financial Year; IDAA: IDAA Infrastructure Private Limited

(a) Projections for the Financial Years from FY19 to FY22 based on the expected tenure of the project, as provided by the management of IRB Infrastructure Private Limited ("Management").

(b) Effective tax rate has been applied after considering 80IA benefits and applicable MAT credit (if any) in the projected period as confirmed to us by the Managment.

(c) Present Value factors have been considered based on the WACC of the Project.

Weighted Average Cost of Capital

Cost of Equity Calculation	Value
Risk Free Rate (a)	8.2%
Relevered Beta (b)	0.76
Equity Risk Premium (c)	7.4%
Base Cost of Equity	**13.9%**
Project Specific Risk Premium	0.0%
Adjusted Cost of Equity	**13.9%**

Cost of Debt Calculation	Value
Cost of Debt (d)	8.6%
Less: Tax (e)	21.5%
Post-tax Cost Of Debt	6.7%

WACC Calculation	Weight (f)	Value
Debt	26.4%	6.7%
Equity	73.6%	13.9%
Adjusted Cost Of Capital		**12.0%**

Footnotes:

ERP: Equity Risk Premium; CSRP: Company Specific Risk Premium; D/E: Debt to Equity

(a) Risk Free Rate is based on 10 Year Wholesale Debt Market Zero Coupon Bond Yield as of 28 September 2018. Source: CCIL

(b) Companies in the construction and engineering segment, and having more than 50% revenues from the road infrastructure have been selected. Beta has been considered based on 5 yr trailing average Beta of comparable companies, relevered for company D/E of InvIT and effective taxes.

(c) Equity Risk Premium based on Grant Thornton research on ERP for emerging markets.

(d) Marginal cost of raising debt for each SPV is based on the prevailing interest rate as on the Valuation Date.

(e) Effective tax rate has been considered as applicable throughout the projected period.

(f) Debt to equity ratio is based on the capital structure of the IRB InvIT Fund as on the Valoation Date.

Appendix V - IRB Jaipur Deoli Tollway Limited

Discounted Cash Flow analysis

DISCOUNTED CASH FLOW ANALYSIS (Free Cash Flows to Firm or FCFF Model) No of days operations		FY19 182	FY20 366	FY21 365	FY22 365	FY23 365	FY24 366
Net Sales (a)		530.9	1,400.9	1,563.5	1,748.5	1,943.0	2,168.0
Growth Rate		*nmf*	*163.9%*	*11.6%*	*11.8%*	*11.1%*	*11.6%*
Earnings Before Interest, Depreciation & Amortization and Tax (a)		**498.2**	**766.8**	**878.7**	**1,008.8**	**1,753.0**	**1,968.0**
Margin		*93.8%*	*54.7%*	*56.2%*	*57.7%*	*90.2%*	*90.8%*
Less: Depreciation & Amortization		40.0	196.7	219.6	245.6	272.9	304.5
Earnings Before Interest and Tax		**458.3**	**570.0**	**659.1**	**763.3**	**1,480.2**	**1,663.5**
Income Tax (b)		79.9	122.8	142.0	164.5	319.0	358.5
Gross Free Cash Flows to Firm		**378.4**	**447.2**	**517.1**	**598.8**	**1,161.2**	**1,305.0**
Add: Depreciation & Amortization		40.0	196.7	219.6	245.6	272.9	304.5
Less: Capex		0.0	0.0	0.0	0.0	0.0	0.0
Less/(Add): Increase/(Decrease) in DSRA		0.0	0.0	0.0	0.0	0.0	0.0
Less/(Add): Increase/(Decrease) in Working Capital		0.0	0.0	0.0	0.0	0.0	0.0
Net Free Cash Flows to Firm		**418.4**	**644.0**	**736.7**	**844.3**	**1,434.0**	**1,609.5**
Present Value Periods in Years (Mid Year Discounting)							
Present Value Factors (c)	12.0%	0.972	0.893	0.798	0.712	0.636	0.568
Present Value of Free Cash Flows to Firm		**406.8**	**575.2**	**587.7**	**601.5**	**912.4**	**914.6**

Gross Enterprise Value of Jaipur-Deoli (INR Mns.)	16,270.5

Footnotes:

INR: Indian Rupees; Mns.: Millions; FY: Financial Year; Jaipur-Deoli: IRB JAIPUR DEOLI TOLLWAY PRIVATE LIMITED

(a) Projections for the Financial Years of FY19 to FY41 based on the expected tenure of the project, as provided by the management of IRB Infrastructure Private Limited ("Management").

(b) Effective tax rate has been applied after considering 80IA benefits and applicable MAT credit (if any) in the projected period as confirmed to us by the Managment.

(c) Present Value factors have been considered based on the WACC of the Project.

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Chartered Accountants

DISCOUNTED CASH FLOW ANALYSIS (Free Cash Flows to Firm or FCFF Model) No of days operations)	FY25 365	FY26 365	FY27 365	FY28 366	FY29 365	FY30 365	FY31 365
Net Sales (a)	2,404.1	2,657.8	2,939.8	3,264.4	3,603.4	3,989.0	4,398.0
Growth Rate	*10.9%*	*10.6%*	*10.6%*	*11.0%*	*10.4%*	*10.7%*	*10.3%*
Earnings Before Interest, Depreciation & Amortization and Tax (a)	**2,177.2**	**2,412.8**	**1,823.1**	**2,058.4**	**2,300.9**	**3,655.6**	**4,038.0**
Margin	*90.6%*	*90.8%*	*62.0%*	*63.1%*	*63.9%*	*91.6%*	*91.8%*
Less: Depreciation & Amortization	337.6	373.3	412.9	458.5	506.1	560.2	617.7
Earnings Before Interest and Tax	**1,839.5**	**2,039.5**	**1,410.3**	**1,599.9**	**1,794.9**	**3,095.3**	**3,420.3**
Income Tax (b)	396.4	439.5	303.9	344.8	386.8	667.0	737.0
Gross Free Cash Flows to Firm	**1,443.1**	**1,600.0**	**1,106.4**	**1,255.1**	**1,408.1**	**2,428.3**	**2,683.3**
Add: Depreciation & Amortization	337.6	373.3	412.9	458.5	506.1	560.2	617.7
Less: Capex	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Less/(Add): Increase/(Decrease) in DSRA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Less/(Add): Increase/(Decrease) in Working Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Free Cash Flows to Firm	**1,780.8**	**1,973.3**	**1,519.2**	**1,713.6**	**1,914.1**	**2,988.6**	**3,301.0**
Present Value Periods in Years (Mid Year Discounting)							
Present Value Factors (c)	0.507	0.453	0.405	0.361	0.323	0.288	0.258
Present Value of Free Cash Flows to Firm	**903.7**	**894.3**	**614.9**	**619.5**	**618.0**	**861.7**	**850.0**

DISCOUNTED CASH FLOW ANALYSIS (Free Cash Flows to Firm or FCFF Model)	FY32	FY33	FY34	FY35	FY36	FY37	FY38	FY39	FY40	FY41
No of days operations)	366	365	365	365	366	365	365	365	366	97
Net Sales (a)	4,865.8	5,337.3	5,874.5	6,489.5	7,131.2	7,804.5	8,551.7	9,402.0	10,345.6	3,049.5
Growth Rate	*10.6%*	*9.7%*	*10.1%*	*10.5%*	*9.9%*	*9.4%*	*9.6%*	*9.9%*	*10.0%*	*-70.5%*
Earnings Before Interest, Depreciation & Amortization and Tax (a)	**4,480.6**	**4,802.1**	**4,266.8**	**5,289.5**	**6,661.6**	**7,311.5**	**8,034.0**	**8,858.4**	**9,773.2**	**2,889.7**
Margin	*92.1%*	*90.0%*	*72.6%*	*81.5%*	*93.4%*	*93.7%*	*93.9%*	*94.2%*	*94.5%*	*94.8%*
Less: Depreciation & Amortization	683.4	749.6	825.0	911.4	1,001.5	1,096.1	1,201.0	1,320.5	1,453.0	428.3
Earnings Before Interest and Tax	**3,797.2**	**4,052.5**	**3,441.7**	**4,378.1**	**5,660.1**	**6,215.4**	**6,833.0**	**7,537.9**	**8,320.2**	**2,461.5**
Income Tax (b)	818.2	873.3	741.7	943.4	1,219.7	1,339.3	1,472.4	1,624.3	3,027.5	948.4
Gross Free Cash Flows to Firm	**2,979.0**	**3,179.2**	**2,700.0**	**3,434.7**	**4,440.4**	**4,876.1**	**5,360.6**	**5,913.6**	**5,292.7**	**1,513.1**
Add: Depreciation & Amortization	683.4	749.6	825.0	911.4	1,001.5	1,096.1	1,201.0	1,320.5	1,453.0	428.3
Less: Capex	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Less/(Add): Increase/(Decrease) in DSRA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Less/(Add): Increase/(Decrease) in Working Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Free Cash Flows to Firm	**3,662.4**	**3,928.8**	**3,525.1**	**4,346.1**	**5,441.9**	**5,972.2**	**6,561.6**	**7,234.1**	**6,745.7**	**1,941.3**
Present Value Periods in Years (Mid Year Discounting)										
Present Value Factors (c)	0.230	0.205	0.183	0.164	0.146	0.131	0.117	0.105	0.094	0.087
Present Value of Free Cash Flows to Firm	**842.2**	**806.9**	**646.6**	**712.0**	**796.1**	**780.3**	**765.7**	**758.9**	**632.2**	**169.4**

Weighted Average Cost of Capital

Cost of Equity Calculation	@ 21.55% tax	@ 34.94% tax
Risk Free Rate (a)	8.2%	8.2%
Relevered Beta (b)	0.76	0.81
Equity Risk Premium (c)	7.4%	7.4%
Base Cost of Equity	**13.9%**	**14.2%**
Project Specific Risk Premium	0.0%	0.0%
Adjusted Cost of Equity	**13.9%**	**14.2%**

Cost of Debt Calculation	@ 21.55% tax	@ 34.94% tax
Cost of Debt (d)	**8.6%**	**8.6%**
Less: Tax (e)	21.5%	34.9%
Post-tax Cost Of Debt	6.7%	5.6%

WACC Calculation	Weight (f)	@ 21.55% tax	@ 34.94% tax
Debt	26.4%	6.7%	5.6%
Equity	73.6%	13.9%	14.2%
Adjusted Cost Of Capital		**11.97%**	**11.96%**

Footnotes:

ERP: Equity Risk Premium; CSRP: Company Specific Risk Premium; D/E: Debt to Equity

(a) Risk Free Rate is based on 10 Year Wholesale Debt Market Zero Coupon Bond Yield as of 28 September 2018. Source: CCIL

(b) Companies in the construction and engineering segment, and having more than 50% revenues from the road infrastructure have been selected. Beta has been considered based on 5 yr trailing average Beta of comparable companies, relevered for D/E of InvIT and effective taxes.

(c) Equity Risk Premium based on Grant Thornton research on ERP for emerging markets.

(d) Marginal cost of raising debt for each SPV is based on the prevailing interest rate as on the Valuation Date.

(e) Effective tax rate has been considered as applicable throughout the projected period.

(f) Debt to equity ratio is based on the capital structure of the IRB InvIT Fund as on the Valuation Date.

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Appendix VI - IRB Tumkur Chitradurga Tollway Limited

Discounted Cash Flow analysis

DISCOUNTED CASH FLOW ANALYSIS (Free Cash Flows to Firm or FCFF Model; No of days operations)		FY19 182	FY20 366	FY21 365	FY22 365	FY23 365
Net Sales (a)		1,270.7	2,761.4	3,090.7	3,462.5	3,826.3
Growth Rate		*nmf*	*117.3%*	*11.9%*	*12.0%*	*10.5%*
Earnings Before Interest, Depreciation & Amortization and Tax (a)		**1,274.8**	**2,221.4**	**2,980.7**	**3,342.5**	**3,706.3**
Margin		*100.3%*	*80.4%*	*96.4%*	*96.5%*	*96.9%*
Less: Depreciation & Amortization		753.9	1,495.7	1,674.1	1,875.5	2,072.5
Less: Interest on Premium Deferment (b)		136.4	311.0	333.9	368.3	414.8
Earnings Before Interest and Tax		**384.4**	**414.6**	**972.7**	**1,098.8**	**1,218.9**
Income Tax (c)		84.8	89.4	209.6	236.8	262.7
Gross Free Cash Flows to Firm		**299.7**	**325.2**	**763.1**	**862.0**	**956.2**
Add: Depreciation & Amortization		753.9	1,495.7	1,674.1	1,875.5	2,072.5
Add: Interest on Premium Deferment		136.4	311.0	333.9	368.3	414.8
Less: Capex		-	-	-	-	-
Less: Premium along with interest on Deferment paid to NHAI (b)		691.2	2,076.6	2,242.8	2,057.6	2,238.4
Less/(Add): Increase/(Decrease) in DSRA		-	-	-	-	-
Less/(Add): Increase/(Decrease) in Working Capital		-	-	-	-	-
Net Free Cash Flows to Firm		**498.8**	**55.4**	**528.3**	**1,048.1**	**1,205.1**
Present Value Periods in Years (Mid Year Discounting)						
Present Value Factors (d)	12.0%	0.9722	0.8932	0.7977	0.7124	0.6363
Present Value of Free Cash Flows to Firm		**485.0**	**49.5**	**421.5**	**746.7**	**766.8**

Gross Enterprise Value	**13,267.0**

Footnotes:

INR: Indian Rupees; Mns.: Millions; FY: Financial Year; Tumkur: IRB TUMKUR CHITRADURGA TOLLWAY PRIVATE LIMITED

(a) Projections for the Financial Years from FY19 to FY38 based on the expected tenure of the project, as provided by the management of IRB Infrastructure Private Limited ("Management").

(b) NHAI has granted approval in principle to Tumkur for the deferment of the premium payable to NHAI. The interest @11% is to be given by the company to NHAI on the deferred premium. As informed to us by the Management, the company is capitalizing the interest on premium deferment in the initial years and then paying it off along with the principle amount.

(c) Effective tax rate has been applied after considering 80IA benefits and applicable MAT credit (if any) in the projected period as confirmed to us by the Managment.

(d) Present Value factors have been considered based on the WACC of the Project.

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DISCOUNTED CASH FLOW ANALYSIS	Financial Year Ending 31 March						
(Free Cash Flows to Firm or FCFF Model)	FY24	FY25	FY26	FY27	FY28	FY29	FY30
No of days operations)	366	365	365	365	366	365	365
Net Sales (a)	4,274.8	4,708.4	5,186.3	5,722.3	6,382.0	7,018.3	7,766.0
Growth Rate	*11.7%*	*10.1%*	*10.1%*	*10.3%*	*11.5%*	*10.0%*	*10.7%*
Earnings Before Interest, Depreciation & Amortization and Tax (a)	**4,144.8**	**4,028.4**	**5,046.3**	**5,572.3**	**6,222.0**	**6,848.3**	**6,896.0**
Margin	*97.0%*	*85.6%*	*97.3%*	*97.4%*	*97.5%*	*97.6%*	*88.8%*
Less: Depreciation & Amortization	2,315.4	2,550.3	2,809.1	3,099.5	3,456.8	3,801.4	4,206.4
Less: Interest on Premium Deferment (b)	484.0	520.4	491.5	432.7	290.8	94.4	-
Earnings Before Interest and Tax	**1,345.3**	**957.7**	**1,745.6**	**2,040.2**	**2,474.5**	**2,952.5**	**2,689.6**
Income Tax (c)	289.9	206.4	376.2	439.6	533.2	636.2	579.6
Gross Free Cash Flows to Firm	**1,055.4**	**751.3**	**1,369.4**	**1,600.6**	**1,941.3**	**2,316.3**	**2,110.0**
Add: Depreciation & Amortization	2,315.4	2,550.3	2,809.1	3,099.5	3,456.8	3,801.4	4,206.4
Add: Interest on Premium Deferment	484.0	520.4	491.5	432.7	290.8	94.4	-
Less: Capex	-	-	-	-	-	-	-
Less: Premium along with interest on Deferment paid to NIIAI (b)	1,836.5	3,417.5	3,751.4	4,357.6	5,931.4	5,694.1	3,378.9
Less/(Add): Increase/(Decrease) in DSRA	-	-	-	-	-	-	-
Less/(Add): Increase/(Decrease) in Working Capital	-	-	-	-	-	-	-
Net Free Cash Flows to Firm	**2,018.4**	**404.6**	**918.7**	**775.2**	**(242.5)**	**517.9**	**2,937.5**
Present Value Periods in Years (Mid Year Discounting)							
Present Value Factors (d)	0.5682	0.5075	0.4532	0.4048	0.3615	0.3228	0.2883
Present Value of Free Cash Flows to Firm	**1,146.9**	**205.3**	**416.4**	**313.8**	**(87.7)**	**167.2**	**847.0**

DISCOUNTED CASH FLOW ANALYSIS	Financial Year Ending 31 March							
(Free Cash Flows to Firm or FCFF Model)	FY31	FY32	FY33	FY34	FY35	FY36	FY37	FY38
No of days operations)	365	366	365	365	365	366	365	88
Net Sales (a)	8,549.3	9,412.1	10,316.4	11,317.8	12,441.7	13,647.2	14,930.6	3,929.8
Growth Rate	*10.1%*	*10.1%*	*9.6%*	*9.7%*	*9.9%*	*9.7%*	*9.4%*	*9.2%*
Earnings Before Interest, Depreciation & Amortization and Tax (a)	**8,369.3**	**9,222.1**	**10,116.4**	**11,107.8**	**11,331.7**	**13,417.2**	**14,680.6**	**3,866.5**
Margin	*97.9%*	*98.0%*	*98.1%*	*98.1%*	*91.1%*	*98.3%*	*98.3%*	*98.4%*
Less: Depreciation & Amortization	4,630.7	5,098.1	5,587.9	6,130.3	6,739.0	7,392.0	8,087.2	2,128.6
Less: Interest on Premium Deferment (b)	-	-	-	-	-	-	-	-
Earnings Before Interest and Tax	**3,738.6**	**4,124.1**	**4,528.5**	**4,977.5**	**4,592.7**	**6,025.2**	**6,593.5**	**1,737.9**
Income Tax (c)	805.6	888.7	975.8	1,072.6	989.7	1,298.4	1,420.8	374.5
Gross Free Cash Flows to Firm	**2,933.0**	**3,235.4**	**3,552.7**	**3,904.9**	**3,603.0**	**4,726.8**	**5,172.7**	**1,363.4**
Add: Depreciation & Amortization	4,630.7	5,098.1	5,587.9	6,130.3	6,739.0	7,392.0	8,087.2	2,128.6
Add: Interest on Premium Deferment	-	-	-	-	-	-	-	-
Less: Capex	-	-	-	-	-	-	-	-
Less: Premium along with interest on Deferment paid to NHAI (b)	3,547.8	3,725.2	3,911.5	4,107.1	4,312.4	4,528.0	4,754.4	832.0
Less/(Add): Increase/(Decrease) in DSRA	-	-	-	-	-	-	-	-
Less/(Add): Increase/(Decrease) in Working Capital	-	-	-	-	-	-	-	-
Net Free Cash Flows to Firm	**4,015.9**	**4,608.2**	**5,229.1**	**5,928.1**	**6,029.6**	**7,590.8**	**8,505.4**	**2,660.0**
Present Value Periods in Years (Mid Year Discounting)								
Present Value Factors (d)	0.2575	0.2300	0.2054	0.1834	0.1638	0.1463	0.1307	0.1218
Present Value of Free Cash Flows to Firm	**1,034.1**	**1,059.8**	**1,074.0**	**1,087.4**	**987.7**	**1,110.5**	**1,111.3**	**324.0**

Weighted Average Cost of Capital

Cost of Equity Calculation	Value
Risk Free Rate (a)	8.2%
Relevered Beta (b)	0.76
Equity Risk Premium (c)	7.4%
Base Cost of Equity	**13.9%**
Project Specific Risk Premium	0.0%
Adjusted Cost of Equity	**13.9%**

Cost of Debt Calculation	Value
Cost of Debt (d)	**8.6%**
Less: Tax (e)	21.5%
Post-tax Cost Of Debt	6.7%

WACC Calculation	Weight (f)	Value
Debt	26.4%	6.7%
Equity	73.6%	13.9%
Adjusted Cost Of Capital		**12.0%**

Footnotes:

ERP: Equity Risk Premium; CSRP: Company Specific Risk Premium; D/E: Debt to Equity

(a) Risk Free Rate is based on 10 Year Wholesale Debt Market Zero Coupon Bond Yield as of 28 September 2018. Source: CCIL

(b) Companies in the construction and engineering segment, and having more than 50% revenues from the road infrastructure have been selected. Beta has been considered based on 5 yr trailing average Beta of comparable companies, relevered for company D/E of InvIT and effective taxes.

