

# Rehabilitation and Up-Gradation of National Highway Project in India

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*Abstract -- The State Governments have a bulk of the financial and legislative obligations for the road sector, with development and maintenance activities executed through the respective Public Works Department (PWDs). Some States have also set up more commercially oriented Road Development Corporations, while State level nodal agencies for infrastructure development are also stakeholders in the road sector as a part of a broader mandate. Apart from the entities in the State Governments, the local Government bodies also play a role in the development and maintenance of urban /rural roads in their areas of administration. The Ministry of Road Transport & Highways (MoRTH) is the nodal Ministry in the Country for the road sector. It is primarily responsible for the development and maintenance of National Highways and formulation & implementation of policies on road transport in the Country, including the administration of the Central Motor Vehicles Act. MoRTH's responsibility for development and O&M of the NH network is now shared by NHAI in part, while the remaining part is developed and maintained by the Ministry through the State PWDs. The MoRTH is also responsible for evolving standards and specifications for roads and bridges in the Country, drawing from its repository of technical information. The Indian Road Congress (IRC), under the administration of the MoRTH, plays a key role in the development of such standards. In addition the Ministry is also responsible for the National Institute for Training of Highway Engineers (now called Indian Academy of Highway Engineers), a collaborative body of the Central and State Government to facilitate training of highway engineers.*

*Indexed Terms: MoRTH, Administration, PWD, Highway Projects, India*

## I. INTRODUCTION

In India, the policy setting, planning, development, operation and maintenance (O&M) functions in the road sector are spread across a number of agencies across various levels of Government. In line with the federal structure of India, roads are classified into National Highways (NH), State Highways (SH), district and rural roads, with various levels of Government (Central, State and local bodies)

responsible for different categories of roads. At the federal level, the Ministry of Road Transport & Highways (MoRTH) is the nodal ministry for road sector as a whole. Other Central Government entities, viz., the Ministry of Rural Development (management for centrally funded rural roads programmed), the Central Road Research Institute (under the Ministry of Science and Technology), the Border Roads Organization (under Ministry of Defense) and the Indian Road Congress (administered by MoRTH) are also involved in development of roads. Some States have also set up more commercially oriented Road Development Corporations, while State level nodal agencies for infrastructure development are also stakeholders in the road sector as a part of a broader mandate. Apart from the entities in the State Governments, the local Government bodies also play a role in the development and maintenance of urban /rural roads in their areas of administration. The Ministry of Road Transport & Highways (MoRTH) is the nodal Ministry in the Country for the road sector. It is primarily responsible for the development and maintenance of National Highways and formulation & implementation of policies on road transport in the Country, including the administration of the Central Motor Vehicles Act. MoRTH's responsibility for development and O&M of the NH network is now shared by NHAI in part, while the remaining part is developed and maintained by the Ministry through the State PWDs. The MoRTH is also responsible for evolving standards and specifications for roads and bridges in the Country, drawing from its repository of technical information.

## II. PROJECT BACKGROUND

The 472-km-long Mumbai-Goa national highway had turned into a death trap with 122 fatalities in

accidents in a year. To overcome this & to help to boost tourism of the coastal area the 4-laning of Mumbai-Goa Highway was undertaken. The work on converting the highway will be done in parts. The work on the 84 km stretch from Panvel to Indapur is underway. Around 28km of that stretch is already a four-lane road. The 366 km stretch from Indapur to Zarap will be a major challenge as it receives heavy vehicular traffic and comprises of dangerous ghat areas. The stretch between Zarap and Patradevi on the Goa borders is already a four-lane road. The National Highway 66, commonly referred to as NH 66 (Erstwhile NH-17 and a part of NH-47) is a busy National Highway that runs roughly north-south

### III. OBJECTIVES

- Review and summarization of Good Practices in Corporate Governance from India and abroad.
- A means of ranking or comparing one project or option over another (although it may form part of the decision process).
- Identify the factors and groups which may affect the quality of highway projects
- Specify the effectiveness degree of the identified factors using fuzzy triangle approach

### IV. THE PROJECT ROAD

The NH 66 (Erstwhile NH-17 and a part of NH-47) will be upgraded from its present two-lane layout, to a four-lane divided carriageway configuration. The

along the western coast of India, parallel to the Western Ghats. It connects Panvel (a city south of Mumbai) to Kanyakumari, passing through the states of Maharashtra, Goa, Karnataka, Kerala and Tamil Nadu. The highway is undergoing a major overhaul in Karnataka, where the State Government has accepted the NHAI's request of international standard. The complete stretch from the Goa border (near Karwar) to the Kerala border (near Talapady) is being widened to four lanes.

design of the road between Idapur to Zarap Section from Km. 84/00 to 450/170 is being carried out in 10 separate packages. One package for the project road corridor starts from Km. 205/400 to Km. 241/300 (PARSHURAM GHAT-ARAWALI SECTION). This project stretch is awarded to M/s Parshuram Arawali Highways Private Limited.

