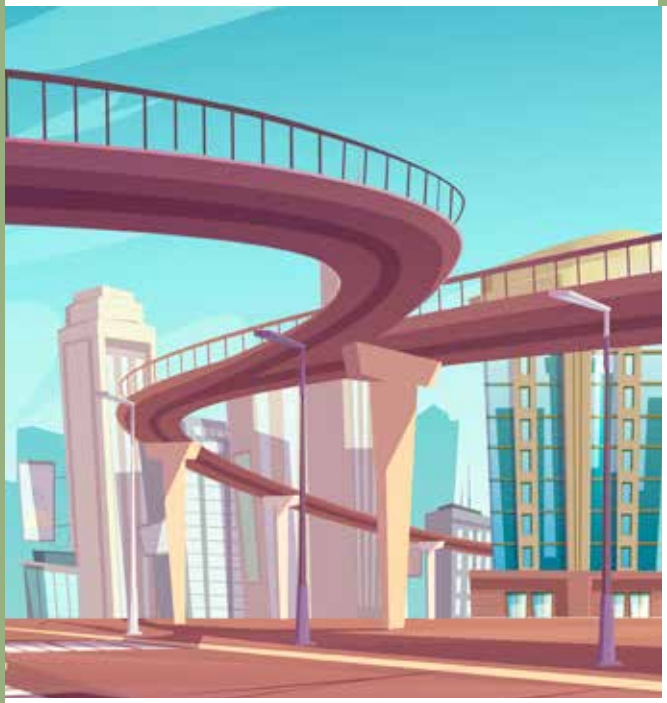
BharatMala- optimizing the efficiency of movement

Move towards New India Ensuring Ease of Living



India needs great road infrastructure- Bharatmala is building thousands of kilometers of roads for it

PM Narendra Modi

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Introduction

India has about 54.82 lakh km of road network, the second largest in the world in terms of length. National Highways (NHs) constitute about 2% of the total road network, but carry about 40% of the total road traffic

The National Highways Development Program (NHDP) has reached a certain level of maturity. It is now important to re-define road development and have a macro approach while planning expansion of the national highways network. To date, point to point connectivity has been the rationale for highway construction; highways development has not been planned with an economic perspective.

It is required, therefore, that the Origin and Destination of vehicular traffic, particularly of freight, be the basis of construction for the bigger i.e. 4-laning/6-laning National Highways (NHs).

Hence it was proposed to launch a new umbrella program with the primary focus of optimizing the efficiency of the movement of goods and people across the country.

Chapter 1

CONSULTATION-participatory approach

Consultations with finalizing reforms

All
Implementing agencies

All
State Governments

Key
Ministries and Departments Finance Ministry (DEA, Dept. of Expenditure, Dept. of Financial Services) Niti Ayog

10+
International Benchmarks

100+
Discussions and Brainstorming sessions

Chapter 2

Gaps in Highway Infrastructure

The Bharatmala Pariyojana envisages a corridor approach in place of the existing package- based approach which has, in many cases, resulted in skewed development. For instance, in areas of high traffic, even upto 30,000 Passenger Carrying Units (PCUs), there are National Highway stretches of single and even intermediate lane. These have naturally become an impediment to seamless freight and passenger movement.

Infrastructure inconsistencies in the National Highway network

In the existing arrangement, highway projects were decided on an 'ad hoc' basis with limited consideration of the corridor/network, in the later phases of NHDP.

Additionally, key economic corridors in the country have infrastructure asymmetry, leading to slower traffic movement and higher freight costs.

Presence of Congestion Points

There is a presence of Multiple points of local congestion even on already **developed corridors**, driven by the interaction of the **local city traffic** with the **highway traffic**, which leads to drop in **vehicular speed, higher accidents on highways**

Lack of accident response infrastructure

There is a need to **proactively identify** areas on national highways that are prone to accidents and **swiftly design and implement interventions.**

Chapter 3

BHARATMALA PARIYOJANA- Enhancing effectiveness

The umbrella program of Bharatmala focused on enhancing effectiveness of already built infrastructure, multi–modal integration, bridging infrastructure gaps for seamless movement and integrating National and Economic Corridors. The program was conceptualized to attain optimal resource allocation for a holistic highway development/improvement initiative.

The Bharatmala Pariyojana, once implemented, is expected to result in connecting 550 Districts in the country through NH linkages. Currently, around 300 Districts have NH connectivity. The bridging of critical infrastructure gaps in existing highway network would enhance safe and seamless movement of traffic, and in turn have a positive impact on the Logistic Performance Index (LPI) of the country.