(c) Equity Risk Premium based on Grant Thornton research on ERP for emerging markets.

(d) Marginal cost of raising debt for each SPV is based on the prevailing interest rate as on the Valuation Date.

(e) Effective tax rate has been considered as applicable throughout the projected period.

(f) Debt to equity ratio is based on the capital structure of the IRB InvIT Fund as on the Valuation Date.

Appendix VII - IRB Talegaon Amravati Tollway Limited

Discounted Cash Flow analysis

DISCOUNTED CASH FLOW ANALYSIS		Financial Year Ending 31 March					
(Free Cash Flows to Firm or FCFF Model)		FY19	FY20	FY21	FY22	FY23	FY24
No of days operational		182	366	365	365	365	366
Net Sales (a)		373.1	804.6	899.6	1,006.7	1,122.5	1,254.2
Growth Rate		*nmf*		*11.8%*	*11.9%*	*11.5%*	*11.7%*
Earnings Before Interest, Depreciation & Amortization and Tax (a)		**306.1**	**583.6**	**736.2**	**526.5**	**626.7**	**1,064.7**
Margin		*82.0%*	*72.5%*	*81.8%*	*52.3%*	*55.8%*	*84.9%*
Less: Depreciation & Amortization		58.7	122.6	137.0	153.4	171.0	191.0
Earnings Before Interest and Tax		**247.4**	**461.1**	**599.2**	**373.2**	**455.7**	**873.6**
Income Tax (b)		48.3	99.4	129.1	80.4	98.2	188.3
Gross Free Cash Flows to Firm		**199.1**	**361.7**	**470.1**	**292.8**	**357.5**	**685.3**
Add: Depreciation & Amortization		58.7	122.6	137.0	153.4	171.0	191.0
Less/(Add): Increase/(Decrease) in DSRA		0.0	0.0	0.0	0.0	0.0	0.0
Less/(Add): Increase/(Decrease) in Working Capital		0.0	0.0	0.0	0.0	0.0	0.0
Net Free Cash Flows to Firm		**257.9**	**484.2**	**607.1**	**446.1**	**528.5**	**876.4**
Present Value Periods in Years (Mid Year Discounting)							
Present Value Factors (c)	12.0%	0.97	0.89	0.80	0.71	0.64	0.57
Present Value of Free Cash Flows to Firm		**250.7**	**432.5**	**484.3**	**317.8**	**336.3**	**498.0**

Gross Enterprise Value of Talegaon (INR Mns.)	**8,155.3**

Footnotes:

INR: Indian Rupees; Crs.: Crores; FY: Financial Year; Talegaon: Talegaon Amravati Toll Road Pvt. Ltd.

(a) Projections for the Financial Years from FY19 to FY37 based on the expected tenure of the project, as provided by the management of IRB Infrastructure Private Limited ("Management")

(b) Effective tax rate has been applied after considering 80IA benefits and applicable MAT credit (if any) in the projected period as confirmed to us by the Managment.

(c) Present Value factors have been considered based on the WACC of the Project.

Chartered Accountants

WALKER CHANDIOK & Co LLP MUMBAI CHARTERED ACCOUNTANTS

DISCOUNTED CASH FLOW ANALYSIS	Financial Year Ending 31 March					
(Free Cash Flows to Firm or FCFF Model)	FY25	FY26	FY27	FY28	FY29	FY30
No of days operational	365	365	365	366	365	365
Net Sales (a)	1,390.5	1,541.8	1,710.6	1,896.2	2,095.1	2,325.7
Growth Rate	*10.9%*	*10.9%*	*11.0%*	*10.8%*	*10.5%*	*11.0%*
Earnings Before Interest, Depreciation & Amortization and Tax (a)	**1,191.5**	**1,332.8**	**1,491.2**	**1,246.2**	**1,395.1**	**2,071.2**
Margin	*85.7%*	*86.4%*	*87.2%*	*65.7%*	*66.6%*	*89.1%*
Less: Depreciation & Amortization	211.8	234.9	260.6	288.8	319.1	354.3
Earnings Before Interest and Tax	**979.7**	**1,098.0**	**1,230.7**	**957.3**	**1,076.0**	**1,716.9**
Income Tax (b)	211.1	236.6	265.2	206.3	231.9	370.0
Gross Free Cash Flows to Firm	**768.6**	**861.4**	**965.5**	**751.0**	**844.1**	**1,346.9**
Add: Depreciation & Amortization	211.8	234.9	260.6	288.8	319.1	354.3
Less/(Add): Increase/(Decrease) in DSRA	0.0	0.0	0.0	0.0	0.0	0.0
Less/(Add): Increase/(Decrease) in Working Capital	0.0	0.0	0.0	0.0	0.0	0.0
Net Free Cash Flows to Firm	**980.4**	**1,096.2**	**1,226.0**	**1,039.9**	**1,163.2**	**1,701.2**
Present Value Periods in Years (Mid Year Discounting)						
Present Value Factors (c)	0.51	0.45	0.40	0.36	0.32	0.29
Present Value of Free Cash Flows to Firm	**497.5**	**496.8**	**496.3**	**375.9**	**375.5**	**490.5**

DISCOUNTED CASH FLOW ANALYSIS	Financial Year Ending 31 March						
(Free Cash Flows to Firm or FCFF Model)	FY31	FY32	FY33	FY34	FY35	FY 36	FY 37
No of days operational	365	366	365	365	365	366	325
Net Sales (a)	2,557.8	2,835.9	3,123.1	3,446.5	3,797.6	4,182.2	4,109.7
Growth Rate	*10.0%*	*10.9%*	*10.1%*	*10.4%*	*10.2%*	*10.1%*	*-1.7%*
Earnings Before Interest, Depreciation & Amortization and Tax (a)	**2,290.6**	**2,555.3**	**2,828.5**	**2,644.5**	**2,897.6**	**3,840.4**	**3,750.9**
Margin	*89.6%*	*90.1%*	*90.6%*	*76.7%*	*76.3%*	*91.8%*	*91.3%*
Less: Depreciation & Amortization	389.6	432.0	475.7	525.0	578.5	637.1	626.0
Earnings Before Interest and Tax	**1,901.0**	**2,123.3**	**2,352.8**	**2,119.5**	**2,319.1**	**3,203.4**	**3,124.9**
Income Tax (b)	409.6	457.6	507.0	456.7	499.7	690.3	673.4
Gross Free Cash Flows to Firm	**1,491.4**	**1,665.7**	**1,845.8**	**1,662.8**	**1,819.4**	**2,513.1**	**2,451.5**
Add: Depreciation & Amortization	389.6	432.0	475.7	525.0	578.5	637.1	626.0
Less/(Add): Increase/(Decrease) in DSRA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Less/(Add): Increase/(Decrease) in Working Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Free Cash Flows to Firm	**1,881.0**	**2,097.7**	**2,321.5**	**2,187.8**	**2,397.9**	**3,150.1**	**3,077.5**
Present Value Periods in Years (Mid Year Discounting)							
Present Value Factors (c)	0.26	0.23	0.21	0.18	0.16	0.15	0.13
Present Value of Free Cash Flows to Firm	**484.4**	**482.4**	**476.8**	**401.3**	**392.8**	**460.9**	**404.6**

Weighted Average Cost of Capital

Cost of Equity Calculation	Value
Risk Free Rate (a)	8.2%
Relevered Beta (b)	0.76
Equity Risk Premium (c)	7.4%
Base Cost of Equity	**13.9%**
Project Specific Risk Premium	0.0%
Adjusted Cost of Equity	**13.9%**

Cost of Debt Calculation	Value
Cost of Debt (d)	**8.6%**
Less: Tax (e)	21.5%
Post-tax Cost Of Debt	6.7%

WACC Calculation	Weight (f)	Value
Debt	26.4%	6.7%
Equity	73.6%	13.9%
Adjusted Cost Of Capital		**12.0%**

Footnotes:

ERP: Equity Risk Premium; CSRP: Company Specific Risk Premium; D/E: Debt to Equity

(a) Risk Free Rate is based on 10 Year Wholesale Debt Market Zero Coupon Bond Yield as of 28 September 2018. Source: CCIL

(b) Companies in the construction and engineering segment, and having more than 50% revenues from the road infrastructure have been selected. Beta has been considered based on 5 yr trailing average Beta of comparable companies, relevered for company D/E of InvIT and effective taxes.

(c) Equity Risk Premium based on Grant Thornton research on ERP for emerging markets.

(d) Marginal cost of raising debt for each SPV is based on the prevailing interest rate as on the Valuation Date.

(e) Effective tax rate has been considered as applicable throughout the projected period.

(f) Debt to equity ratio is based on the capital structure of the IRB InvIT Fund as on the Valuation Date.

Appendix VIII - MVR Infrastructure & Tollways Limited

Discounted Cash Flow analysis

DISCOUNTED CASH FLOW ANALYSIS		Financial Year Ending 31 March								
(Free Cash Flows to Firm or FCFF Model)		FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
No of days operational		182	366	365	365	365	366	365	365	174
Net Sales (a)		410.1	842.7	941.4	1,049.5	1,167.4	1,296.2	1,431.8	1,578.1	734.5
Growth Rate			*nmf*	*11.7%*	*11.5%*	*11.2%*	*11.0%*	*10.5%*	*10.2%*	*-53.5%*
Earnings Before Interest, Depreciation & Amortization and Tax (a)		266.5	605.0	870.5	975.1	1,089.2	996.9	1,128.4	1,487.6	639.5
Margin		*65.0%*	*71.8%*	*92.5%*	*92.9%*	*93.3%*	*76.9%*	*78.8%*	*94.3%*	*87.1%*
Less: Depreciation & Amortization		137.1	262.7	293.5	327.2	363.9	404.1	446.3	491.9	229.0
Earnings Before Interest and Tax		129.3	342.3	577.0	647.9	725.3	592.9	682.1	995.7	410.5
Income Tax (b)		31.95	73.8	124.3	139.6	156.3	127.8	147	214.6	88.5
Gross Free Cash Flows to Firm		97.4	268.5	452.7	508.3	569.0	465.1	535.1	781.1	322.0
Add: Depreciation & Amortization		137.1	262.7	293.5	327.2	363.9	404.1	446.3	491.9	229.0
Less: Negative grant payable to NHAI		-	-	-	-	-	-	-	-	-
Less/(Add): Increase/(Decrease) in Working Capital		-	-	-	-	-	-	-	-	-
Net Free Cash Flows to Firm		234.5	531.2	746.2	835.5	932.9	869.1	981.4	1,273.0	551.0
Present Value Periods in Years (Mid Year Discounting)										
Present Value Factors (c)	12.0%	0.9722	0.8932	0.7977	0.7124	0.6363	0.5682	0.5075	0.4532	0.4169
Present Value of Free Cash Flows to Firm		228.0	474.4	595.2	595.2	593.6	493.9	498.1	577.0	229.7
Gross Enterprise Value of MVR (INR Mns.)		4,285.0								

Footnotes:

INR: Indian Rupees; Mns.: Millions; FY: Financial Year; MVR: MVR Infrastructure and Tollway Pvt. Ltd.

(a) Projections for the Financial Years from FY19 to FY27 based on the expected tenure of the project, as provided by the management of IRB Infrastructure Private Limited ("Management").

(b) Effective tax rate has been applied after considering 80IA benefits and applicable MAT credit (if any) in the projected period as confirmed to us by the Management.

(c) Present Value factors have been considered based on the WACC of the Project.

Weighted Average Cost of Capital

Cost of Equity Calculation	Value
Risk Free Rate (a)	8.2%
Relevered Beta (b)	0.76
Equity Risk Premium (c)	7.4%
Base Cost of Equity	**13.9%**
Project Specific Risk Premium	0.0%
Adjusted Cost of Equity	**13.9%**

Cost of Debt Calculation	Value
Cost of Debt (d)	**8.6%**
Less: Tax (e)	21.5%
Post-tax Cost Of Debt	6.7%

WACC Calculation	Weight (f)	Value
Debt	26.4%	6.7%
Equity	73.6%	13.9%
Adjusted Cost Of Capital		**12.0%**

Footnotes:

ERP: Equity Risk Premium; CSRP: Company Specific Risk Premium; D/E: Debt to Equity

(a) Risk Free Rate is based on 10 Year Wholesale Debt Market Zero Coupon Bond Yield as of 28 September 2018. Source: CCIL

(b) Companies in the construction and engineering segment, and having more than 50% revenues from the road infrastructure have been selected. Beta has been considered based on 5 yr trailing average Beta of comparable companies, relevered for company D/E of InvIT and effective taxes.

(c) Equity Risk Premium based on Grant Thornton research on ERP for emerging markets.

(d) Marginal cost of raising debt for each SPV is based on the prevailing interest rate as on the Valuation Date.

(e) Effective tax rate has been considered as applicable throughout the projected period.

(f) Debt to equity ratio is based on the capital structure of the IRB InvIT Fund as on the Valuation Date.

WALKER CHANDIOK & CO LLP CHARTERED ACCOUNTANTS

Appendix IX - IRB Pathankot Amritsar Toll Road Limited

Discounted Cash Flow analysis

DISCOUNTED CASH FLOW ANALYSIS		Financial Year Ending 31 March								
(Free Cash Flows to Firm or F.C.F. Model)		FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
No. of days operations)		182	366	365	365	365	366	365	365	365
Net Sales (a)		674.1	1,527.7	1,705.8	1,909.1	2,116.1	2,339.1	2,576.7	2,842.7	3,136.3
Growth Rate			*nml*	*11.7%*	*11.9%*	*10.8%*	*10.5%*	*10.2%*	*10.3%*	*10.3%*
Earnings Before Interest, Depreciation & Amortization and Tax (a)		453.0	1,157.2	1,324.9	1,517.4	1,751.5	1,950.7	2,173.0	2,425.8	2,705.4
Margin		*67.2%*	*75.7%*	*77.7%*	*79.5%*	*82.8%*	*83.4%*	*84.3%*	*85.3%*	*86.3%*
Less: Depreciation & Amortization		67.6	383.4	428.1	479.2	531.1	587.1	646.7	713.5	787.2
Earnings Before Interest and Tax		385.4	773.8	896.8	1,038.2	1,220.3	1,363.6	1,526.2	1,712.3	1,918.2
Income Tax (b)		62.6	166.7	193.2	223.7	263.1	293.8	328.9	369.0	413.4
Gross Free Cash Flows to Firm		322.8	607.1	703.6	814.5	957.4	1,069.7	1,197.3	1,343.3	1,504.9
Add: Depreciation & Amortization		67.6	385.4	428.1	479.2	531.1	587.1	646.7	713.5	787.2
Less: Capex		-	-	-	-		-	-	-	-
Add: Major Maintenance and O&M Expenses provision		81.5	163.0	163.0	163.0	138.9	138.9	138.9	138.9	138.9
Less: Major Maintainence and O&M Expenses Payment		-	300.5	276.9	237.7	-	-	323.7	292.9	77.9
Less/(Add): Increase/(Decrease) in DSRA		-	-	-	-	-	-	-	-	-
Less/(Add): Increase/(Decrease) in Working Capital		-	-	-	-	-	-	-	-	-
Net Free Cash Flows to Firm		471.9	853.0	1,017.8	1,219.0	1,627.4	1,795.7	1,659.3	1,902.8	2,353.1
Present Value Periods in Years (Mid Year Discounting)										
Present Value Factors (c)	12.0%	0.972	0.893	0.798	0.712	0.636	0.568	0.507	0.453	0.405
Present Value of Free Cash Flows to Firm		458.8	761.9	811.9	868.4	1,035.4	1,020.4	842.1	862.4	952.5
Gross Enterprise Value of IRB PATRPL (INR Mns.)		14,350.4								

Footnotes:

INR: Indian Rupees; Mns.: Millions; FY: Financial Year; IRB PATRL: IRB Pathankot Amritsar Toll Road Limited

(a) Projections for the Financial Years from FY19 to FY35 based on the expected tenure of the project, as provided by the management of IRB Infrastructure Developers Limited ("Management").

(b) Effective tax rate has been applied after considering 80IA benefits and applicable MAT credit (if any) in the projected period as confirmed to us by the Management.

(c) Present Value factors have been considered based on the WACC of the Project.

DISCOUNTED CASH FLOW ANALYSIS (Free Cash Flows to Firm or FCFF Model)	Financial Year Ending 31 March							
No of days operations)	FY28 366	FY29 365	FY30 365	FY31 365	FY32 366	FY33 365	FY34 365	FY35 297
Net Sales (a)	3,442.0	3,759.1	4,108.0	4,500.0	4,935.8	5,336.9	5,780.1	5,114.3
Growth Rate	*9.7%*	*9.2%*	*9.3%*	*9.5%*	*9.7%*	*8.1%*	*8.3%*	*-11.5%*
Earnings Before Interest, Depreciation & Amortization and Tax (a)	**3,001.9**	**3,302.9**	**3,635.7**	**4,071.6**	**4,499.4**	**4,892.5**	**5,327.7**	**4,653.9**
Margin	*87.2%*	*87.9%*	*88.5%*	*90.5%*	*91.2%*	*91.7%*	*92.2%*	*91.0%*
Less: Depreciation & Amortization	863.9	943.5	1,031.1	1,129.5	1,238.9	1,339.5	1,450.8	1,283.7
Earnings Before Interest and Tax	**2,137.9**	**2,359.3**	**2,604.6**	**2,942.1**	**3,260.5**	**3,553.0**	**3,877.0**	**3,370.3**
Income Tax (b)	460.7	508.4	561.3	634.0	702.6	765.6	835.4	726.3
Gross Free Cash Flows to Firm	**1,677.2**	**1,850.9**	**2,043.3**	**2,308.1**	**2,557.9**	**2,787.4**	**3,041.5**	**2,644.0**
Add: Depreciation & Amortization	863.9	943.5	1,031.1	1,129.5	1,238.9	1,339.5	1,450.8	1,283.7
Less: Capex	-	-	-	-	-	-	-	-
Add: Major Maintenance and O&M Expenses provision	134.4	134.4	134.4	134.4	134.4	134.4	134.4	134.4
Less: Major Maintainence and O&M Expenses Payment	-	330.3	745.2	-	-	-	-	-
Less/(Add): Increase/(Decrease) in DSRA	-	-	-	-	-	-	-	-
Less/(Add): Increase/(Decrease) in Working Capital	-	-	-	-	-	-	-	-
Net Free Cash Flows to Firm	**2,675.6**	**2,598.6**	**2,463.6**	**3,572.0**	**3,931.2**	**4,261.3**	**4,626.7**	**4,062.1**
Present Value Periods in Years (Mid Year Discounting)								
Present Value Factors (c) 12.0%	0.361	0.323	0.288	0.258	0.230	0.205	0.183	0.166
Present Value of Free Cash Flows to Firm	**967.2**	**838.9**	**710.3**	**919.8**	**904.1**	**875.2**	**848.6**	**672.5**

Weighted Average Cost of Capital

Cost of Equity Calculation	Value
Risk Free Rate (a)	8.2%
Relevered Beta (b)	0.76
Equity Risk Premium (c)	7.4%
Base Cost of Equity	**13.9%**
Project Specific Risk Premium	0.0%
Adjusted Cost of Equity	**13.9%**

Cost of Debt Calculation	Value
Cost of Debt (d)	**8.6%**
Less: Tax (e)	21.5%
Post-tax Cost Of Debt	6.7%

WACC Calculation	Weight (f)	Value
Debt	26.4%	6.7%
Equity	73.6%	13.9%
Adjusted Cost Of Capital		12.0%

Footnotes:

ERP: Equity Risk Premium; CSRP: Company Specific Risk Premium; D/E: Debt to Equity

(a) Risk Free Rate is based on 10 Year Wholesale Debt Market Zero Coupon Bond Yield as of 28 September 2018. Source: CCIL

(b) Companies in the construction and engineering segment, and having more than 50% revenues from the road infrastructure have been selected. Beta has been considered based on 5 yr trailing average Beta of comparable companies, relevered for company D/E of InvIT and effective taxes.