### V. SCOPE OF WORK

Besides the construction of new carriageways and widening and strengthening of existing carriageways, the following table summarises the major elements of the project construction as specified in Schedule-B together with provision of Project Facilities as specified in Schedule-C, and in conformity with the Specifications and Standard set forth in Schedule-D

### VII. PROJECT DETAILS

Sr.No	Perticulars	Details
1	Project Length	34.450 Km
2	Project Start	205/400 From km 205/400 (Parshuram ghat)
3	Project End	To Km 241/300 (Khershet)
4	Service Roads	21.160 Km
5	Elevated structure of length	1 Nos & 1560 m ( Km 212/000 to Km 214/050)
6	VUPs	03 Nos
7	LVUPs	06 Nos
8	PUP	01 Nos
9	CUP	01 Nos

10	Pipe Culverts	175 Nos
11	Box Culverts	28 Nos
12	Minor Bridges	02 Nos (New construction)
13	RCC Drain Footpath	21.160 Km
14	Toll Plaza	01 Nos (From Km. 238/950 to Km. 239/550)
15	Truck Bay	01 Nos (From KM 221/100 to Km 221+300)
16	Bus Bays	14 Nos
17	Minor Intersections	30 Nos
18	Major Intersections	02 Nos
19	Shoulder and Footpath	21160 m (Both side)
20	Realignments	5990 m

Project Name:	Rehabilitation and up-gradation of NH-66 (erstwhile NH-17) from Km. 205/400 to Km. 241/300 (PARSHURAM GHAT-ARAWALI SECTION) to four lanes with Paved Shoulder in the state of Maharashtra under NHDP-IV on Hybrid Annuity Mode
Client:	Public Works Department, Government of Maharashtra
Independent Engineer	M/s Bloom Companies LLC in association with Credible Management & Consultants Pvt. Ltd.
Concessionaire	M/s Parshuram Arawali Highways Private Limited
EPC Contractor	M/s Chetak Enterprises Limited
Design Consultant	M/s Vasuprada Consultant LLP, New Delhi
Total Project Length	34.45 Km
Total Project Cost	INR 670 Cr

VIII. LITERATURE REVIEW

**National Highways Authority of India Ministry of Road, Transport And Highways Committee On Public Undertakings” (2017-18)**

National Highways are the lifeline of the Country. They are arteries of the economic, social and cultural health of the Country which are equally important in the times of war and peace for ensuring movement of passengers and goods across the Country. They traverse the length and width of the Country connecting the National and State capitals, major ports and rail junctions and link up with border roads and foreign highways. While National Highways/Expressways constitute only about 1.7 percent of the length of all roads, they carry about 40 percent of the road traffic.

National Highways Authority of India (NHAI), which was set up by an act of the Parliament namely the NHAI Act 1988, has been entrusted with the

responsibility of the National Highways Development Project, which along with other minor projects, has vested in it 50329 kms of National Highways for development, maintenance and management. NHAI's objective is to ensure that all contract awards and procurements conform to the best industry practices with regard to transparency of process, adoption of bid criteria to ensure healthy competition in award of contracts. Implementation of projects conforms to best quality requirements and the highway system is maintained to ensure best user comfort and convenience.

**Project Report on National Highways (IJESC)”Dhanavath Seva1, Bhukya Chandrashekar2, Faria Asem3**

According to the official statistics (National Crime Records Bureau), In India in 2008, 118,239 people were killed in road accidents. The death rate in India is about 10 to 20 time higher than high income

countries like Japan, Australia, UK, and USA. In India the share of national highways and state highways is about 6 to 7 % of the total road networks but it cater to about 70 to 75% of total traffic. However in India only national highways comprises of only 2% of total road network, which account for 20% of total road accidents and 25% of total traffic fatalities. The management of accident risk is both a short-term and a long-term strategy, which requires support of central and state authorities. The most effective way of managing accident risk is through the development of a „safety culture“. A safety culture is the beliefs and ideas shared by all members of an organization about accidents and their risk of happening and proper measure which are to be taken to decrease in the number of accidents. The year wise road accidents in India are shown in the table given below Accident is an event, occurring suddenly, unexpectedly and inadvertently under unforeseen circumstances.