There are six key features of the program:

- **Economic Corridors:** Integrating the economic corridors facilitates larger connectedness between economically important production and consumption centers.
- **Inter-corridor and Feeder routes:** Inter-corridor connectivity would ensure first mile and last mile connectivity.
- **National Corridor Efficiency Improvement:** Through this, the greater actionable goal is to undertake lane expansion and decongestion of existing National Corridors.
- **Border and International connectivity Roads:** Better border road infrastructure would ensure greater maneuverability, while also boosting trade with neighboring countries.
- **Coastal and Port connectivity roads:** Port-led economic development is further boosted through connectivity to coastal areas, encouraging both, tourism and industrial development
- **Green-field Expressways:** Expressways with higher traffic congestion and choke points would benefit from green field expressways.

Chapter 4

Features of the Reform

Corridor Based Approach

The objective of the Bharatmala Pariyojana program is to optimize the efficiency of freight and passenger movement across the country by bridging critical infrastructure gaps through **development of Economic Corridors, Inter Corridors and Feeder Routes, National Corridor Efficiency Improvement, Border and International connectivity roads, Coastal and Port connectivity roads and Green-field expressways.**

Identification of the project stretches under the components of the proposed program is based on detailed Origin-Destination (O-D) study, freight flow projections and verification of the identified infrastructure gaps through geo-mapping.

Construction of a total length of about 24,800 kms is being taken up under Phase-I of Bharatmala Pariyojana. In addition, Phase-I would also include

about 10,000 kms of residual works of National Highway Development Project (NHDP).

Bharatmala Pariyojana was conceptualized as an umbrella program with a corridor-based approach:

- Origin-Destination study based on freight movement across **600 districts**
- Technology-based automated traffic surveys over **1,500+ points**
- **Satellite mapping** of corridors to **identify upgradation requirements Decongestion of Highways**
- **191 congestion points** were identified across key cities on the National Highway corridor network
- **Multiple interventions** were identified for resolution of congestion points

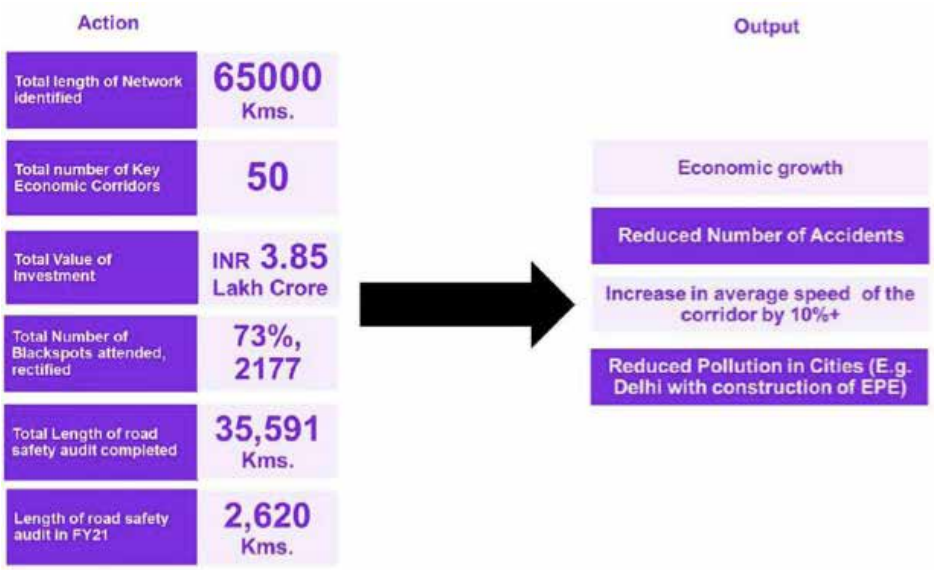
- **29 ring roads** addressing **44 CP1**
- **54 Bypasses** addressing **56 CP1**
- **76 Lane Expansions** and structures addressing **91 CP1**

Resolution of Blackspots

Road safety audits were conducted for 32,971 km till FY20 and an additional length of 40,000 km is targeted till FY24. Consequently, 5785 blackspots were identified for removal and rectification as a permanent measure to reduce road accidents