(c) Equity Risk Premium based on Grant Thornton research on ERP for emerging markets.

(d) Marginal cost of raising debt for each SPV is based on the prevailing interest rate as on the Valuation Date.

(e) Effective tax rate has been considered as applicable throughout the projected period.

(f) Debt to equity ratio is based on the capital structure of the IRB InvIT Fund as on the Valuation Date.

Appendix X - Estimates of major repairs to be carried out by each of the SPVs

IDAA Infrastructure Limited

Major repairs	FY19	FY20	FY21	FY22
Estimate of major repairs	0.00	220.60	0.00	719.60

IRB Surat Dahisar Tollway Limited

Major repairs	FY19	FY20	FY21	FY22
Estimate of major repairs	403.88	479.97	0.00	0.00

IRB Talegaon Amravati Tollway Limited

Major repairs	FY19	FY20	FY21	FY22	FY23
Estimate of major repairs	0.00	38.20	0.00	210.50	210.50

Major repairs	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Estimate of major repairs	0.00	0.00	0.00	0.00	254.70	254.70	0.00

Major repairs	FY31	FY32	FY33	FY34	FY35	FY36	FY37
Estimate of major repairs	0.00	0.00	0.00	216.50	216.50	0.00	0.00

IRB Jaipur Deoli Tollway Limited

Major repairs	FY19	FY20	FY21	FY22	FY23
Estimate of major repairs	-	411.40	375.50	411.40	-

Major repairs	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Estimate of major repairs	-	-	-	443.50	471.80	443.50	-

Major repairs	FY31	FY32	FY33	FY34	FY35	FY36	FY37	FY38
Estimate of major repairs	0.00	0.00	37.00	375.50	250.90	0.00	0.00	0.00

IRB Tumkur Chitradurga Tollway Limited

Major repairs	FY19	FY20	FY21	FY22	FY23
Estimate of major repairs	0.00	328.20	0.00	0.00	0.00

Major repairs	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Estimate of major repairs	0.00	328.20	0.00	0.00	0.00	0.00	328.20

Major repairs	FY31	FY32	FY33	FY34	FY35	FY36	FY37	FY38
Estimate of major repairs	0.00	0.00	0.00	0.00	335.60	0.00	0.00	0.00

MVR

Major repairs	FY19	FY20	FY21	FY22	FY23
Estimate of major repairs	127.80	127.80	0.00	0.00	0.00

Major repairs	FY24	FY25	FY26	FY27
Estimate of major repairs	127.80	127.80	0.00	0.00

IRB Pathankot Amritsar Toll Road Limited

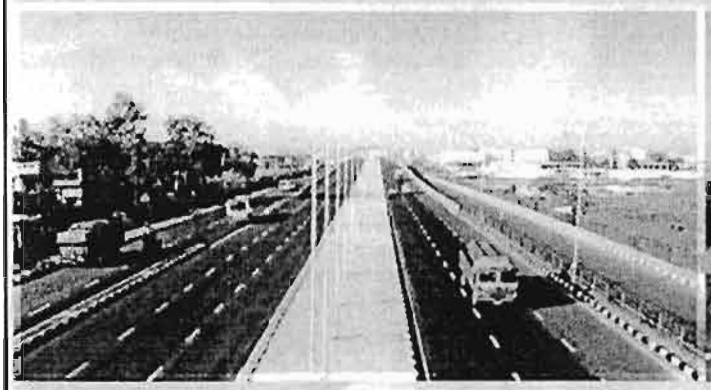
Major repairs	FY19	FY20	FY21	FY22	FY23	FY24
Estimate of major repairs	0.0	300.5	276.9	237.7	0.0	0.0

Major repairs	FY25	FY26	FY27	FY28	FY29	FY30	FY31
Estimate of major repairs	323.7	292.9	77.9	0.0	330.3	745.2	0.0

Major repairs	FY32	FY33	FY34	FY35
Estimate of major repairs	0.0	0.0	0.0	0.0

Annexure E

BHARUCH TO SURAT (KM 198.00 TO KM 263.00) SECTION OF NH-8 IN THE STATE OF GUJARAT



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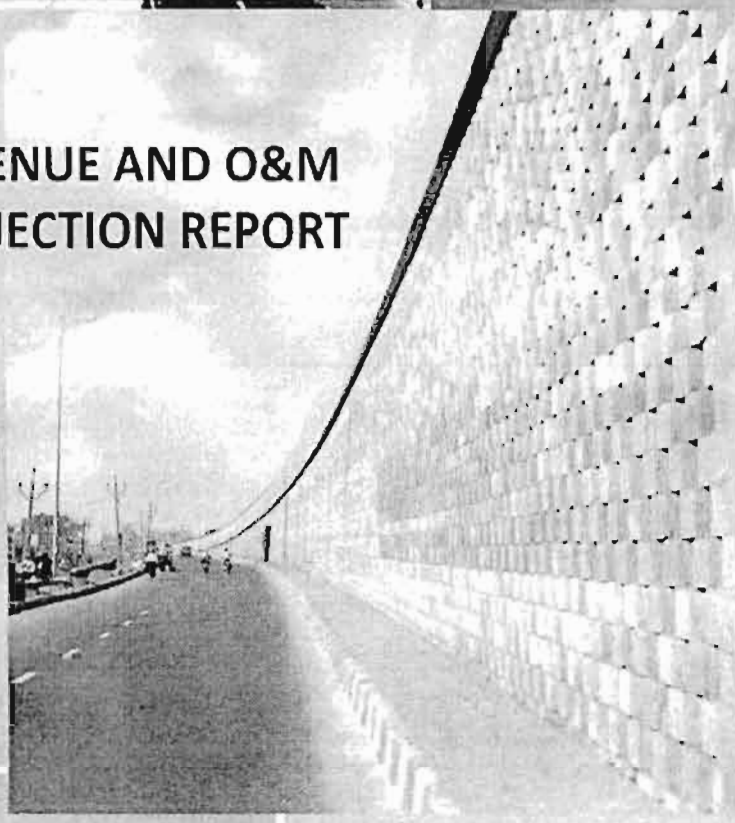

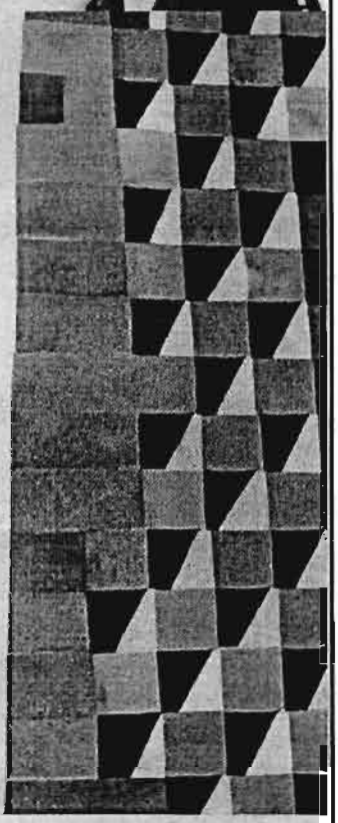

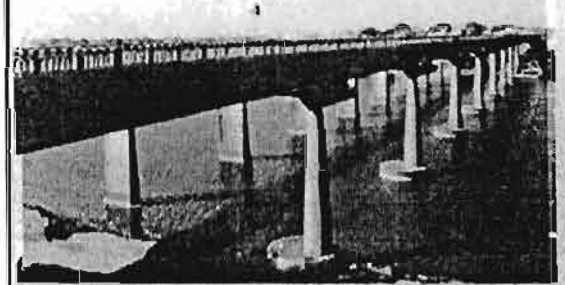

October 2018

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GMD
Adding Value

BHARUCH TO SURAT (KM 198.00 TO KM 263.000)

SECTION OF NH-8

IN THE STATE OF GUJARAT.

TOLL REVENUE AND O&M
COST PROJECTION REPORT

October 2018

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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, **Bharuch** and **Surat** section of NH-8 from km 198.000 to km 263.000 is one such road project NHAI intended to implement on a BOT basis in the DBFOT format. *M/s IDAA Infrastructure Ltd.* (Concessionaire) has been awarded the Project for concession period of 15 years starting from 2nd January 2007 to 1st January 2022. The Project has been commissioned and is currently in the operation / maintenance phase.

1.2 Objective of the Study

M/s IRB INVIT FUND 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 "***Toll Revenue and O&M Cost Projection Report***" mainly focuses on traffic and O&M 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
d) Operation and Maintenance Cost Projections

The Concessionaire has provided basic historical traffic data and other project details on the basis of which the above analysis has been carried out, after applying our judgement on the traffic estimates.

"***Toll Revenue and O&M Cost Projection Report***" was submitted in March 2017. In this report traffic data of year 2015-16 was used as base traffic. The report was updated with traffic data of year 2016-17 and report was submitted in October 2017. Report was further updated with traffic data of 2017-18 and same was submitted in April 2018. Now this report is updated taking traffic data of April 2018 to September 2018 as base traffic data for projection of traffic and revenue. Impact of major economic events like de-monetization and implementation of GST have also been considered in this update on "***Toll Revenue and O&M Cost Projection Report***"

Chapters on Project Details, Influence Zone Traffic Analysis have not been included in this update as there has been no significant event or change in the last 1 year which will have an impact on these chapters in our report dated March 2018

CHAPTER 2

TRAFFIC SURVEYS AND ANALYSIS

2.1 Traffic Surveys

The Consultants have collected required information in connection with the project corridor to understand the general traffic and travel characteristics on the corridor.

The following traffic data has been collected for project

- Classified traffic volume counts at toll plaza locations on Surat- Bharuch section of NH-8 for base year 2015-16, 2016-17 , 2017-18 and April-2018 to September -2018
- 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 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

Project can be divided into three homogenous sections from traffic point of view. These sections can be

- Bharuch to Ankleshwar
- Ankleshwar to Palod
- Palod to Surat

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Table 2-1below lists provides details of locations from where traffic details have been collected.

Table 2-1 : Traffic Data Details

SR. NO	LOCATION	CTV	Single Journey Traffic	Return Journey	Monthly Pass	Local Journey
1	Km 246.075 Toll Plaza	AADT for year 2015-2016	For Year 2015-2016	For Year 2015-2016	For Year 2015-2016	For Year 2015-2016
		AADT for year 2016-2017	For Year 2016-2017	For Year 2016-2017	For Year 2016-2017	For Year 2016-2017
		AADT for year 2017-2018	For Year 2017-2018	For Year 2017-2018	For Year 2017-2018	For Year 2017-2018
		AADT for period April 2018-September 2018	For period April 2018-September 2018	For period April 2018-September 2018	For period April 2018-September 2018	For period April 2018-September 2018

The locations of each of the traffic survey are illustrated in Figure 2-1.

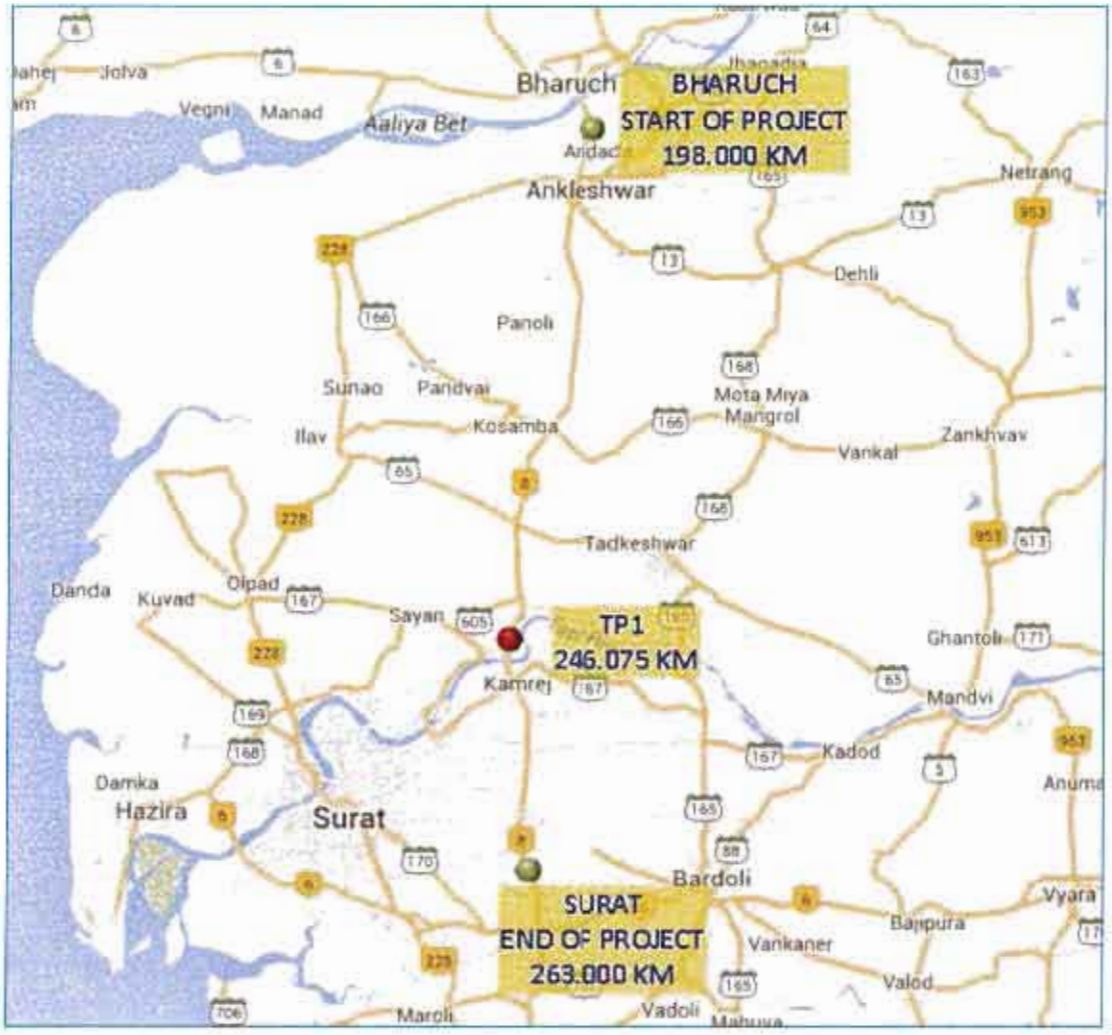

Figure 2-1: Toll Plaza Location

2.2 Classified Traffic Volume Count

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 concessionaire of the project highway from actual traffic data gathered at toll plaza based on monthly data shared with NHAI. These locations are indicated in ***Figure 2-1*** and listed in ***Table 2-1***.

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*** 2-2.

Table 2-2 : 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 a category of tollable vehicles. Following are the type of vehicles as per concession agreement.

- Car / Jeep / van
- LCV
- Truck / Bus
- Multi Axle

2.3 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.

2.3.1 Traffic Data

Project concessionaire has provided Traffic data for base year 2015-16, 2016-17, 2017-18 and for period April-2018 to September-2018 as under for toll plaza

Table 2-3 : Traffic Data at Toll Plaza at Km 246.075

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.) – FY 2015-16	Annual Average Daily Traffic (Nos.) – FY 2016-17	Annual Average Daily Traffic (Nos.) – FY 2017-18	Annual Average Daily Traffic (Nos.) April 18 – September 18
1	CAR	6517	6337	6418	6538
2	LCV	4608	4782	4950	5339
3	Truck/Bus	5042	5089	5355	581
4	Multi Axle	9598	9836	10428	11543
	Total	**25766**	**26044**	**27151**	**29000**

The above data was arrived at by applying standard trip frequencies to monthly passes and return journey tickets issued. There was an all India level truckers strike for 9 days from 20th July 2018 to 28th July 2018 in which truck traffic was badly impacted. The same is taken into consideration while working out AADT. Available traffic data is for the period from April-2018 to September -2018 only. Hence, to arrive at annual average daily traffic, a biannual variation index of traffic has been applied based on previous year data.

2.4 Data Analysis

2.4.1 Analysis of Traffic Volume Count

Understanding the character of existing traffic forms the basis of 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 2-4 : 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 2-5 : Traffic in PCU at Project Stretch

Period	Toll Plaza Location	Traffic No	PCU	PCU Index
FY 2016	246.075	25766	71747	2.78
FY 2017	246.075	26044	73039	2.80
FY 2018	246.075	27151	76833	2.83
Apr-18 to Sept 18	246.075	29000	83231	2.87

It can be observed from above that project traffic has a PCU index close to 3 which indicates a higher component of commercial and goods traffic as compared to passenger traffic.

2.4.2 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.

For the purpose of analysis, the latest traffic numbers of period from April 2018 to September 2018 have been considered as the base numbers.

It is observed that car traffic forms only 23% of total traffic at toll plaza location 246.075 while as multi axle commercial vehicles comprise 40% of total traffic. Truck/ bus and LCV share 18% and 19 % of total traffic respectively. Over all about 70-75% of traffic is commercial in nature.

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)

Following table provides numbers of vehicle falling in each of above category on base year 2015-16 and 2016-17

Table 2-6 : Journey Type Bifurcation of Traffic at KM 246.075

Sr. No	Type	Traffic Volume (Nos.) for FY 2015-16	Traffic Volume (Nos.) for FY 2016-17	Traffic Volume (Nos.) for FY 2017-18	Traffic Volume (Nos.) Apr-18 - Sept 18
1	Single Journey	18012	18736	19068	20456
2	Return Journey	7306	7296	7864	8202
3	Monthly Pass	448	372	219	342

Single journey component in total traffic numbers is as high as 71%. Return journey component is 28%. Monthly pass is as low as 1%. The project corridor serves as a spinal link for long distance traffic between Mumbai and Delhi. Thus, it has a higher component of single journey tickets.

2.5 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 the various 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 3

GROWTH OF TRAFFIC ON PROJECT HIGHWAY

3.1 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 Bharuch - Surat section of NH-8 has been done taking above factors in to consideration. "**IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**" is established best practice and has been used for traffic growth forecast.

3.2 Trend Analysis

One of the methods of estimation of future rate of traffic growth is to assume the same rate of growth as experienced in the past. However, it may be noted that major influencing factors which reflect Economic conditions such as GDP, agricultural output, industrial output, national policies etc. are susceptible to change over a longer period of time and necessary adjustments need to be made to past trends to account for these changes.

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 past trends of any vehicular data are 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 class of vehicles. It is a proven fact that growth patterns for passenger and goods vehicles are different. Traffic growth on any highway typically depends on a number of economic parameters. The most important and direct parameters are given as under

- Per Capita Income
- Net State Domestic Product (NSDP)
- Population

It is observed that the ownership of a car is more closely related to affordability. Hence per capita is the index which closely fits with growth of car traffic among other criteria. In similar fashion, following pairs of vehicle type and independent variable can be established for elasticity modeling of growth.

- Car / Jeep – Par Capita Income
- Bus / Minibus – Population
- Trucks / Heavy / Goods Vehicle – NSDP

Time series data of vehicle (both passenger and goods) Registered in state of Maharashtra is used as the base data for analysis of growth.

3.3 Estimation of Traffic Demand Elasticity

Elasticity of traffic demand is defined as the rate at which traffic intensity varies due to change in the corresponding indicator selected. Hence, in order to estimate the elasticity of traffic demand, it is necessary to establish the relationship between the growth in number of given category of vehicle with one of the economic variables 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 as given 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).

Following tables and graphs depict regression and elasticity of growth model.