**Management of Highway Projects in Egypt through Identifying Factors Influencing Quality Performance” Hindawi Publishing Corporation Journal of Construction Engineering Volume 2016, Article ID 4823630, 8 pages <http://dx.doi.org/10.1155/2016/4823630>**

Quality is a key function in all infrastructure development environments like cost and time. In highway construction industry, quality is a major factor in determining how well a pavement will perform under traffic loading and when subjected to environmental influences. Furthermore, it provides a tool to the owner and contractor to ensure that the desired results are obtained to produce high-quality and long-life pavements. In highway construction projects, the ultimate aim of an owner is to build a pavement that will have good serviceability under the local conditions of climate and traffic that the pavement will be exposed to during its anticipated life and result in minimum overall costs. A highway asphalt concrete pavement’s performance is a function of the pavement quality which is affected by many interacting factors such as pavement’s structural design, construction materials, and the process by which these materials are built into the pavement. Pavement deteriorates with the passage of time and the rate of deterioration varies widely

depending upon the above-mentioned factors and the amount of maintenance performed by the highway agency during the service life of the pavement. However, good quality of construction will reduce the rate of deterioration as much as possible. There are many factors throughout the project’s design and construction phases, which may affect the quality of the constructed highway. The project owner agency, consultant, and contractor organization should be aware of these factors and their relation to the final pavement quality so that the highway is designed and constructed with the objective of achieving the desired quality.

## IX. METHODOLOGY

### 8.1 Land Acquisition:

a) Hindrances of Pede Pushuram Ghat Section 205+400 to 207+400: As per direction received from the Chief Engineer to start the C & G Works at Pede Pursuaram Ghat location along with necessary local administration (CALA and police) from 12th Oct - 2018 onwards. But local people are not allowing taking up the work due to Trust & local issue. Obstruction length Aproximate-2.0 Km.

b) Hindrances due to Payment issue, Court case & Disputes matter: affected length Aproximate-3.15 Km

c) Structures demolish activity: Till date 312 Nos structures removed at site out of 369 nos. The Concessionaire has initiating demolishing the physical properties and clearing other encumbrances with the help of Local Administration but still we are facing protests from Local residents which may be resolved and land handover be given encumbrance free. Necessary protection required from Authority. (Affected length 2.9 Km).

d) Whose estimated cost is Rs.183 Cr (27.3% of total physical progress). affected length Aproximate-2.5 Km

### 8.2 Pre-Construction Activity:

a) Tree cutting permission: 13 nos villages tree cutting permission received from Forest. One Chiplun Village tree cutting permission yet not received from Authority. Till date 7546 nos of trees have been cut out of 14426 Nos.

**8.3 Utility shifting:**

- a) Electrical Lines: Till date new 150 poles have been erected at site out of 800 Nos, balance is under progress.
- b) Water supply line: The work of water pipe line utility shifting have started as per instructed by

SE vide meeting on dated 07.03.2019 as on date 2400 mtr pipe line shifting work completed.

X. ANALYSIS AND DISCUSSION

Project Milestone	Description	Proportion of TPC	Schedule date	Delay in Months	Current status
Milestone I	180days	20%	02-06-2018	11	16.91 (3 %)
Milestone II	400days	35%	08-01-2019	0	0
Milestone III	550days	75%	07-06-2019	0	0
Scheduled Completion	730days	100%	03-12-2019	0	0

XI. CONCLUSIONS

- Availability of experienced staff in the owner’s and contractor’s teams during the project execution should be necessary.
- Efficiency of the owner’s inspection team, clarity of responsibilities and roles for each owner, consultant, and contractor should be required.
- Develop and provide consultancy and construction services in India and abroad and carry on research activities in relation to the development, maintenance and management of highways or any facilities

- [4] “Highway Project Cost Estimating Methods Used In The Planning Stage Of Project Development” Virginia Transportation Research Council (A Cooperative Organization Sponsored Jointly By The Virginia Department Of Transportation Andthe University Of Virginia
- [5] “Development of Transportation Engineering Research, Education, and Practice in a Changing Civil Engineering World” Kumares C. Sinha<sup>1</sup>; Darcy Bullock<sup>2</sup>; Chris T. Hendrickson<sup>3</sup>; Herbert S. Levinson<sup>4</sup>; Richard W. Lyles<sup>5</sup>;A. Essam Radwan<sup>6</sup>; and Zongzhi Li<sup>7</sup>

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