Chapter 5

Systematic Interventions for Greater Impact

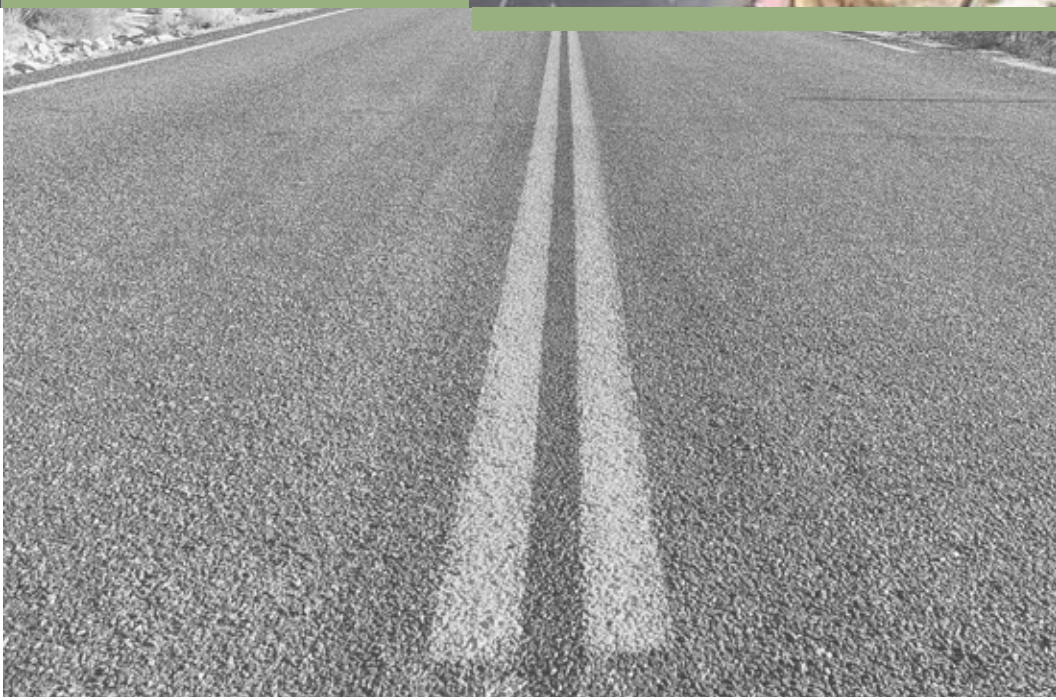


Chapter 5

Before and After

Bharatmala Pariyojana shall deliver substantial Improvements in the Highway Network

From	To
Six Corridors (GQ, NS-EQ)	Fifty Corridors
40% freight on National Highways	70-80% freight on National Highways
~300 districts connected by 4+ Lane Highways	~550 districts connected by 4+ Lane Highways



Chapter 6

Public Response to Bharatmala Pariyojna

Bharatmala Pariyojana in the news

Bharatmala Pariyojana Phase-I approved at estimated outlay of Rs 5,35,000 crore

A total length of 24,800 kilometres of National Highways has been considered in Phase-I as well as 10,000 km residual road works under the NHDP.

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Bharatmala Phase-1 to generate 14.2 crore man-days of employment

Synopsis

A total of 225 projects, having an aggregate length of about 9,613 km, have been appraised and approved under Bharatmala Pariyojana Phase-I so far, he said.

*The project is expected to generate about 14.2

NEW DELHI: The first phase of **Bharatmala project**, under which 34,800 km of highways will be developed, will generate 14.2 crore man-days of **employment**, the **Parliament** was informed Monday. The project has been approved at an estimated cost of Rs 5.35 lakh crore.