Table 3-1 : Per Capita Income Vs Car

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2004	24143	749963	4.38	5.88		
2005	28067	826832	4.45	5.92	16%	
2006	30332	912933	4.48	5.96	8%	
2007	31754	1004822	4.50	6.00	5%	
2008	33901	1093965	4.53	6.04	7%	
2009	36202	1210368	4.56	6.08	7%	
2010	38048	1378830	4.58	6.14	5%	
2011	38856	1579889	4.59	6.20	2%	
2012	39904	1775502	4.60	6.25	3%	6.6%

Regression analysis of same is given in f gure below

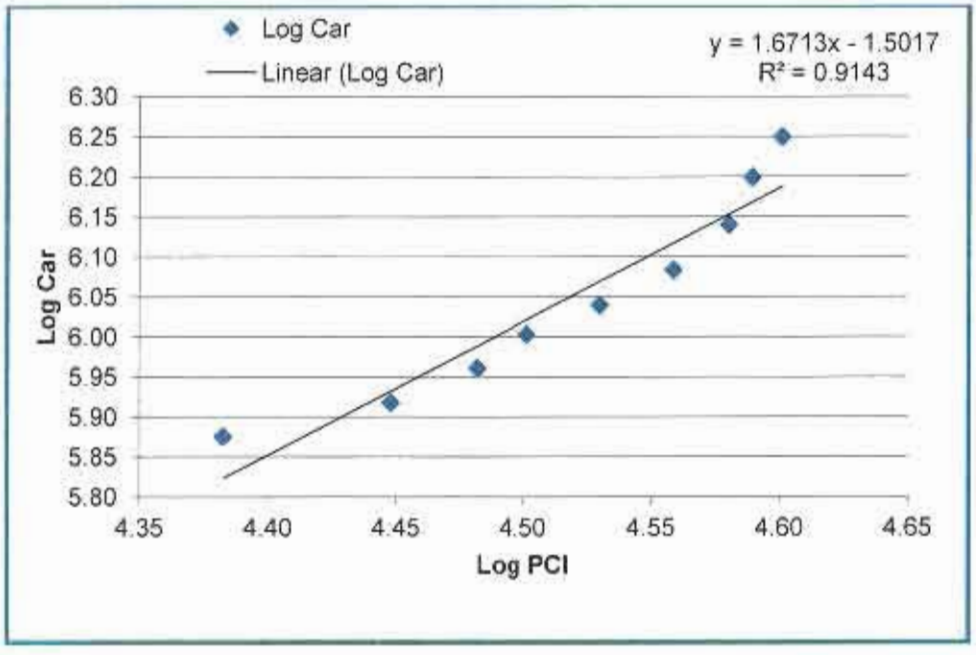

Figure 3-1: Regression and Elasticity PCI vs. Car–Extrapolation

Table 3-2 : Population Vs Bus

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2004	54140000	52286	7.73	4.72		
2005	54979000	54446	7.74	4.74	2%	
2006	55808000	54214	7.75	4.73	2%	
2007	56626000	56214	7.75	4.75	1%	
2008	57434000	58253	7.76	4.77	1%	
2009	58232000	68659	7.77	4.84	1%	
2010	59020000	73924	7.77	4.87	1%	
2011	59800000	80627	7.78	4.91	1%	
2012	60569000	87946	7.78	4.94	1%	
2013	61329000	93262	7.79	4.97	1%	
2014	62081000	96500	7.79	4.98	1%	1.38%

Regression analysis of same is given in figure below

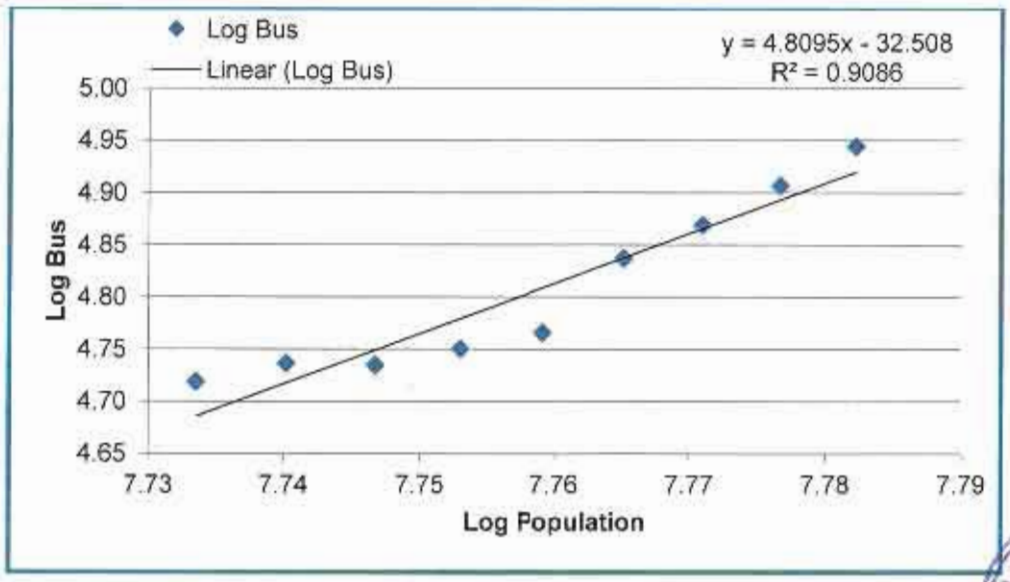

Figure 3-2: Regression and Elasticity Population vs. Bus – Extrapolation

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 3-3 : Goods Traffic Vs NSDP

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2004	17226500	418811	7.24	5.62		
2005	19727000	457702	7.30	5.66	15%	
2006	21395400	508880	7.33	5.71	8%	
2007	23925300	553792	7.38	5.74	12%	
2008	24948000	586598	7.40	5.77	4%	
2009	28473200	626344	7.45	5.80	14%	
2010	31589200	678804	7.50	5.83	11%	
2011	33688600	750491	7.53	5.88	7%	
2012	35647700	818484	7.55	5.91	6%	
2013	38547200	875103	7.59	5.94	8%	9.42%

Following figure depict regression analysis and extrapolation.

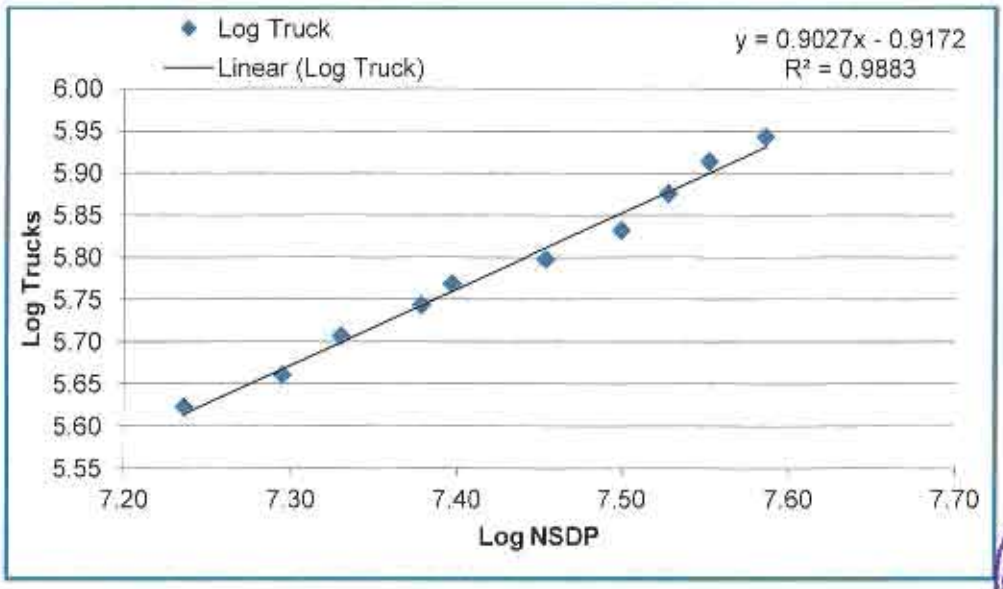

Figure 3-3: Regression and Elasticity NSDP vs. Goods Traffic – extrapolation

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. R^2 is statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R^2 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 3-4 : Summary Regression Analysis

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average Growth	Growth Elastic Model
Gujarat	Car/Jeep	PCI	y = 1.6713x - -1.5017	R^2 = 0.9143	1.6713	6.56%	10.96%
	Bus	Population	y = 4.8095x - -32.5085	R^2 = 0.9086	4.8095	1.38%	6.63%
	Truck	NSDP	y = 0.9027x - -0.9172	R^2 = 0.9883	0.9027	9.42%	8.50%

While the economic model for predicting growth is a good tool, other local, regional, national factors such as proposed developments etc. should also be considered before finalizing growth factors. These factors are discussed in subsequent sections.

3.4 Analysis of Historic Traffic Data

Historic traffic data forms useful information for any highway project. It provides useful information for establishing past trend of growth. Concessionaire has shared the traffic data of the project stretch from Surat to Bharuch on NH-8 since 2010. Following table provides historic traffic data at toll plaza location

Table 3-5 : Past Traffic at Project Stretch -

Vehicle Type / Year	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Car/Jeep/Van	4950	5747	5864	5507	5948	6517	6337	6418
LCV	2855	3127	3479	3633	4226	4608	4782	4950
Truck/Bus	5226	4775	5442	5026	5025	5042	5089	5355
Mutli Axle (> 2 axle)	8202	8210	8696	8607	9138	9598	9836	10428
TOTAL (NO)	21233	21859	23480	22773	24338	25766	26044	27151

It is observed that except in year 2013-14 traffic on project corridor has registered positive growth. It has grown at in the range of 6% to 7% in year 2014-15 and 2015-16. Then in year 2016-17, a temporary slowdown in growth was expected due to

impact of demonetization on the economy. It was observed that traffic volume dipped down considerably in months of November-2016 and December -2016. The traffic has registered good growth thereafter. Commercial traffic has grown @6% in last year. We expect that the traffic growth shall gradually resume on these corridors which carry high proportions of commercial traffic.

3.5 Other Factors Influencing Growth

There are many factors which have an 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 2008-09, the economy recovered in 2009-10, and a high growth rate of GDP was recorded in 2010. The following figure depicts growth of GDP in India during the period.

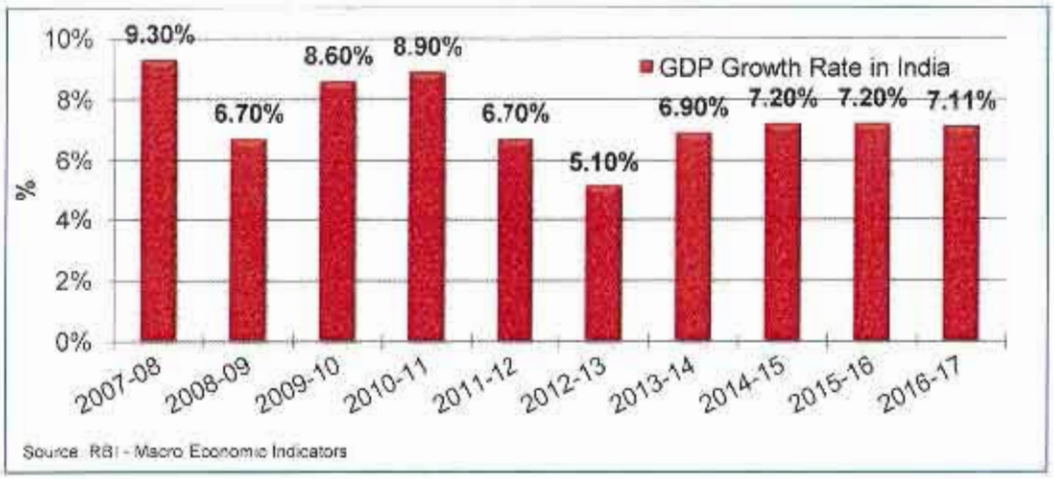

Figure 3-4 : Growth of GDP in India

After recording an all impressive growth of 8.9% in 2011, GDP declined between FY11 and FY14. GDP growth in 2014-15, 2015-16 and 2016-17 was pegged around 7.2% and is expected to be in the range of 7-8% going forward.

3.6 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 interval of 5 years. Recent demonetization of Rs. 1000 and Rs. 500 currency in November 2016 impacted cash transactions business activities adversely. This may have some negative effect on lower end of economy structure as it will take a while to equip this sector of industry for cashless transactions. Our assessment is that this could impact the movement of goods and services during such interim period. Thus, it would be prudent then to moderate projected traffic growth rates in pessimistic scenario for the near term while the long term growth prospects remain intact.

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.

Table 3-6 : Recommended Growth Rates Optimistic

Year/ Vehicle Type	2020	2025	2030	2035	2040	2045
CAR	8.50%	8.00%	7.50%	7.00%	6.50%	6.00%
Mini Bus /LCV	8.00%	7.50%	7.00%	6.50%	6.00%	5.50%
Truck / Bus	6.75%	6.25%	5.75%	5.25%	4.75%	4.25%
Multi Axle	8.50%	8.00%	7.50%	7.00%	6.50%	6.00%

Table 3-7 : Recommended Growth Rates Pessimistic

Year/ Vehicle Type	2020	2025	2030	2035	2040	2045
CAR	5.50%	7.00%	6.50%	6.00%	5.50%	5.00%
Mini Bus /LCV	5.15%	6.50%	6.00%	5.50%	5.00%	4.50%
Truck / Bus	4.25%	5.25%	4.75%	4.25%	3.75%	3.25%
Multi Axle	5.50%	7.00%	6.50%	6.00%	5.50%	5.00%

Table 3-8 : Recommended Growth Rates Most Likely

Year/ Vehicle Type	2020	2025	2030	2035	2040	2045
CAR	8.00%	7.50%	7.00%	6.50%	6.00%	5.50%
Mini Bus /LCV	7.50%	7.00%	6.50%	6.00%	5.50%	5.00%
Truck / Bus	6.25%	5.75%	5.25%	4.75%	4.25%	3.75%
Multi Axle	8.00%	7.50%	7.00%	6.50%	6.00%	5.50%

Traffic and revenue has been worked out on the basis of above growths and same is presented in subsequent chapter of report.

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CHAPTER 4
TRAFFIC FORECAST

4.1 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 4-1 : Total Tollable Traffic @ Toll Plaza 1- Chainage Km 246.075 (Optimistic Growth Scenario)

Year	CAR	LCV	Truck/ Bus	Multi axle	Total No.	Total PCU (Including Non-Paid Traffic)
2018-19	6538	5339	5581	11543	**29000**	**83231**
2019-20	7093	5766	5957	12525	**31341**	**89976**
2020-21	7659	6198	6329	13527	**33713**	**96815**
2021-22	8270	6663	6725	14609	**36267**	**104180**
2022-23	8929	7162	7145	15777	**39013**	**112104**

Table 4-2 : Total Tollable Traffic @ Toll Plaza 1- Chainage Km 246.075

(Pessimistic Growth Scenario)

Year	CAR	/LCV	Truck/ Bus	Multi axle	Total No.	Total PCU (Including Non-Paid Traffic)
2018-19	6538	5339	5581	11543	**29000**	**83231**
2019-20	6898	5614	5818	12178	**30508**	**87574**
2020-21	7379	5979	6124	13030	**32512**	**93355**
2021-22	7895	6368	6446	13940	**34649**	**99515**
2022-23	8446	6782	6784	14915	**36927**	**106089**

Table 4-3 : Total Tollable Traffic @ Toll Plaza 1- Chainage Km 246.075

(Most Likely Growth Scenario)

Year	CAR	LCV	Truck/ Bus	Multi axle	Total No.	Total PCU (Including Non-Paid Traffic)
2018-19	6538	5339	5581	11543	**29000**	**83231**
2019-20	7061	5740	5931	12465	**31197**	**89557**
2020-21	7589	6142	6272	13398	**33401**	**95909**
2021-22	8157	6572	6634	14402	**35765**	**102726**
2022-23	8767	7032	7015	15482	**38296**	**110029**

4.2 Extension in Concession Period

Due to the suspension in toll in the year FY17 because of demonetization for a period of 24 days, the Concessionaire would be entitled to extension of additional 24 days.

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CHAPTER 5

FORECAST OF TOLL REVENUE

5.1 General

This chapter presents the tolling rate calculations, categories and toll revenue of the project.

5.2 Discount Categories

Fee schedule of agreement of Surat – Bharuch section of NH-8 is based on 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 a fee 30 times the single journey fee. Additionally, concessionaire has announced special monthly passes for Truck/Bus and Multi Axle category of vehicle at Rs. 1175 and Rs. 1845 respectively which will be escalated every year per inflation in WPI.
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 Personal Vehicle - 25% of applicable fee for specific category of vehicle
    b) Local Commercial Vehicle - 50% of applicable fee for specific category of vehicle

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 aforesaid fee will be revised once in every year with effect from 1st July of the year. The revised fee shall be computed as follows:-

$$\text{Base Fee} \times \frac{\text{WPI-B}}{\text{WPI-A}}$$

Where

- WPI-A = is the Wholesale Price Index on March 31, 1997.
- WPI-B = is the Wholesale Price Index on March 31 preceding the fee-revision date.

5.3 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 5-1 : Base Toll Rates June 1997

Type of Vehicle	Base Rate of Fee / Km (in Rs.)
Car, Jeep, Van or Jeep	0.40
Light Commercial Vehicle, (LCV) / Mini Bus	0.70
Bus or Truck (2 Axle)	1.40
MAV (> 2 axle)	2.25

Factor of inflation / growth has been incorporated as per Schedule R. WPI are available up to 2016-17. 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)

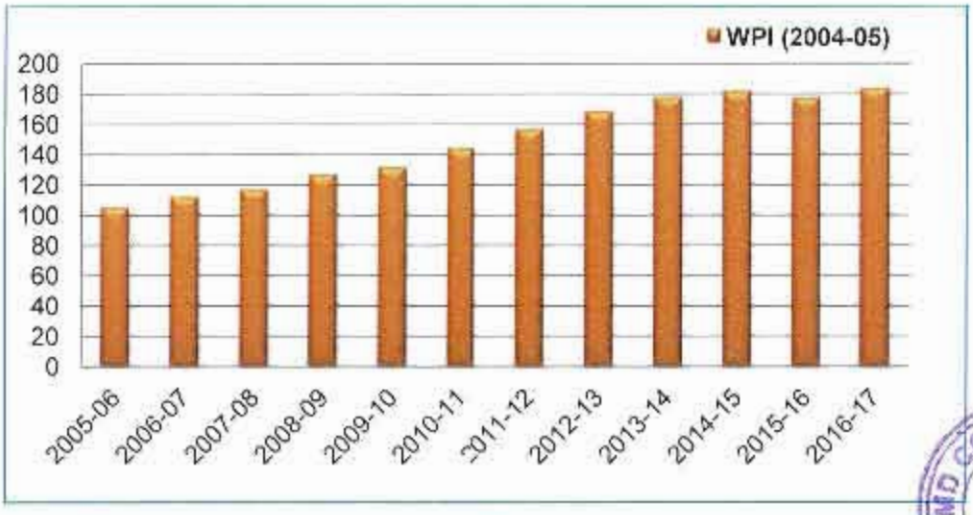

Figure 5-1 : Historical Rate WPI Inflation in India

Except the negative growth of WPI in year 2015-16 average inflation in WPI in last 10 years is c. 5.2%. Same is considered for projection of WPI in future years.

There is no bypass or structure to be added for in rates.

Toll rates are calculated as per guidelines provided in schedule R (rounded to nearest Rs. five) for the concession period and are given below.

Table 5-2 : Toll Rates for Car / Jeep / Van @Km 246.075

Year	Single Journey	Single Journey LP	Single Journey LC	Daily Pass	Daily Pass LP	Daily Pass LC
2018-19	70	20	35	110	25	55
2019-20	75	20	40	115	30	55
2020-21	80	20	40	120	30	60
2021-22	85	20	40	125	30	65

Table 5-3 : Toll Rates for LCV / Mini Bus @Km 246.075

Year	Single Journey	Single Journey LC	Daily Pass	Daily Pass LC
2018-19	125	65	190	95
2019-20	135	65	200	100
2020-21	140	70	210	105
2021-22	145	75	220	110

Table 5-4 : Toll Rates for Truck / Bus @Km 246.075

Year	Single Journey	Single Journey LC	Daily Pass	Daily Pass LC
2018-19	255	125	380	190
2019-20	265	135	400	200
2020-21	280	140	420	210
2021-22	295	145	440	220

Table 5-5 : Toll Rates for Multi Axle @Km 246.075

Year	Single Journey	Single Journey LC	Daily Pass	Daily Pass LC
2018-19	405	205	610	305
2019-20	425	215	640	320
2020-21	450	225	675	335
2021-22	475	235	710	355

Table 5-6 : Toll Rates for Monthly Passes @Km 246.075

Year	CAR - Monthly Pass LP	CAR - Monthly Pass LC	CAR - Monthly Pass Regular	LCV - Monthly Pass	LCV - Monthly Pass LC	T/B - Monthly Pass	T/B - Monthly Pass LC	T/B - Monthly Pass – Special	Monthly Pass	Monthly Pass LC	Monthly Pass - Special	Monthly Pass - Sugarcane
2018-19	540	1080	2165	3790	1895	7575	3790	1175	12175	6090	1845	5000
2019-20	570	1140	2275	3985	1995	7970	3985	1245	12810	6405	1955	5000
2020-21	600	1200	2395	4195	2095	8385	4195	1320	13475	6740	2070	5000
2021-22	630	1260	2520	4410	2205	8820	4410	1400	14175	7090	2195	5000
2022-23	665	1325	2650	4640	2320	9280	4640	1485	14915	7455	2325	5000

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5.4 Toll Revenue

As indicated earlier, toll revenue on the Project Road has been calculated under 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.

5.5 Toll Revenue at all toll plazas under Scenarios

Toll Revenue estimates under most likely scenario at each of the toll plaza up to 2021-22 (End of Concession Period) starting from the year 2018-19 are shown in tables below.

Table 5-7 : Toll Revenue Optimistic Scenario

(Rs. Crores)

Year	Toll Plaza 246.075	Total
2018-19	241.99	**241.99**
2019-20	273.23	**273.23**
2020-21	310.30	**310.30**
2021-22	352.03	**352.03**
2022-23	397.54	**397.54**

Table 5-8 : Toll Revenue Pessimistic Scenario

(Rs. Crores)

Year	Toll Plaza 246.075	Total
2018-19	241.99	**241.99**
2019-20	265.91	**265.91**
2020-21	299.18	**299.18**
2021-22	336.26	**336.26**
2022-23	376.21	**376.21**

Table 5-9 : Toll Revenue Most Likely Scenario

(Rs. Crores)

Year	Toll Plaza 246.075	Total
2018-19	241.99	**241.99**
2019-20	271.96	**271.96**
2020-21	307.42	**307.42**
2021-22	347.16	**347.16**
2022-23	390.20	**390.20**

CHAPTER 6

OPERATION AND MAINTENANCE

6.1 Operation and Maintenance

Following are project parameters which would contribute towards cost of operation and maintenance.

Future cost of operation and maintenance is estimated on engineering judgment and experience basis. Keeping all above factors in view, the following can be basis of working out cost of operation and maintenance for project corridor from Surat to Bharuch on NH-8 in state of Gujarat.

a) **Annual Regular Maintenance** – Covering pothole repair, shoulder and slope repair, drain cleaning, median maintenance, Crash barrier, toll plaza maintenance, Toll collection, other services like medical help and rescue operations etc.

b) **Periodic Maintenance** – This will be done on periodic basis, say every 5 years. It would consist of overlaying of wearing course, painting and marking. Some pavement strengthening is also anticipated in few sections. This operation and its cost are spread over three years. But since the project is commissioned and has seen stable traffic in the last few years, periodic maintenance shall be as per condition of pavement and other infrastructure. Inputs of concessionaire have been taken in this regard.

As there is no change in physical project parameters hence projections of cost of Operation and Maintenance would be similar to report of March-2017. Year-wise cost of O&M from year 2018-19 is given in table below.

Year	Annual Maintenance (Rs. Cr)	Thermoplastic Painting (Rs. Cr)	Renewal Coat with BC (Rs. Cr.)	Special Repair of Pavement	Structure Maintenance (Rs. Cr)	Electric System	Total Expenditure (Rs. Crores) Current Price	Escalation Factor	Total Expenditure (Rs. Crores)	Remarks
						Annual				
2018-19	16.81			10.18	0.05	0.80	27.84	1.16	32.23	Regular O & M
2019-20	16.81	1.43	20.63	20.36	0.05	0.80	60.08	1.22	73.03	Renewal of Wearing course + Pavement repair
2020-21	16.81			20.36	0.05	0.80	38.02	1.28	48.52	Regular O & M + Pavement Repair
2021-22	16.81	1.43	20.63	53.41	0.05	0.80	93.14	1.34	124.81	Renewal of Wearing course + Pavement repair

CHAPTER 7

CONCLUSION & RECOMMENDATIONS

7.1 Conclusion & Recommendations

Project stretch of Surat to Bharuch section of NH-8 in state of Gujarat from km 198.000 to km 263.000 is currently a six lane road. The road is in sound condition and serves to stable traffic volumes. The project corridor is a part of the busiest and most prominent national highway NH-8 which connects political and financial capitals of India. This is one of the most important trunk road which stretches across many states. There are large number of townships, industrial corridors and other business establishment coming up along the project corridor. As the Indian economy is poised to grow at over 7%, the project corridor is expected to pick up similar trends in terms of traffic flow. All these developments have potential to give positive impact to traffic flow on project. Following can considered as major outcome of study.

a) There is a reasonable good amount of tollable traffic running on the project

b) Project corridor has potential to witress traffic growth @ 6-8% annually in near future due to various developments in the area and overall development of economy

c) The project corridor has committed traffic as long route traffic and does not run the risk of traffic leakage due to quality competing road

The project infrastructure is in good condition and its maintenance cost is also reasonable.

Based on above it can be considered a stable healthy project from traffic and revenue point of view.

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CHAPTER 8

PROJECT ILLUSTRATIONS

8.1 General

Project current condition has been depicted in the following photographs.

Figure 8-1 : Tapi Bridge Condition

Figure 8-2 : General Condition of project road

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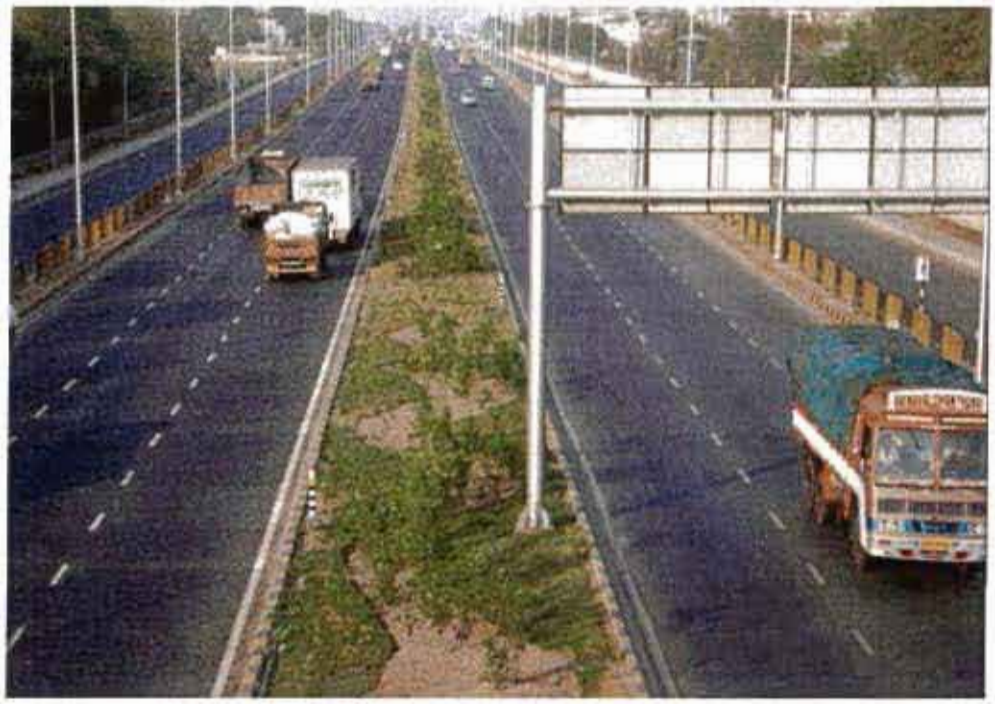

Figure 8-3 : General Condition of Project Road

Figure 8-4 : View of Project Road

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JAIPUR TO DEOLI SECTION OF NH-12

(KM 18.700 To 165.00)

IN THE STATE OF RAJASTHAN

October
2018

TOLL REVENUE AND O&M COST PROJECTION REPORT

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ABBREVIATIONS

AADT	-	Annual Average Daily Traffic	**NHAI**	-	National Highways 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, Jaipur - Deoli section of NH-12 from Km 18.700 to km 165.000 is one such road project NHAI intended to implement on a BOT basis in the DBFOT format. *M/s IRB Jaipur Deoli Tollway Ltd.* (Concessionaire) has been awarded the Project for concession period of 25 years starting from 14th June 2010 to 13th June 2035. The Project has been commissioned and is currently in the operation / maintenance phase.

1.2 Objective of the Study

M/s IRB INVIT FUND 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 ***"Toll Revenue and O&M Cost Projection Report"*** mainly focuses on traffic and O&M 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
d) Operation and Maintenance Cost Projections

The Concessionaire has provided basic historical traffic data and other project details on the basis of which the above analysis has been carried out, after applying our judgement on the traffic estimates.

"***Toll Revenue and O&M Cost Projection Report***" was submitted in March 2017. In this report traffic data of year 2015-16 was used as base traffic. The report was updated based on traffic data of year 2017-18 and submitted in April 2018. Now as traffic data from April 2018 to September 2018 is also available, this report is updated considering this current data as base traffic data for projection of traffic and revenue.

Chapters on Project Details, Influence Zone Traffic Analysis have not been included in this update as there has been no significant event or change in the one year which would have an impact on these chapters in our report dated April 2018.

CHAPTER 2

TRAFFIC SURVEYS AND ANALYSIS

2.1 Traffic Surveys

In the course of our work we have collected required information for project corridor to understand the general traffic and travel characteristics on the corridor.

The following traffic data has been collected for project.

- Classified traffic volume counts at the two toll plaza locations on Jaipur Deoli section of NH-12 for base year 2015-16, 2016-17 , 2017-18 and April-2018 to September -2018
- 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 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

The project can be divided into two homogenous sections from traffic point of view.

These sections can be

1. Jaipur to Tonk
2. Tonk to Deoli

Traffic of both sections is represented by toll plaza in each section. Table below lists provides details of locations from where traffic details have been collected.

Table 2-1 : Traffic Data Details

SR. NO	LOCATION	CTV	Single Journey Traffic	Return Pass Traffic	Monthly Pass Traffic	Local Traffic
1	Km 30.500 Toll Plaza	AADT for Year 2015-2016	For Year 2015-2016	For Year 2015-2016	For Year 2015-2016	For Year 2015-2016
		AADT for year 2016-2017	For Year 2016-2017	For Year 2016-2017	For Year 2016-2017	For Year 2016-2017
		AADT for year 2017-2018	For Year 2017-2018	For Year 2017-2018	For Year 2017-2018	For Year 2017-2018
		AADT for period April 2018-September 2018	For period April 2018-September 2018	For period April 2018-September 2018	For period April 2018-September 2018	For period April 2018-September 2018
2	Km 105.000 Toll Plaza	AADT for Year 2015-2016	For Year 2015-2016	For Year 2015-2016	For Year 2015-2016	For Year 2015-2016
		AADT for year 2016-2017	For Year 2016-20.7	For Year 2016-2017	For Year 2016-2017	For Year 2016-2017
		AADT for year 2017-2018	For Year 2017-2018	For Year 2017-2018	For Year 2017-2018	For Year 2017-2018
		AADT for period April 2018-September 2018	For period April 2018-September 2018	For period April 2018-September 2018	For period April 2018-September 2018	For period April 2018-September 2018

The locations of each of the traffic survey are illustrated in Figure 2-1.

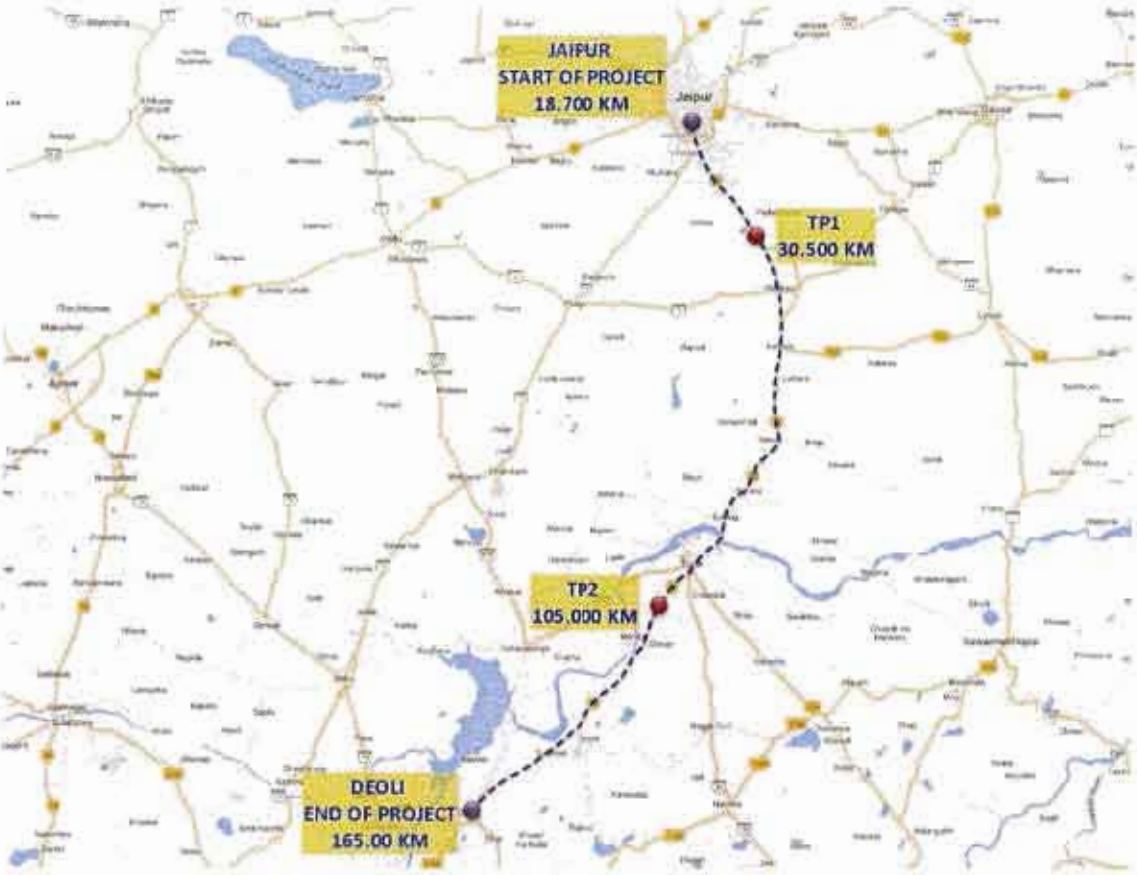

Figure 2-1 : Toll Plaza Locations

2.2 Classified Traffic Volume Count

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 concessionaire of project highway from actual traffic data gathered at toll plaza locations based on monthly data shared with NHAI. These locations are indicated in ***Figure 2-1*** and listed in ***Table 2-1***.

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 2-2 : 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
- Truck / Bus
- Multi Axle
- Oversize Vehicle

2.3 Traffic Characteristic

Toll revenue of the project highway does not solely depend on traffic volume. There are certain characteristics of traffic which have significant potential to affect toll revenue. Component of local traffic, component of passenger and commercial traffic, portion of return journey traffic, portion of monthly pass traffic are some such characteristics of traffic. These will be discussed in subsequent sections of this report

2.3.1 Traffic Data

Project concessionaire has provided Traffic data for base year 2015-16, 2016-17 and 2017-18 as under for both toll plazas -

Table 2-3 : Traffic Data at Toll Plaza @ Km 30.500

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.) – FY 2015-16	Annual Average Daily Traffic (Nos.) – FY 2016-17	Annual Average Daily Traffic (Nos.) – FY 2017-18	Annual Average Daily Traffic (Nos.) April 18
1	Car	5672	7063	7360	9037
2	Mini Bus / LCV	1462	1539	1529	1535
3	Truck / Bus	3025	2869	2205	1027
4	Multi Axle	2190	2365	2152	1310
5	Oversized Vehicles	3	2	84	70
	Total	**12352**	**13838**	**13330**	**12979**

Similar traffic data for toll plaza at km 105.000 is given as under

Table 2-4 : Traffic Data at Toll Plaza @ Km 105.000

Sr. No	Type of Vehicle	Annual Average Daily Traffic (Nos.) – FY 2015-16	Annual Average Daily Traffic (Nos.) – FY 2016-17	Annual Average Daily Traffic (Nos.) – FY 2017-18	Annual Average Daily Traffic (Nos.) April 18
1	CAR	3072	2810	2915	3448
2	Mini Bus/ LCV	861	893	880	837
3	Truck/Bus	1407	819	906	706
4	Multi Axle	1637	1584	1746	1382
5	Oversized Vehicles	3	3	25	31
	Total	**6979**	**6108**	**6472**	**6403**

The above data was arrived at by applying standard trip frequencies to monthly passes and return journey tickets issued. Currently there is mining ban in area which has impacted traffic temporarily. It is expected that by end of this financial year mining ban would be lifted and traffic will be normalized. Hence the traffic projection for years 2019-20 are kept same as given in report of April -2018.

2.4 Data Analysis

2.4.1 Analysis of Traffic Volume Count

Understanding the character of existing traffic forms the basis of 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 2-5.***

Table 2-5 : 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

Table 2-6 : Traffic in PCU at both sections

Toll Plaza Location	Period	PCU	PCU Index
30.500	FY 2016	26809	2.17
	FY 2017	28629	2.07
	FY 2018	26323	1.98
	April-18 to September 18	20629	1.59
105.000	FY 2016	15963	2.29
	FY 2017	13747	2.25
	FY 2018	14917	2.30
	April-18 to September 18	13179	2.06

It can be observed from above that project traffic has a PCU index ranging between 1.98 to 2.3 which indicates good component of commercial and goods traffic.

2.4.2 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.

For the purpose of analysis, the recent traffic numbers of for period from April-2018 to August-2018 have been considered as the base numbers.

It is observed that car traffic forms 70% of total traffic at toll plaza location 30.5 while multi axle vehicles are is 10% of total traffic. 8% of traffic is Truck /Bus while LCV traffic forms the balance 12%. Over all about 25% of traffic is commercial in nature.

At toll plaza location 105.0 car traffic forms 54% of total traffic at toll plaza while multi axle and LCV are 22% and 13%. Truck/ Bus volume is 11% of the total traffic. Over all about 45% of traffic is commercial in nature which is higher as compared to toll plaza location 30.5.

Another important bifurcation of traffic is components of traffic with respect various type of toll ticketing like

1. Single Journey
2. Return Journey
3. Overweight Vehicles (Concessionaire provided special tariff for this category)
4. Monthly Pass (Local and General)

Following table provides numbers of vehicle falling in each of above category on base year 2015-16, 2016-17, 2017-18 and for period from April-2018 to September-2018

Table 2-7 : Journey Type Bifurcation of Traffic at KM 30.500

Sr. No	Type	Traffic Volume (Nos.) for FY 2015-16	Traffic Volume (Nos.) for FY 2016-17	Traffic Volume (Nos.) for FY 2017-18	Traffic Volume (Nos.) Apr-18
1	Single Journey	4240	4703	4852	4428
2	Return Journey	6166	6458	6174	5750

3	Overweight vehicles	537	369	131	279
4	Monthly Pass	1409	2308	2173	2522

A significant part of the traffic at KM 30.500 is return journey (44%) followed by single journey (34%) and monthly passes which share 20% of the total traffic volume. Oversize vehicle shares 2% of total traffic. High share of return journey indicates presence of larger volume of committed traffic.

Similarly, traffic numbers for type of journey at KM 105.000 are given in following table.

Table 2-8 : Journey Type Bifurcation of Traffic at KM 105.000

Sr. No	Type	Traffic Volume (Nos.) for FY 2015-16	Traffic Volume (Nos.) for FY 2016-17	Traffic Volume (Nos.) for FY 2017-18	Traffic Volume (Nos.) Apr-18
1	Single Journey	3075	3314	3422	3132
2	Return Journey	2200	1888	2248	2208
3	Overweight vehicles	315	215	109	275
4	Monthly Pass	1389	691	693	788

Here single journey form highest portion of traffic followed by return journey and monthly pass journey

It can be observed as 105.000 is predominantly a rural part, monthly passes and return journey components have reduced as compared to location 30.500. Component of overweight vehicle remain same though.