QUARTZ INDIA

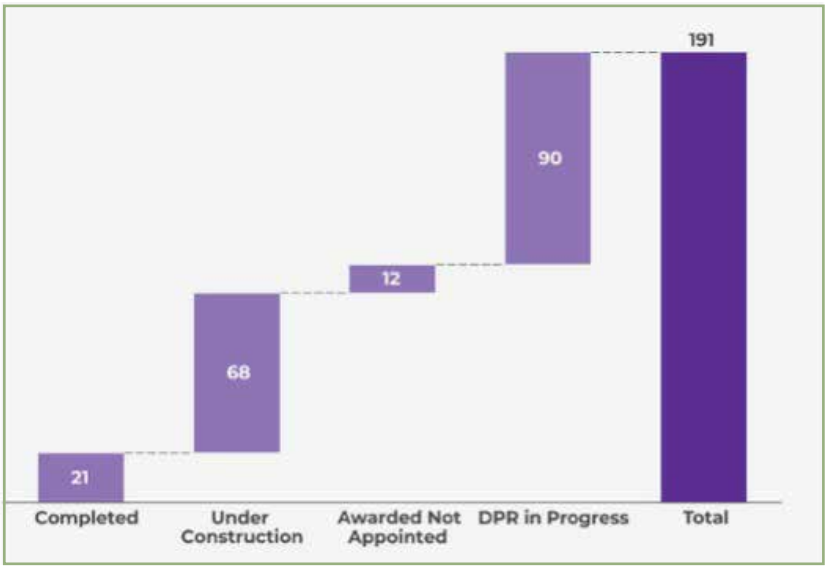
MY WAY AND THE HIGHWAY

The Modi government wants to build over 83,000 km of roads —enough to go around the Earth twice

Chapter 6

SUCCESS IN NUMBER

Congestion Points Resolution



Key components of Bharatmala Pariyojana

Category	Total Length (Km)	BM Phase 1 (Km)
Economic Corridors	26,160	9,000
Inter-corridor and Feederroutes	15,400	6,000
National Corridors Efficiency improvement	13,049	5,000
Border and International connectivity Roads	5,198	2,000
Coastal and Port connectivity Roads	3,298	2,000
Expressways	1,837	800
Total	**64,942**	**24,800**

Chapter 7

Success Stories and Prominent Projects

Success stories & prominent projects

MoRTH has completed the development of six arterial corridors in the country viz., Golden Quadrilateral (4 corridors), North – South Corridor and East – West Corridor

In addition to the development of arterial corridors, MoRTH has completed marquee projects in the recent past, in record time with superior design to enable efficient passenger and freight movement on key corridors

1. **Eastern Peripheral Expressway**
2. **Delhi Meerut Expressway (Pkg-1)**
3. **Chambal Bridge**
4. **Narmada Bridge**
5. **Chenani – Nashri Tunnel**
6. **New Brahmaputra Bridge**
7. **Dhaula Sadia**
8. **Babatpur-Varanasi**
9. **Bridges across Dibang and Lohit rivers**

Eastern Peripheral Expressway	
Record completion time	Completed in time of 500 working days against average of 910 days
Access Controlled	• Fully access controlled 6 lane Expressway with close tolling system. • Restriction of overloaded vehicles by installing Weigh-in-Motion (WIMs) at all the entry points.
Electronic Tolling	• Toll plazas equipped with ETC • This toll plaza will house ITS control centre of the complete EPE

Green	• First expressway in the country with solar power. • About 2.6 lakh trees planted on the Expressway. • Drip irrigation along the entire Expressway.
Aesthetic	• 40 no. fountains installed on the Expressway. • 36 no. of monuments on Expressway • Digital Art Gallery below the iconic toll plaza

Delhi Meerut Expressway (package-1)	
India's first 14 lane Highway	
Length of Project Road	8.72 km
Civil Cost	Rs. 609.67 Cr
Civil Contract Cost	Rs. 841.5 Cr.
Construction Period	30 months
ROW	91.4 m

Major Bridges	1
Minor Bridges	2
Grade Separators/ Flyovers	5
Vehicular Underpasses	6
Pedestrian Underpass	1
Foot Over Bridges	4


INDIA'S FIRST 14-LANE HIGHWAY

Narmada Bridge

Largest extra dosed span (144m) in India and first extra dosed bridge in Gujarat

Project Length	6.745 km
Major Bridge	1.344 km
Contract Amount	INR 379 Cr.
Interchanges / Flyovers	2
Culverts	2 box culverts
Traffic	80,000 to 1000,000
Construction Period	30 months

State of the Art, HTMS System, Variable Message Sign Boards, Median Plantation, Traffic Aid Post, Med- ical Aid Post, Smart Card Swapping at the Toll Plaza and Theme Lighting on the main bridge

Zojila tunnel (ongoing)

"Zojila Tunnel will provide all-weather connectivity between Srinagar and Leh. It will generate employment and also boost the economy of the region. It will also be of great strategic importance."