2.5 Secondary Data Collection

There are several other factors which have 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

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- 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 the various 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. The same was presented in Report of March-2017 and there is no significant update on this.

CHAPTER 3

GROWTH OF TRAFFIC ON PROJECT HIGHWAY

3.1 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 forecasts of 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 Jaipur – Deoli section of NH-12 has been done taking above factors in to consideration. "**IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**" is established best practice and has been used for traffic growth forecast.

3.2 Trend Analysis

One of the methods of estimation of future rate of traffic growth is to assume the same rate of growth as experienced in the past. However, it may be noted that major influencing factors which reflect Economic conditions such as GDP, agricultural output, industrial output, national policies etc. are susceptible to change over a longer period of time and necessary adjustments need to be made to past trends to account for these changes.

Thus, we have considered the Elasticity model of growth projection which is one of the most widely acceptable methods for traffic forecast and is recommended in **IRC: 108-2015-Guidelines for Traffic Prediction on Rural Highways**.

In this method past trends of any vehicular data are 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 growth patterns for passenger and goods vehicles are different. Traffic growth on any highway typically depends on a number of economic parameters. The most important and direct parameters are given as under

- Per Capita Income

- Net State Domestic Product (NSDP)
- Population

It is observed that the ownership of a car is more closely related to affordability hence per capita is the index which closely fits with growth of car traffic among other criteria. In similar fashion, following pairs of vehicle type and independent variable can be established for elasticity modeling of growth.

- Car / Jeep – Par Capita Income
- Bus / Minibus – Population
- Trucks / Heavy / Goods Vehicle – NSDP

Time series data of vehicle (both passenger and goods) Registered in state of Rajasthan is used as the base data for analysis of growth.

3.3 Estimation of Traffic Demand Elasticity

Elasticity of traffic demand is defined as the rate at which traffic intensity varies due to change in the corresponding indicator selected. Hence, in order to estimate the elasticity of traffic demand, it is necessary to establish the relationship between the growth in number of given category of vehicle with one of the economic variables 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: 108-2015 the model for estimating elasticity index for the project corridor is of the following form and is as given 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).

Following tables and graphs depict regression and elasticity of growth model.

Table 3-1 : Per Capita Income Vs Car

Year	PCI	Car	Log PCI	Log Car	PCI Growth	Average Growth
2004	18565	397290	4.27	5.60		
2005	19445	417701	4.29	5.62	5%	
2006	21342	467675	4.33	5.67	10%	
2007	21922	524723	4.34	5.72	3%	
2008	23356	585161	4.37	5.77	7%	
2009	24304	659616	4.39	5.82	4%	
2010	27502	748295	4.44	5.87	13%	
2011	29612	845909	4.47	5.93	8%	
2012	30839	947598	4.49	5.98	4%	
2013	31386	1053406	4.50	6.02	2%	
2014	33186	1171267	4.52	6.07	6%	6.0%

Regression analysis of same is given in figure below

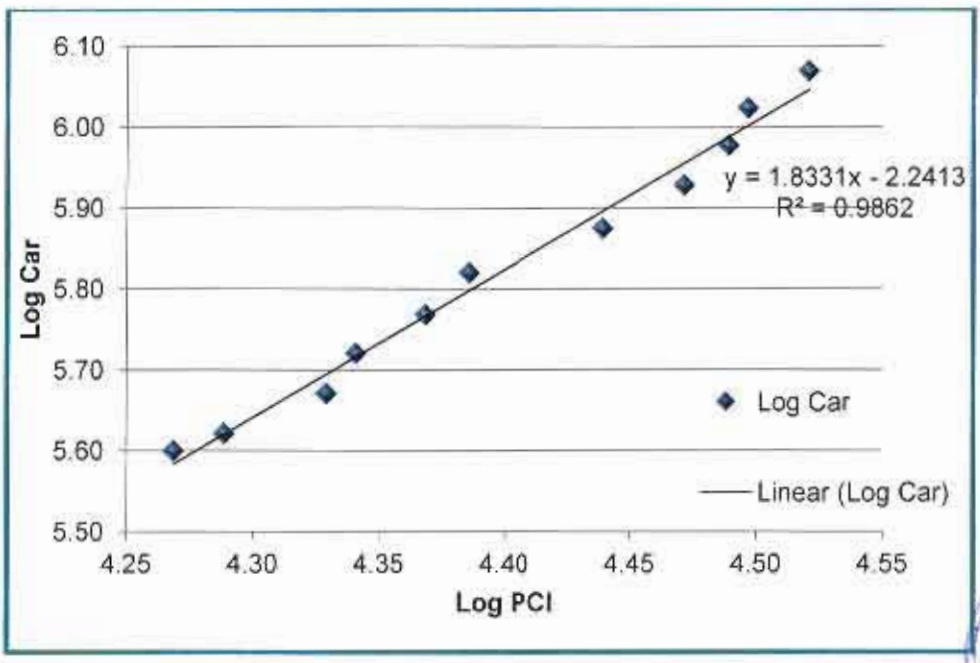

Figure 3-1 : Regression and Elasticity PCI vs. Car - Extrapolation

Table 3-2 : Population Vs Bus

Year	Population	Buses	Log Pop	Log Bus	Pop Growth	Average Growth
2004	59984000	57542	7.78	4.76		
2005	61136000	60979	7.79	4.79	2%	
2006	62377000	63320	7.80	4.80	2%	
2007	63407000	65605	7.80	4.82	2%	
2008	64533000	69298	7.81	4.84	2%	
2009	65650000	73257	7.82	4.86	2%	
2010	66750000	77980	7.82	4.89	2%	
2011	68548437	83345	7.84	4.92	3%	
2012	70314000	88616	7.85	4.95	3%	
2013	71584000	93892	7.85	4.97	2%	
2014	72877000	97650	7.86	4.99	2%	1.97%

Regression analysis of same is given in f'gure below

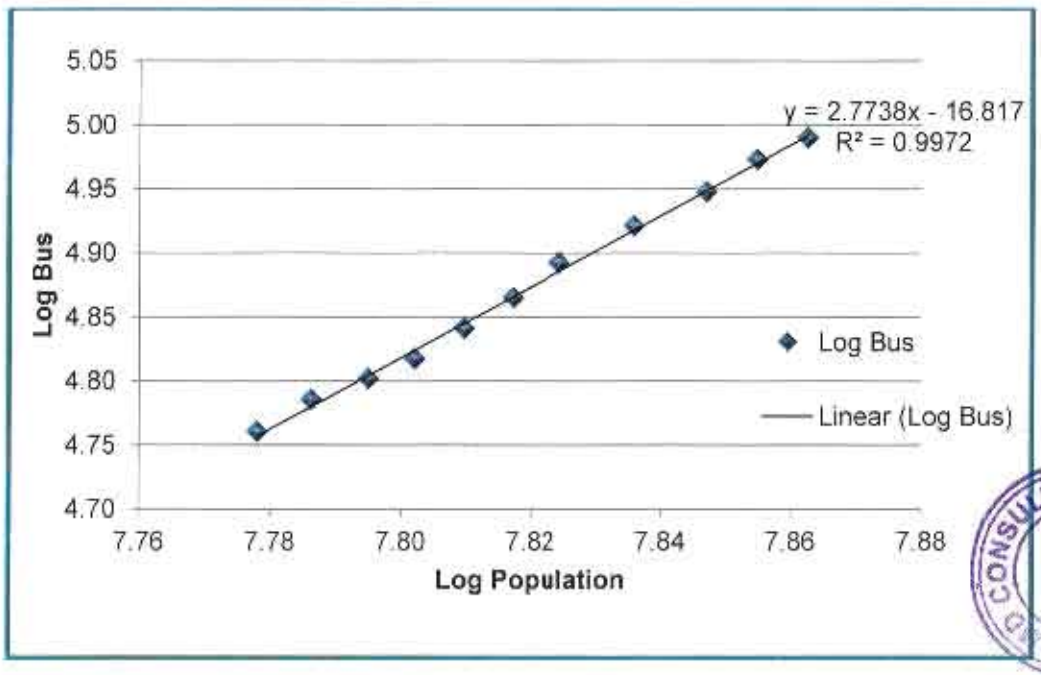

Figure 3-2 : Regression and Elasticity Population vs. Bus – Extrapolation

Elasticity of goods traffic has been worked out by regression analysis with NSDP. Following table represents the data and details.

Table 3-3 : Goods Traffic Vs NSDP

Year	NSDP	Trucks	Log NDSP	Log Truck	NSDP Growth	Average Growth (5 Year)
2004	112636000	186431	8.05	5.27		
2005	120202000	206381	8.08	5.31	7%	
2006	134350000	232007	8.13	5.37	12%	
2007	140471000	252109	8.15	5.40	5%	
2008	152284000	266048	8.18	5.42	8%	
2009	161159000	289925	8.21	5.46	6%	
2010	185366000	323273	8.27	5.51	15%	
2011	202749000	362028	8.31	5.56	9%	
2012	214391000	401983	8.33	5.60	6%	
2013	224632000	434379	8.35	5.64	5%	
2014	237530000	472365	8.38	5.67	6%	7.43%

Following figure depict regression analysis and extrapolation.

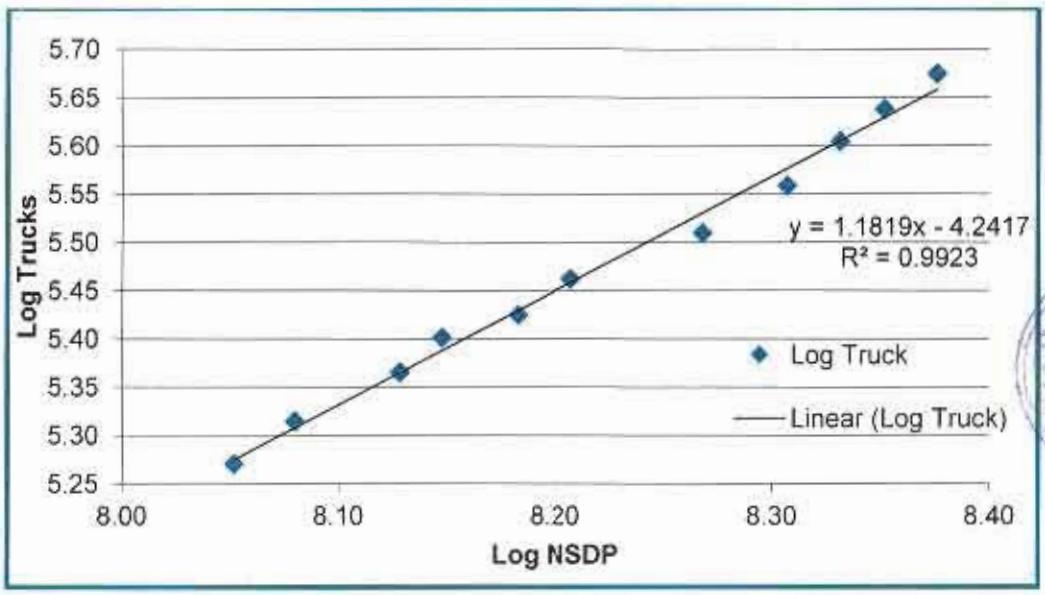

Figure 3-3 : Regression and Elasticity NSDP vs. Goods Traffic – extrapolation

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. R^2 is statistical measure of how close the data are to the fitted regression line. It varies from 0 to 1. Higher the value of R^2 more representative is the regression model of data.

The results of these analyses for the good fit as reflected by R^2 values are presented in the Table below

Table 3-4 : Summary Regression Analysis

State	Vehicle Category	Independent Variable	Regression Equation	R Square	Elasticity Coefficient (y)	Average Growth	Growth Elastic Model
Rajasthan	Car/Jeep	PCI	y = 1.8331x - -2.2413	R^2 = 0.9862	1.8331	6.03%	11.05%
	Bus	Population	y = 2.7738x - -16.8173	R^2 = 0.9972	2.7738	1.97%	5.46%
	Truck	NSDP	y = 1.1819x - -4.2417	R^2 = 0.9923	1.1819	7.43%	8.78%

Economic 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.

3.4 Analysis of Historic Traffic Data

Historic traffic data forms useful information for any highway project. It provides useful information for establishing past trend of growth. Project stretch of Jaipur to Deoli has recently been commissioned and tolling only commenced in 2013. Only 3-4 years' traffic data is available with project concessionaire. Following factors also have added to inconsistency in traffic volume on project during previous years.

a) Demonetization in November 2016

b) Ban on mining in Rajasthan

c) Incomplete project stretch (last 4 km was completed recent)

It is assumed that as project is now completed after adding the balance length, the impact of demonetization is diminishing and the mining issue in area is expected to

be resolved soon, project corridor would whiteness more stable growth of traffic in coming years. In such a case, growth projections are done on the basis of standard model of economical analysis.

3.5 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 2008-09, the economy recovered in 2009-10, and a very high growth rate of GDP was recorded in 2010. Following figure depicts growth of GDP in India during the period.

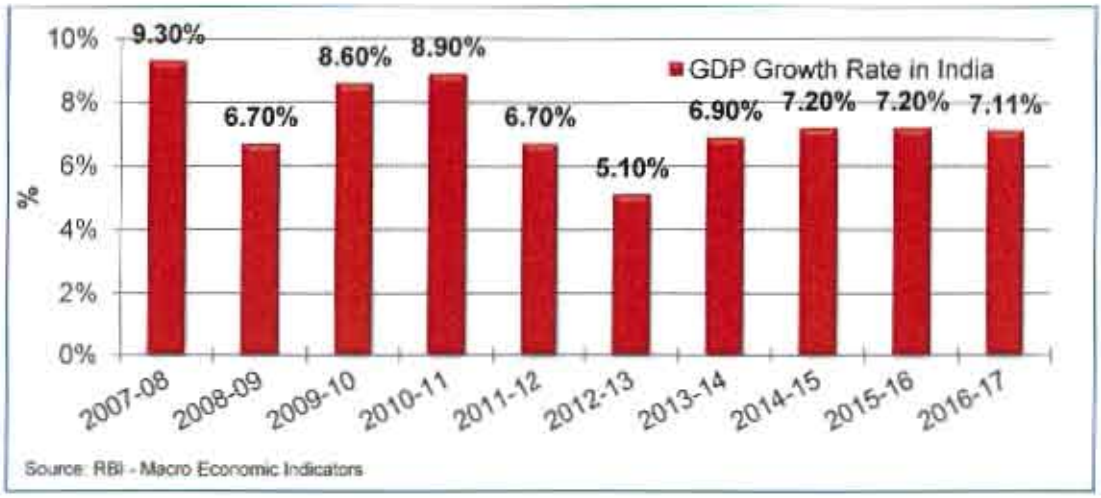

Figure 3-4 : Growth of GDP in India

After recording an all impressive growth of 8.9% in 2011, GDP declined between FY11 and FY14. GDP growth in 2014-15, 2015-16 and 2016-17 was pegged around 7.2% and is expected to be in the range of 7-8% going forward.

3.6 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 interval of 5 years. Demonetization of Rs. 1000 and Rs. 500 currency

in November 2016 impacted cash transactions business activities adversely. This may have some negative effect on lower end of economy structure as it will take a while to equip this sector of industry for cashless transactions. Our assessment is that this could impact the movement of goods and services during such interim period. Thus, it would be prudent then to moderate projected traffic growth rates in pessimistic scenario for the near term while the long term growth prospects remain intact.

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.

Table 3-5 : Recommended Growth Rates Optimistic

Up to Year/ Vehicle Type	2020	2025	2030	2035	2040	2045
CAR	8.0%	7.5%	7.0%	6.5%	6.0%	5.5%
Mini Bus /LCV	8.0%	7.5%	7.0%	6.5%	6.0%	5.5%
Truck / Bus	7.0%	6.5%	6.0%	5.5%	5.0%	4.5%
Multi Axle	8.5%	8.0%	7.5%	7.0%	6.5%	6.0%
Oversized Vehicles	8.5%	8.0%	7.5%	7.0%	6.5%	6.0%

Table 3-6 : Recommended Growth Rates Pessimistic

Year/ Vehicle Type	2020	2025	2030	2035	2040	2045
CAR	5.3%	6.5%	6.0%	5.5%	5.0%	4.5%
Mini Bus /LCV	5.3%	6.5%	6.0%	5.5%	5.0%	4.5%
Truck / Bus	4.5%	5.5%	5.0%	4.5%	4.0%	3.5%
Multi Axle	5.6%	7.0%	6.5%	6.0%	5.5%	5.0%
Oversized Vehicles	5.6%	7.0%	6.5%	6.0%	5.5%	5.0%

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Table 3-7 : Recommended Growth Rates Most Likely

Year/ Vehicle Type	2020	2025	2030	2035	2040	2045
CAR	7.5%	7.0%	6.5%	6.0%	5.5%	5.0%
Mini Bus /LCV	7.5%	7.0%	6.5%	6.0%	5.5%	5.0%
Truck / Bus	6.5%	6.0%	5.5%	5.0%	4.5%	4.0%
Multi Axle	8.0%	7.5%	7.0%	6.5%	6.0%	5.5%
Oversized Vehicles	8.0%	7.5%	7.0%	6.5%	6.0%	5.5%

In addition to above as mining ban is expected to be lifted in area soon, addition growth of traffic @ 1% and 3% for car and commercial traffic respectively is taken for the year 2019-20 for all scenarios.

Traffic and revenue has been worked out on the basis of above growths and same is presented in subsequent chapter of report.

CHAPTER 4

TRAFFIC FORECAST

4.1 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

1. Optimistic Scenario
2. Pessimistic Scenario
3. Most Likely Scenario

Table 4-1 : Total Tollable Traffic @ Toll Plaza 1- Chainage 30.500 KM

(Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Truck/ Bus	Multi axle	Oversized Vehicles	Total No.	Total PCU
2018-19	9037	1535	1027	1310	70	**12979**	**20629**
2019-20	8023	1696	2426	2400	93	**14638**	**29064**
2020-21	8625	1823	2584	2592	100	**15724**	**31226**
2021-22	9272	1960	2754	2799	108	**16893**	**33556**
2022-23	9968	2107	2933	3023	116	**18147**	**36053**
2023-24	10716	2265	3125	3265	125	**19496**	**38744**
2024-25	11519	2435	3329	3525	135	**20943**	**41629**
2025-26	12325	2606	3530	3790	145	**22396**	**44532**
2026-27	13187	2789	3743	4074	156	**23949**	**47635**
2027-28	14110	2983	3969	4380	168	**25610**	**50958**
2028-29	15097	3190	4208	4708	180	**27383**	**54502**
2029-30	16154	3414	4462	5060	193	**29283**	**58300**
2030-31	17204	3636	4708	5413	206	**31167**	**62068**
2031-32	18322	3872	4970	5792	220	**33176**	**66094**
2032-33	19513	4123	5246	6197	235	**35314**	**70380**
2033-34	20781	4391	5537	6630	251	**37590**	**74943**
2034-35	22131	4676	5843	7093	268	**40011**	**79799**
2035-36	23458	4957	6137	7554	285	**42391**	**84580**
2036-37	24867	5254	6447	8044	303	**44915**	**89651**
2037-38	26358	5569	6772	8567	323	**47589**	**95033**
2038-39	27939	5904	7113	9123	344	**50423**	**100736**
2039-40	29615	6258	7472	9716	366	**53427**	**106787**
2040-41	31244	6602	7812	10298	388	**56344**	**112670**

Table 4-2 : Total Tollable Traffic @ Toll Plaza 2- Chainage 105.000 KM

(Optimistic Growth Scenario)

Year	CAR	Minibus /LCV	Truck/ Bus	Multi axle	Oversized Vehicles	Total No.	Total PCU
2018-19	3448	837	706	1382	31	**6403**	**13179**
2019-20	3178	978	997	1946	27	**7126**	**16515**
2020-21	3417	1050	1063	2101	29	**7660**	**17766**
2021-22	3674	1127	1132	2269	31	**8233**	**19111**
2022-23	3950	1210	1205	2450	33	**8848**	**20554**
2023-24	4247	1300	1284	2646	35	**9512**	**22114**
2024-25	4566	1397	1369	2857	37	**10226**	**23792**
2025-26	4886	1494	1452	3071	39	**10942**	**25478**
2026-27	5228	1597	1540	3301	41	**11707**	**27283**
2027-28	5593	1708	1633	3548	44	**12526**	**29218**
2028-29	5984	1827	1733	3814	47	**13405**	**31298**
2029-30	6402	1955	1839	4099	50	**14345**	**33522**
2030-31	6818	2081	1941	4386	53	**15279**	**35738**
2031-32	7261	2215	2050	4693	56	**16275**	**38104**
2032-33	7733	2359	2164	5021	60	**17337**	**40628**
2033-34	8235	2511	2285	5373	64	**18468**	**43323**
2034-35	8770	2673	2412	5748	68	**19671**	**46188**
2035-36	9296	2833	2535	6121	72	**20857**	**49019**
2036-37	9853	3002	2663	6519	76	**22113**	**52023**
2037-38	10444	3182	2798	6943	81	**23448**	**55219**
2038-39	11071	3373	2940	7394	86	**24864**	**58611**
2039-40	11735	3576	3090	7875	91	**26367**	**62216**
2040-41	12381	3773	3232	8347	96	**27829**	**65730**

Table 4-3 : Total Tollable Traffic @ Toll Plaza 1- Chainage 30.500 KM

(Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Truck/ Bus	Multi axle	Oversized Vehicles	Total No.	Total PCU
2018-19	9037	1535	1027	1310	70	**12979**	**20629**
2019-20	7769	1626	2324	2324	91	**14134**	**28048**
2020-21	8275	1732	2453	2487	97	**15044**	**29860**
2021-22	8812	1844	2589	2661	104	**16010**	**31788**
2022-23	9384	1963	2732	2847	111	**17037**	**33836**
2023-24	9993	2090	2882	3047	119	**18131**	**36021**
2024-25	10643	2224	3040	3259	127	**19293**	**38336**
2025-26	11281	2356	3193	3470	135	**20435**	**40617**
2026-27	11958	2497	3352	3696	144	**21647**	**43040**
2027-28	12675	2646	3522	3936	153	**22932**	**45611**
2028-29	13436	2804	3700	4192	163	**24295**	**48340**
2029-30	14242	2973	3887	4464	173	**25739**	**51229**
2030-31	15025	3137	4064	4732	183	**27141**	**54040**
2031-32	15852	3309	4249	5016	194	**28620**	**57008**
2032-33	16723	3491	4442	5317	206	**30179**	**60139**
2033-34	17643	3682	4643	5636	218	**31822**	**63438**
2034-35	18613	3884	4854	5974	231	**33556**	**66924**
2035-36	19543	4077	5051	6303	244	**35218**	**70273**
2036-37	20519	4280	5256	6650	257	**36962**	**73789**
2037-38	21544	4494	5470	7015	271	**38794**	**77482**
2038-39	22621	4718	5692	7400	286	**40717**	**81361**
2039-40	23753	4954	5922	7807	302	**42738**	**85441**
2040-41	24822	5177	6132	8196	317	**44644**	**89292**

Table 4-4 : Total Tollable Traffic @ Toll Plaza 2- Chainage 105.000 KM

(Pessimistic Growth Scenario)

Year	CAR	Minibus /LCV	Truck/ Bus	Multi axle	Oversized Vehicles	Total No.	Total PCU
2018-19	3448	837	706	1382	31	**6403**	**13179**
2019-20	3081	940	960	1886	27	**6894**	**15980**
2020-21	3282	1000	1013	2017	28	**7340**	**17024**
2021-22	3496	1064	1069	2157	30	**7816**	**18141**
2022-23	3723	1132	1129	2308	32	**8324**	**19338**
2023-24	3965	1204	1193	2470	34	**8866**	**20618**
2024-25	4223	1281	1259	2642	36	**9441**	**21973**
2025-26	4476	1356	1323	2813	38	**10006**	**23309**
2026-27	4744	1435	1389	2995	40	**10603**	**24721**
2027-28	5029	1520	1460	3190	42	**11241**	**26233**
2028-29	5332	1611	1533	3397	44	**11917**	**27832**
2029-30	5653	1707	1611	3618	46	**12635**	**29535**
2030-31	5964	1801	1684	3835	48	**13332**	**31191**
2031-32	6292	1899	1761	4065	51	**14068**	**32946**
2032-33	6638	2003	1842	4309	54	**14846**	**34802**
2033-34	7003	2113	1926	4566	57	**15665**	**36754**
2034-35	7388	2228	2013	4840	60	**16529**	**38819**
2035-36	7758	2339	2095	5106	63	**17361**	**40812**
2036-37	8146	2456	2181	5387	66	**18236**	**42912**
2037-38	8553	2579	2270	5683	69	**19154**	**45116**
2038-39	8981	2708	2362	5997	72	**20120**	**47440**
2039-40	9430	2843	2459	6326	76	**21134**	**49881**
2040-41	9854	2971	2547	6643	80	**22095**	**52205**

Table 4-5 : Total Tollable Traffic @ Toll Plaza 1- Chainage 30.500 KM

(Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Truck/ Bus	Multi axle	Oversized Vehicles	Total No.	Total PCU
2018-19	9037	1535	1027	1310	70	**12979**	**20629**
2019-20	7986	1689	2416	2388	93	**14572**	**28932**
2020-21	8546	1807	2561	2567	100	**15581**	**30941**
2021-22	9145	1933	2716	2760	107	**16661**	**33094**
2022-23	9785	2067	2879	2967	115	**17813**	**35392**
2023-24	10469	2212	3053	3189	123	**19046**	**37850**
2024-25	11201	2367	3238	3427	132	**20365**	**40481**
2025-26	11929	2521	3418	3665	141	**21674**	**43092**
2026-27	12703	2685	3607	3921	151	**23067**	**45876**
2027-28	13528	2858	3806	4196	161	**24549**	**48840**
2028-29	14407	3043	4016	4490	172	**26128**	**51999**
2029-30	15344	3239	4238	4803	184	**27808**	**55358**
2030-31	16264	3432	4451	5115	196	**29458**	**58665**
2031-32	17239	3637	4676	5447	209	**31208**	**62175**
2032-33	18274	3854	4912	5800	222	**33062**	**65890**
2033-34	19370	4085	5159	6177	236	**35027**	**69833**
2034-35	20532	4331	5419	6578	251	**37111**	**74016**
2035-36	21662	4568	5665	6973	266	**39134**	**78085**
2036-37	22853	4820	5923	7392	282	**41270**	**82385**
2037-38	24109	5084	6193	7836	299	**43521**	**86922**
2038-39	25436	5364	6475	8306	317	**45898**	**91711**
2039-40	26834	5659	6769	8804	336	**48402**	**96760**
2040-41	28176	5942	7044	9288	354	**50804**	**101610**

Table 4-6 : Total Tollable Traffic @ Toll Plaza 2- Chainage 105.000 KM

(Most Likely Growth Scenario)

Year	CAR	Minibus /LCV	Truck/ Bus	Multi axle	Oversized Vehicles	Total No.	Total PCU
2018-19	3448	837	706	1382	31	**6403**	**13179**
2019-20	3162	974	993	1938	27	**7094**	**16445**
2020-21	3383	1041	1054	2084	29	**7591**	**17615**
2021-22	3619	1113	1118	2240	31	**8121**	**18862**
2022-23	3872	1189	1185	2408	33	**8687**	**20195**
2023-24	4142	1271	1257	2588	35	**9293**	**21623**
2024-25	4432	1360	1334	2782	37	**9945**	**23160**
2025-26	4721	1448	1408	2976	39	**10592**	**24685**
2026-27	5028	1542	1487	3183	41	**11281**	**26310**
2027-28	5354	1641	1571	3406	43	**12015**	**28049**
2028-29	5701	1746	1659	3645	46	**12797**	**29907**
2029-30	6071	1859	1751	3901	49	**13631**	**31888**
2030-31	6436	1970	1839	4154	52	**14451**	**33835**
2031-32	6822	2087	1932	4424	55	**15320**	**35904**
2032-33	7231	2212	2030	4712	58	**16243**	**38104**
2033-34	7665	2344	2133	5018	61	**17221**	**40436**
2034-35	8125	2484	2241	5344	65	**18259**	**42915**
2035-36	8571	2619	2344	5664	69	**19267**	**45330**
2036-37	9042	2763	2452	6004	73	**20334**	**47889**
2037-38	9539	2914	2564	6364	77	**21458**	**50587**
2038-39	10064	3074	2682	6745	81	**22646**	**53438**
2039-40	10617	3242	2805	7149	86	**23899**	**56453**
2040-41	11148	3404	2921	7542	90	**25105**	**59361**

4.2 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 Jaipur - Deoli project, the Target Date and Target Traffic are defined as under:

Target Date - 1st October 2018

Target Traffic - 30344 in PCU

It was observed that as per traffic projections, traffic volume falls short of target traffic in all scenarios. Extension of concession period is worked out as per provisions of concession agreement which is summarized as under -

Scenario	Projected Traffic in PCUs (average of traffic on target date, one year before target date and one year after target date)	Expected extension in Concession Period
Optimistic	20106	5 Years
Pessimistic	19847	5 Years
Most Likely	20073	5 Years

Due to the suspension in toll in the year FY17 because of demonetization for a period of 24 days, the Concessionaire would be entitled to extension of additional 24 days.

Accordingly, traffic and revenue projections have been worked out up to year 2040-41.

CHAPTER 5

FORECAST OF TOLL REVENUE

5.1 General

This chapter presents the tolling rate calculations, categories and toll revenue of the project.

5.2 Discount Categories

As per the Toll Notification (Schedule R) the following discounts have been considered:

1. Monthly Pass: For frequent users monthly pass is issued for 50 trips per month. The discount factor works out to 33.33% for 50 journeys. Similarly, there is a pass for 100 trips per month as well, with a discount factor of 33.33% for 100 journeys.
2. Daily Pass (for Return Trip): A 75% discount will be offered on the return trip.
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 Car / Jeep / Van to be charged at Rs 150 per month (2007)

Building of inflation and escalation of rate on the basis of WPI are done as per toll notification (Schedule R) as given under

The formula for determining the applicable rate of fee shall be as follows:-

$$\text{Applicable rate of fee} = \text{base rate} + \text{base rate} \times \left\{ \frac{\text{WPI A-WPI B}}{\text{WPI B}} \right\} \times 0.4$$

Factor of inflation / growth has been incorporated as per Schedule R. WPI are available up to 2016-17. 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*)

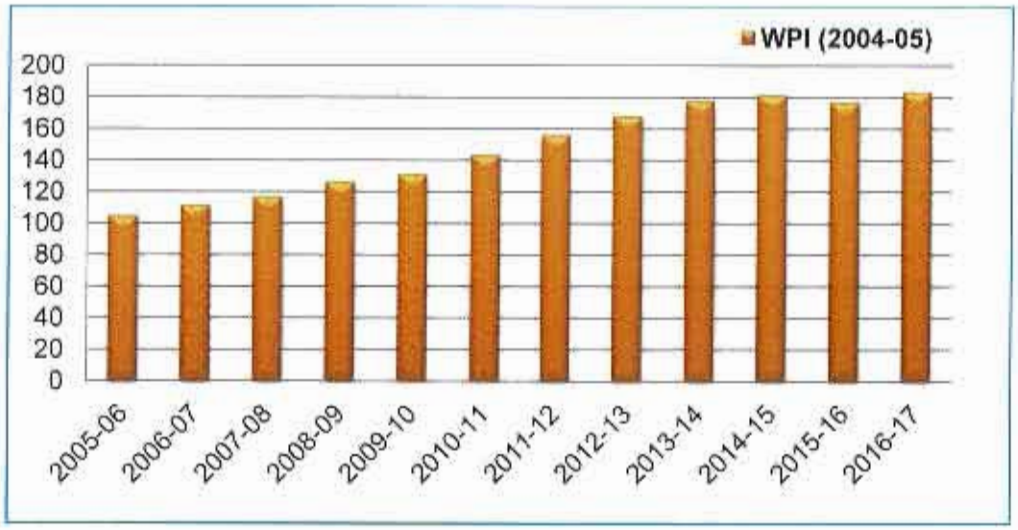

Figure 5-1 : Historical Rate of WPI Inflation in India

Except the negative growth of WPI in year 2015-16 average inflation in WPI in last 10 years is 5.2%. Same is considered for projection of WPI in future years.

It has been observed that project corridor witness's high percentage of overweight vehicles. In response to same, Concessionaire has further declared special rates for overweight vehicles which are applicable on project corridor.

These overweight categories and rate on base year (2017-18) are given as under

Table 5-1 : Overweight Traffic Rate

Category	Rate (Rs)
LCV (Single Journey of Ten Times)	1300
LCV (Single Journey of Two Times)	260
Truck/ Bus (Single Journey of Ten Times)	2700
Truck/ Bus (Single Journey of Two Times)	540
Multi Axle Vehicle (Single Journey of Ten Times)	4150
Multi Axle Vehicle (Single Journey of Two Times)	830

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Normal escalation in the basis of WPI would be applicable to these rates as well.

In addition to above concessive has also declared special rates for overweight return journey as under

Table 5-2 : Special Overweight Return Pass

Category	Rate (Rs.)
Mini Bus /LCV	170
Truck/Bus	210
Multi Axle	205

These rates would be escalated at norma. inflation rate.

5.3 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, 2008.

Table 5-3 : Base Toll Rates 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 (2 Axle)	2.2
Three Axle commercial vehicles	2.4
Heavy Construction Machinery (HCM) or Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4-6 axles)	3.45
Oversized Vehicle (seven or more axles)	4.2

There are number of bypasses and structures in each package. Equivalent length for structures is added to tollable length at each toll plaza. Bypasses having cost more

than Rs. 10 Cr. are to be charged 1.5 times the normal fee. This has been incorporated in rates. Following table provides details of tollable lengths at each toll plaza

Table 5-4 : Tollable Length Jaipur – Deoli section of NH -12

Toll Plaza Chainage	Length (km)	Bypass Cost (Cr)	Equivalent Structure length (km)	Tollable highway + structure length (km)
30.500	59.164	64.5 (Chaksu Bypass)	-	59.194
105.000	66.500	-	-	66.50

Additional rate for bypass having cost more than 10 Cr has been added as per schedule -R in toll rates for toll plaza at 30.50 km

Other than this there is no structure or bypass which qualifies for additional toll rate at any toll plaza.

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 5-5 : Toll Rates for Single Journey @ Km 30.500

Year	CAR	LCV	Truck / Bus	Multi Axle	Oversized Vehicles
2018-19	90	145	300	465	580
2019-20	95	150	315	485	605
2020-21	100	160	330	510	640
2021-22	105	170	345	535	670
2022-23	110	175	365	565	705
2023-24	115	185	385	595	740
2024-25	125	195	405	625	780
2025-26	130	205	425	655	820
2026-27	135	215	445	690	865
2027-28	145	225	470	730	910
2028-29	150	240	495	765	955
2029-30	160	250	520	805	1005
2030-31	170	265	550	850	1060
2031-32	175	280	580	895	1120
2032-33	185	295	610	945	1180
2033-34	195	310	640	995	1240
2034-35	205	325	675	1050	1310
2035-36	220	345	715	1105	1380
2036-37	230	365	755	1165	1455
2037-38	245	385	795	1230	1535
2038-39	255	405	840	1300	1620
2039-40	270	430	885	1370	1710
2040-41	285	450	935	1445	1805

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Table 5-6 : Toll Rates for Return Journey @ Km 30.500

Year	CAR	LCV	Truck / Bus	HCM /EME/ MAV	Oversized Vehicles
2018-19	135	215	450	695	865
2019-20	145	225	470	730	910
2020-21	150	240	495	765	955
2021-22	160	250	520	805	1005
2022-23	165	265	545	845	1055
2023-24	175	280	575	890	1110
2024-25	185	290	605	935	1170
2025-26	195	305	635	985	1230
2026-27	205	325	670	1035	1295
2027-28	215	340	705	1090	1360
2028-29	225	360	740	1150	1435
2029-30	240	375	780	1210	1510
2030-31	250	395	820	1275	1590
2031-32	265	420	865	1340	1675
2032-33	280	440	915	1415	1765
2033-34	295	465	960	1490	1860
2034-35	310	490	1015	1570	1960
2035-36	325	515	1070	1655	2070
2036-37	345	545	1130	1745	2180
2037-38	365	575	1190	1845	2300
2038-39	385	605	1255	1945	2430
2039-40	405	640	1325	2055	2565
2040-41	425	675	1400	2170	2705

Table 5-7 : Toll Rates for Overweight Ticket @ Km 30.500

Year	LCV (Single Journey of Ten Times)	LCV (Single Journey of Two Times)	Truck/ Bus (Single Journey of Ten Times)	Truck/ Bus (Single Journey of Two Times)	Multi Axle Vehicle (Single Journey of Ten Times)	Multi Axle Vehicle (Single Journey of Two Times)
2018-19	1450	290	3000	600	4650	930
2019-20	1500	300	3150	630	4850	970
2020-21	1600	320	3300	660	5100	1020
2021-22	1700	340	3450	690	5350	1070
2022-23	1750	350	3650	730	5650	1130
2023-24	1850	370	3850	770	5950	1190
2024-25	1950	390	4050	810	6250	1250
2025-26	2050	410	4250	850	6550	1310
2026-27	2150	430	4450	890	6900	1380
2027-28	2250	450	4700	940	7300	1460
2028-29	2400	480	4950	990	7650	1530
2029-30	2500	500	5200	1040	8050	1610
2030-31	2650	530	5500	1100	8500	1700
2031-32	2800	560	5800	1160	8950	1790
2032-33	2950	590	6100	1220	9450	1890
2033-34	3100	620	6400	1280	9950	1990
2034-35	3250	650	6750	1350	10500	2100
2035-36	3450	690	7150	1430	11050	2210
2036-37	3650	730	7550	1510	11650	2330
2037-38	3850	770	7950	1590	12300	2460
2038-39	4050	810	8400	1680	13000	2600
2039-40	4300	860	8850	1770	13700	2740
2040-41	4500	900	9350	1870	14450	2890

Table 5-8 : Toll Rates for Overweight Return Ticket @ Km 30.500

Year	Mini Bus /LCV	Truck/ Bus	Multi Axle
2018-19	185	240	230
2019-20	195	250	240
2020-21	205	265	250
2021-22	215	280	265
2022-23	225	295	280
2023-24	235	310	295
2024-25	245	325	310
2025-26	260	340	325
2026-27	275	360	340
2027-28	290	380	360
2028-29	305	400	380
2029-30	320	420	400
2030-31	335	440	420
2031-32	350	465	440
2032-33	370	490	465
2033-34	390	515	490
2034-35	410	540	515
2035-36	430	570	540
2036-37	450	600	570
2037-38	475	630	600
2038-39	500	665	630
2039-40	525	700	665
2040-41	550	735	700

Table 5-9 : Toll Rates for Monthly Pass Local @ Km 30.500

Year	CAR (Non-Commercial Vehicles)	CAR SPL (10 to 20 Km)	LCV / Mini Bus SPL	LCV / Mini Bus (10 to 20 Km)
2018-19	255	1335	2360	2950
2019-20	270	1405	2485	3105
2020-21	280	1480	2615	3265
2021-22	295	1555	2750	3435
2022-23	310	1635	2895	3615
2023-24	330	1720	3045	3805
2024-25	345	1810	3205	4005
2025-26	365	1905	3370	4215
2026-27	380	2005	3545	4435
2027-28	400	2110	3730	4665
2028-29	425	2220	3925	4910
2029-30	445	2335	4130	5165
2030-31	470	2455	4345	5435
2031-32	495	2585	4570	5720
2032-33	520	2720	4810	6015
2033-34	550	2860	5060	6330
2034-35	580	3010	5325	6660
2035-36	610	3165	5600	7005
2036-37	645	3330	5890	7370
2037-38	680	3505	6195	7755
2038-39	720	3685	6515	8160
2039-40	755	3875	6855	8585
2040-41	800	4075	7210	9030