- Shri Narendra Modi, Prime Minister

Asia's longest bi-directional tunnel	
Length of tunnel	14.15 km
Total length of tunnel & approach road	32.78 km
Awarded cost	4,510 Cr
Construction Period (Est.)	6 years (up to 2026)
Altitude	11,578 feet

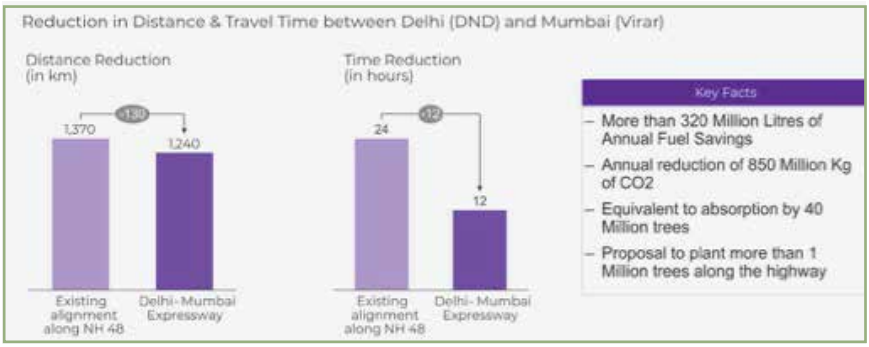
Reduction in travel time	3.5 hrs to 15 mins

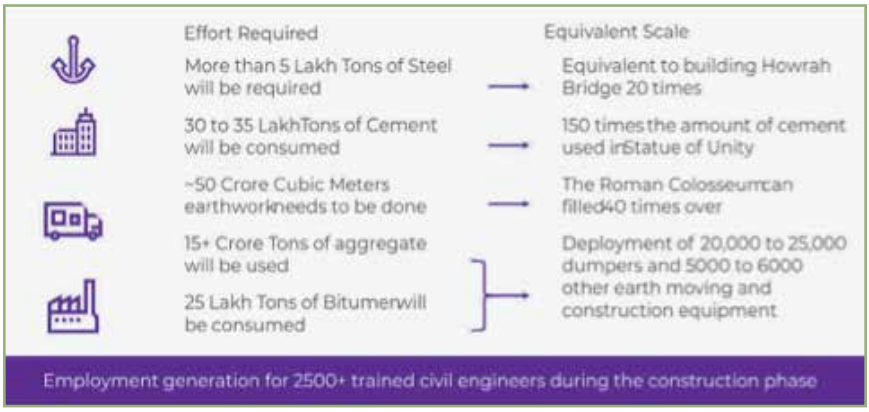
Zojila tunnel was designed to provide all-weather connectivity between Ladakh and Kashmir region, which previously remained closed during winters due to heavy snowfall

Delhi-Mumbai expressway (ongoing)	
Enhances connectivity between India's National Capital Delhi and Financial Capital Mumbai	
Total length	1,240 km
Configuration	8-lane with option to expand to 12-lane in future
Project cost (Est.)	80,000 Cr
Employment generation	50 Lakh man days
Reduction in travel time	24 hrs to 13 hrs

Other salient features:

- **Greenfield alignment** to avoid **habitation** and optimize **cost of land acquisition**
- Complete **access controlled with pay per use close tolling** concept
- **Wayside amenities** and cargo facilities planned at **every half hour**





Dhaula Sadia bridge in Assam	
India's longest river bridge catering to strategic requirement in border areas	
Length of Bridge	9.15 km
Total cost	INR 2,056 Cr (BOT)
Reduction in distance from Rupai to Meka	165 km
Connectivity	24*7
Fuel savings	Rs. 10 lakh / day
Reduction in travel time	6 hrs to 1 hr

The project will also facilitate numerous hydro power projects coming up in the State of Arunachal Pradesh. This is the most sought route for development by the various power project developers in the State of Arunachal Pradesh

Nechipu-Hoj in the State of Arunachal Pradesh (ongoing)	
Length of the Project	252.21 Km
Cost	1979 Cr. (Sanctioned)
Reduction in Travel time	66 hours
Likely Completion	27.03.2021
Impact	The 2-laning of Nechipu to Hoj section will reduce travel time by more than 2 days and provide comfort and convenience to passengers by connecting important districts of West Kameng, East Kameng, Pakke Kessang & Papum Pare

Dibang-Lohit River Bridge- Arunachal Pradesh	
Sanctioned Cost (INR)	8.50 Km
Cost	1508.25 Cr.
Reduction in Distance/Travel time	300 Kms/8 hours
No. of Bridges	5
Completion Date	2018
Impact	The project established all weather connectivity to eastern parts of Arunachal Pradesh by reducing dependence on ferry crossings.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