Table 5-10 : Toll Rates for Monthly Pass @ Km 30.500

Year	Car	Mini Bus /LCV	Truck/ Bus	Multi Axle	Oversized Vehicle	Truck/Bus - 100 Trips
2018-19	3040	4815	9965	15425	19255	19930
2019-20	3195	5060	10470	16205	20235	20940
2020-21	3360	5315	11005	17035	21265	22010
2021-22	3530	5590	11570	17905	22355	23135
2022-23	3710	5875	12160	18825	23500	24325
2023-24	3905	6180	12790	19795	24715	25580
2024-25	4105	6500	13450	20820	25995	26905
2025-26	4320	6835	14150	21905	27345	28300
2026-27	4545	7195	14890	23050	28775	29780
2027-28	4785	7570	15670	24260	30285	31345
2028-29	5035	7970	16500	25540	31885	33000
2029-30	5300	8395	17375	26890	33575	34750
2030-31	5585	8840	18300	28325	35360	36600
2031-32	5885	9315	19280	29840	37255	38560
2032-33	6200	9815	20315	31445	39260	40630
2033-34	6535	10345	21415	33145	41380	42830
2034-35	6890	10905	22575	34945	43630	45155
2035-36	7265	11500	23810	36855	46010	47620
2036-37	7665	12135	25115	38875	48530	50230
2037-38	8085	12800	26500	41015	51205	52995
2038-39	8535	13510	27965	43285	54040	55930
2039-40	9010	14260	29520	45690	57040	59035
2040-41	9510	15055	31165	48240	60225	62330

Table 5-11 : Toll Rates for Single Journey @ Km 105.000

Year	CAR	Minibus /LCV	Truck/ Bus	Multi axle	Oversized Vehicles
2018-19	80	125	265	415	505
2019-20	80	130	275	435	530
2020-21	85	140	290	455	555
2021-22	90	145	305	480	585
2022-23	95	155	320	505	615
2023-24	100	160	340	530	645
2024-25	105	170	355	555	680
2025-26	110	180	375	585	715
2026-27	115	190	395	615	750
2027-28	120	200	415	650	790
2028-29	130	210	435	685	830
2029-30	135	220	460	720	875
2030-31	145	230	485	760	925
2031-32	150	245	510	800	975
2032-33	160	255	535	840	1025
2033-34	165	270	565	885	1080
2034-35	175	285	595	935	1140
2035-36	185	300	630	985	1200
2036-37	195	315	665	1040	1265
2037-38	205	335	700	1100	1335
2038-39	220	355	740	1160	1410
2039-40	230	370	780	1225	1490
2040-41	245	395	825	1290	1570

Table 5-12 : Toll Rates for Return Journey @ Km 105.000

Year	CAR	Minibus /LCV	Truck/ Bus	Multi axle	Oversized Vehicles
2018-19	115	190	395	620	755
2019-20	125	200	415	650	790
2020-21	130	210	435	685	835
2021-22	135	220	460	720	875
2022-23	140	230	480	755	920
2023-24	150	240	505	795	970
2024-25	160	255	535	835	1020
2025-26	165	270	560	880	1070
2026-27	175	280	590	925	1125
2027-28	185	295	620	975	1185
2028-29	195	310	655	1025	1250
2029-30	205	330	690	1080	1315
2030-31	215	345	725	1135	1385
2031-32	225	365	765	1200	1460
2032-33	240	385	805	1265	1535
2033-34	250	405	850	1330	1620
2034-35	265	425	895	1405	1710
2035-36	280	450	945	1480	1800
2036-37	295	475	995	1560	1900
2037-38	310	500	1050	1645	2005
2038-39	325	530	1110	1740	2115
2039-40	345	560	1170	1835	2235
2040-41	365	590	1235	1935	2360

Table 5-13 : Toll Rates for Overweight Tickets @ Km 105.000

Year	LCV (Single Journey of Ten Times)	LCV (Single Journey of Two Times)	Truck/ Bus (Single Journey of Ten Times)	Truck/ Bus (Single Journey of Two Times)	Multi Axle Vehicle (Single Journey of Ten Times)	Multi Axle Vehicle (Single Journey of Two Times)
2018-19	1250	250	2650	530	4150	830
2019-20	1300	260	2750	550	4350	870
2020-21	1400	280	2900	580	4550	910
2021-22	1450	290	3050	610	4800	960
2022-23	1550	310	3200	640	5050	1010
2023-24	1600	320	3400	680	5300	1060
2024-25	1700	340	3550	710	5550	1110
2025-26	1800	360	3750	750	5850	1170
2026-27	1900	380	3950	790	6150	1230
2027-28	2000	400	4150	830	6500	1300
2028-29	2100	420	4350	870	6850	1370
2029-30	2200	440	4600	920	7200	1440
2030-31	2300	460	4850	970	7600	1520
2031-32	2450	490	5100	1020	8000	1600
2032-33	2550	510	5350	1070	8400	1680
2033-34	2700	540	5650	1130	8850	1770
2034-35	2850	570	5950	1190	9350	1870
2035-36	3000	600	6300	1260	9850	1970
2036-37	3150	630	6650	1330	10400	2080
2037-38	3350	670	7000	1400	11000	2200
2038-39	3550	710	7400	1480	11600	2320
2039-40	3700	740	7800	1560	12250	2450
2040-41	3950	790	8250	1650	12900	2580

Table 5-14 : Toll Rates for Overweight Return Pass @ Km 105.00

Year	Mini Bus /LCV	Truck/ Bus	Multi Axle
2018-19	200	285	300
2019-20	210	300	315
2020-21	220	315	330
2021-22	230	330	345
2022-23	240	345	365
2023-24	250	365	385
2024-25	265	385	405
2025-26	280	405	425
2026-27	295	425	445
2027-28	310	445	470
2028-29	325	470	495
2029-30	340	495	520
2030-31	360	520	545
2031-32	380	545	575
2032-33	400	575	605
2033-34	420	605	635
2034-35	440	635	670
2035-36	465	670	705
2036-37	490	705	740
2037-38	515	740	780
2038-39	540	780	820
2039-40	570	820	865
2040-41	600	865	910

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Table 5-15 : Toll Rates for Local Monthly Pass @ Km 105.000

Year	CAR (Non-Commercial Vehicles)	CAR SPL (10 to 20 Km)	LCV / Mini Bus SPL	LCV / Mini Bus (10 to 20 Km)
2018-19	255	1350	2230	6000
2019-20	270	1420	2345	6310
2020-21	280	1495	2465	6640
2021-22	295	1575	2595	6985
2022-23	310	1655	2730	7350
2023-24	330	1740	2870	7730
2024-25	345	1830	3020	8130
2025-26	365	1925	3175	8555
2026-27	380	2025	3340	9000
2027-28	400	2130	3515	9470
2028-29	425	2240	3700	9960
2029-30	445	2355	3890	10480
2030-31	470	2475	4090	11025
2031-32	495	2605	4305	11600
2032-33	520	2740	4530	12205
2033-34	550	2880	4765	12840
2034-35	580	3030	5015	13510
2035-36	610	3190	5275	14215
2036-37	645	3355	5550	14955
2037-38	680	3530	5840	15735
2038-39	720	3715	6145	16555
2039-40	755	3910	6465	17415
2040-41	800	4115	6800	18320

Table 5-16 : Toll Rates for Monthly Pass @ Km 105.000

Year	Car	Mini Bus /LCV	Truck/ Bus	Multi Axle	Oversized Vehicle	Truck/Bus - 100 Trips
2018-19	2595	4190	8775	13760	16755	17550
2019-20	2725	4400	9220	14460	17605	18445
2020-21	2865	4625	9690	15200	18505	19385
2021-22	3010	4865	10190	15975	19450	20375
2022-23	3165	5110	10710	16800	20450	21425
2023-24	3330	5375	11265	17665	21505	22530
2024-25	3500	5655	11845	18580	22620	23695
2025-26	3680	5950	12465	19545	23795	24930
2026-27	3875	6260	13115	20565	25040	26230
2027-28	4080	6590	13805	21645	26355	27605
2028-29	4295	6935	14530	22790	27745	29065
2029-30	4520	7305	15300	23995	29215	30605
2030-31	4760	7690	16115	25275	30770	32235
2031-32	5015	8105	16980	26630	32415	33960
2032-33	5285	8540	17895	28060	34160	35785
2033-34	5575	9000	18860	29575	36005	37720
2034-35	5875	9490	19885	31185	37965	39770
2035-36	6195	10010	20970	32885	40035	41940
2036-37	6535	10555	22120	34690	42230	44240
2037-38	6895	11140	23340	36600	44555	46675
2038-39	7275	11755	24630	38625	47020	49260
2039-40	7680	12410	26000	40770	49635	51995
2040-41	8110	13100	27450	43045	52405	54900

5.4 Toll Revenue

As indicated earlier, toll revenue on the Project Road has been calculated under in all three scenarios. The estimates of toll revenue under ***Optimistic***, ***Pessimistic*** and ***Most Likely*** growth scenarios are presented in the following section.

5.5 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 2018-19 are shown in tables below.

Table 5-17 : Toll Revenue Optimistic Scenario

(Rs. Crores)

Year	Toll at Plaza 30.500	Toll at Plaza 105.000	Total
2018-19	59.64	38.44	**98.08**
2019-20	93.91	51.84	**145.75**
2020-21	105.71	58.45	**164.17**
2021-22	119.47	66.20	**185.67**
2022-23	134.89	74.88	**209.77**
2023-24	153.27	85.02	**238.29**
2024-25	173.20	95.82	**269.03**
2025-26	194.60	108.07	**302.67**
2026-27	218.94	121.73	**340.67**
2027-28	248.09	137.90	**386.00**
2028-29	277.73	155.47	**433.20**
2029-30	313.45	175.17	**488.62**
2030-31	352.33	197.04	**549.36**
2031-32	396.03	221.71	**617.74**
2032-33	443.60	248.15	**691.75**
2033-34	497.66	278.45	**776.12**
2034-35	558.72	313.59	**872.30**
2035-36	626.99	352.11	**979.10**
2036-37	699.37	393.33	**1092.70**

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Year	Toll at Plaza 30.500	Toll at Plaza 105.000	Total
2037-38	783.23	441.05	**1224.28**
2038-39	876.79	494.81	**1371.60**
2039-40	983.19	555.63	**1538.82**
2040-41	1092.59	618.28	**1710.87**

Table 5-18 : Toll Revenue Pessimistic Scenario

(Rs. Crores)

Year	Toll at Plaza 30.500	Toll at Plaza 105.000	Total
2018-19	59.64	38.44	**98.08**
2019-20	91.57	50.57	**142.14**
s2020-21	102.14	56.43	**158.57**
2021-22	114.36	63.36	**177.72**
2022-23	127.95	71.02	**198.97**
2023-24	144.02	79.88	**223.89**
2024-25	161.16	89.19	**250.36**
2025-26	179.30	99.62	**278.91**
2026-27	199.86	111.15	**311.01**
2027-28	224.33	124.73	**349.05**
2028-29	248.90	139.23	**388.12**
2029-30	278.32	155.47	**433.78**
2030-31	309.91	173.26	**483.18**
2031-32	345.11	193.18	**538.29**
2032-33	382.99	214.19	**597.18**
2033-34	425.64	238.04	**663.68**

Year	Toll at Plaza 30.500	Toll at Plaza 105.000	Total
2034-35	473.37	265.58	**738.95**
2035-36	526.15	295.46	**821.61**
2036-37	581.27	326.94	**908.21**
2037-38	644.91	363.15	**1008.06**
2038-39	715.10	403.54	**1118.64**
2039-40	794.25	448.83	**1243.08**
2040-41	874.22	494.72	**1368.94**

Table 5-19 : Toll Revenue Most Likely Scenario

(Rs. Crores)

Year	Toll at Plaza 30.500	Toll at Plaza 105.000	Total
2018-19	59.64	38.44	**98.08**
2019-20	93.46	51.62	**145.08**
2020-21	104.70	57.95	**162.65**
2021-22	117.79	65.34	**183.13**
2022-23	132.38	73.55	**205.93**
2023-24	149.69	83.10	**232.78**
2024-25	168.39	93.28	**261.67**
2025-26	188.28	104.69	**292.97**
2026-27	210.83	117.34	**328.17**
2027-28	237.78	132.33	**370.12**
2028-29	265.00	148.46	**413.47**
2029-30	297.69	166.54	**464.23**
2030-31	333.05	186.49	**519.54**
2031-32	372.67	208.84	**581.51**

Year	Toll at Plaza 30.500	Toll at Plaza 105.000	Total
2032-33	415.52	232.61	**648.12**
2033-34	464.02	259.74	**723.76**
2034-35	518.51	291.21	**809.72**
2035-36	579.11	325.45	**904.56**
2036-37	642.93	361.92	**1004.85**
2037-38	716.64	403.87	**1120.50**
2038-39	798.54	451.04	**1249.57**
2039-40	891.19	504.01	**1395.20**
2040-41	985.66	558.14	**1543.81**

CHAPTER 6

OPERATION AND MAINTENANCE

6.1 Operation & Maintenance

Following are project parameters which would contribute towards cost of operation and maintenance.

Future cost of operation and maintenance is estimate on guess basis. Keeping all above factors in view, following can be basis of working out cost of operation and maintenance for project corridor from Jaipur to Deoli on NH-12 in state of Rajasthan.

a) **Annual Regular Maintenance** – Covering pothole repair, shoulder and slope repair, drain cleaning, median maintenance, Crash barrier, toll plaza maintenance, Toll collection, other services like medical help and rescue operations etc.

b) **Periodic Maintenance** – This will be done on periodic basis say every 5 years. It will consist of overlaying of wearing course and painting and marking. Some pavement strengthening is also anticipated in few sections. This operation and its cost is spread over three years.

As there is no major change in physical parameter of project, the O&M cost established in report of March 2017 holds good.

Following table provides year wise details of operation and maintenance cost

Table 6-1 : O&M Cost

Year	Annual maintenance (Rs. Cr)	Thermoplastic painting (Rs. Cr)	Renewal Coat with BC (Rs. Cr.)	Special Repair of pavement	Structure maintenance (Rs. Cr)	Electric System		Total Expenditure (Rs. Crores) Current Price	Escalation Factor	Total Expenditure (Rs. Crores)	Remarks
						Annual	Periodic				
2018-19	11.50				0.07	0.04		11.60	1.19	13.75	Regular O & M
2019-20	11.73	1.72	23.37	16.05	0.07	0.04		52.97	1.25	66.40	Renewal of Wearing course + Pavement repair
2020-21	11.96	1.47	20.03	16.05	0.07	0.04		49.62	1.33	65.78	Renewal of Wearing course + Pavement repair
2021-22	12.20	1.72	23.37	16.05	0.07	0.04		53.44	1.40	74.92	Renewal of Wearing course + Pavement repair
2022-23	12.20				0.07	0.04	0.00	12.31	1.48	18.25	Regular O & M
2023-24	12.45				0.07	0.04		12.55	1.57	19.68	Regular O & M
2024-25	12.70				0.07	0.04		12.80	1.66	21.22	Regular O & M
2025-26	12.95				0.07	0.04		13.05	1.75	22.89	Regular O & M
2026-27	13.21	1.72	23.37	19.26	0.07	0.04		57.66	1.85	106.90	Renewal of Wearing course + Pavement repair

Year	Annual maintenance (Rs. Cr)	Thermoplastic painting (Rs. Cr)	Renewal Coat with BC (Rs. Cr.)	Special Repair of pavement	Structure maintenance (Rs. Cr)	Electric System		Total Expenditure (Rs. Crores) Current Price	Escalation Factor	Total Expenditure (Rs. Crores)	Remarks
						Annual	Periodic				
2027-28	13.47	1.47	20.03	25.68	0.07	0.04		60.76	1.96	119.12	Renewal of Wearing course + Pavement repair
2028-29	13.74	1.72	23.37	19.26	0.07	0.04		58.19	2.07	120.65	Renewal of Wearing course + Pavement repair
2029-30	14.43				0.07	0.04		14.53	2.19	31.87	Regular O & M
2030-31	15.15				0.07	0.04		15.26	2.32	35.37	Regular O & M
2031-32	15.91				0.07	0.04		16.01	2.45	39.26	Regular O & M
2032-33	16.23	0.49		3.21	0.07	0.04		20.03	2.59	51.94	Renewal of Wearing course + Pavement repair
2033-34	16.55	1.47	20.03	16.05	0.07	0.04		54.21	2.74	148.63	Renewal of Wearing course + Pavement repair
2034-35	16.88	1.72	23.37		0.07	0.04		42.07	2.90	121.99	Renewal of Wearing course
2035-36	16.88				0.07	0.04		16.99	3.07	52.09	Regular O & M
2036-37	16.88				0.07	0.04		16.99	3.24	55.08	Regular O & M
2037-38	18.88				0.07	0.04		16.99	3.43	58.25	Regular O & M

CHAPTER 7

CONCLUSION & RECOMMENDATIONS

7.1 Conclusion & Recommendations

Project stretch of Jaipur to Deoli section of NH-12 in state of Rajasthan from km 18.700 to km 165.000 is currently a four lane road. The road is in sound condition and serves to reasonably good levels of traffic volume. The project corridor falls in the influence zone of fast upcoming metro city Jaipur. There are many upcoming projects in the area which have the potential to boost economic growth of area and add value to development of region. All these developments have potential to give positive impact to traffic flow on project. As estimated in this study report project traffic is expected to grow at rate of 6-8% per annum.

Following can considered as major outcome of 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 growth of the economy

c) Project corridor does not have risk of traffic leakage due to lack of competing roads of comparable quality

The project infrastructure is in good condition and its maintenance cost is also reasonable. There is no update in the O&M cost estimates included in our previous report dated March 2017.

Based on above it can be considered a stable healthy project from traffic and revenue point of view

CHAPTER 8

PROJECT ILLUSTRATIONS

8.1 Conclusion & Recommendations

Current condition OF Project has been depicted in the following photographs.

Figure 8-1 : Chaksu Junction

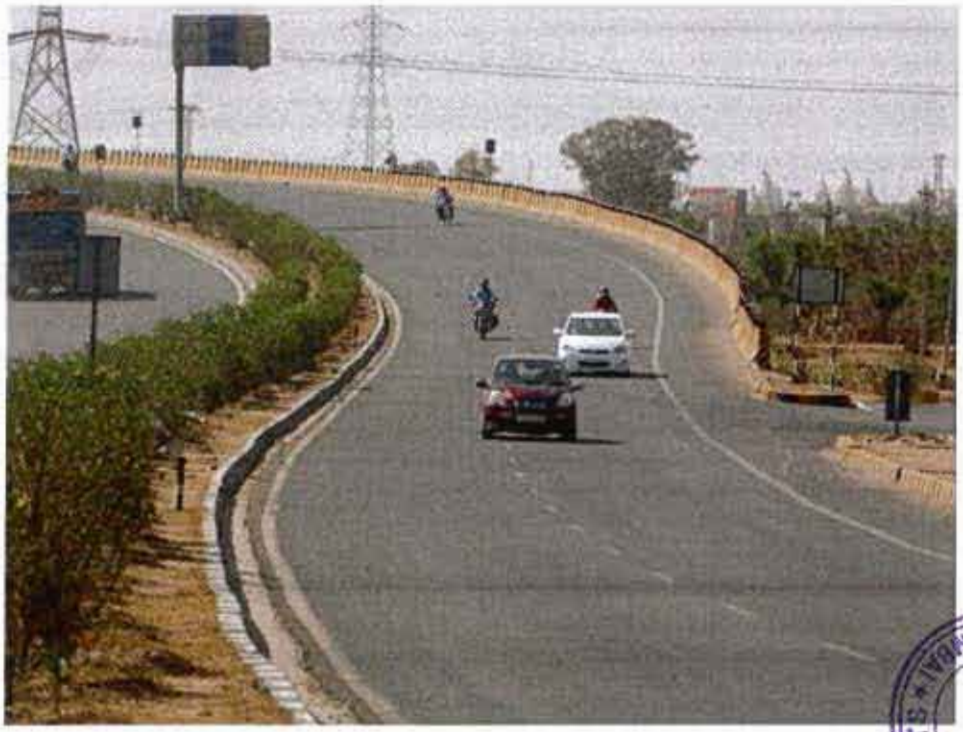

Figure 8-2 : General Condition

Figure 8-3 : General Condition

Figure 8-4 : Toll at Barkheda

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