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# ANALYSIS REPORT ON INDIA'S NATIONAL HIGHWAY INFRASTRUCTURE



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India being home to one of the largest populations in the world, needs a vast road network for its socio-economic growth. The road network is the lifeline of the country as almost 65% of the goods transportation and around 90% of passenger traffic in India move through this complex mesh. They are the one who connects the farthest corners of the country and helps in the interstate movement to support regional growth beyond enormous disparities.

Over time, the importance of the National Highways (NH) has increased due to the heavy load on roads and to provide safe, secure, as well as time-efficient travel for personal and commercial needs. It provides a secure environment to commuters in the form of broader roads, interconnected ways to adjoining cities and towns with precise specifications and facilities such as multiple lanes with clear signboards, dedicated carriageways, electronic toll plazas, controlled access at crossroads along with medical and public utilities.

In India, only 2% of the construction of the total road network comes under the NH but this small proportion carries around 40% of India's total traffic. In the last 7 years, national highway construction has seen a major surge looking at the rising number of vehicles making congestion on roads and to fulfill the need for an improved supply chain for India's logistic sector. As per the government statistics, in FY 2020-21, a total of 13,327 km of NH construction took place in comparison to the NH construction of 4,410 km in 2014-15.

As these are the primary roads that interconnect major cities and industrial hubs with each other, the Central Government sees the development and maintenance of these NH through its dedicated agency for the purpose National Highway Authority of India (NHAI). Currently, some of the national highways or expressways are made equipped with airstrips also to play a strategic role in times of need.

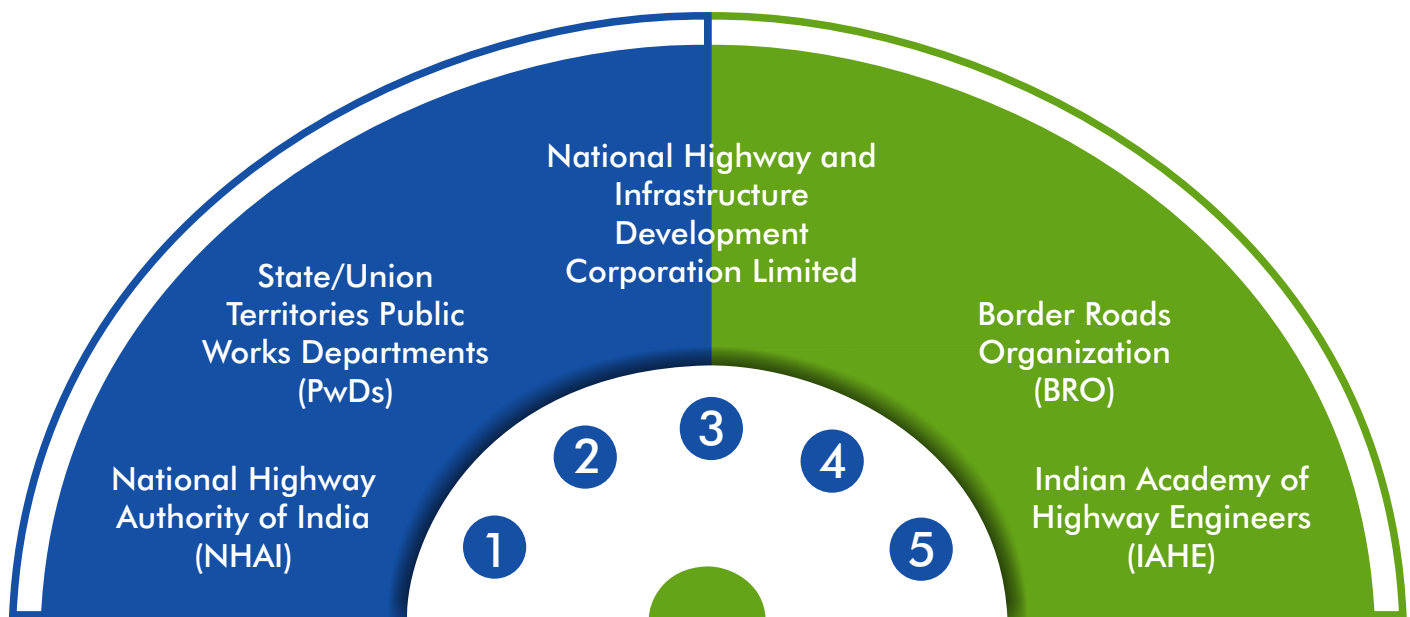
The Government of India through special attention on India's road infrastructure is bringing a transformational shift in highway construction through policy initiatives such as the Gati Shakti Master plan, Bharat Mala Pariyojna, Dedicated Freight Corridors, etc as to achieve the target of constructing National Highway Network of 2 lakh Kms by 2025. For this, the provisions have been made under the Union Budget 2022-23 and the projections are to receive significant outlay in the successive budgets also as these are the important pillars of national growth as well as national security and prosperity.

India is developing the highway infrastructure through a developed framework of the Public Private Partnership (PPP) model. International institutions such as Asian Development Bank are also providing financial support to extend its highway infrastructure. Other than this, the 100% FDI allowed in the road and highway sector in India under the automatic route is also bringing lots of investment to fuel up the energy in the domain and promise a bright future for all the stakeholders.





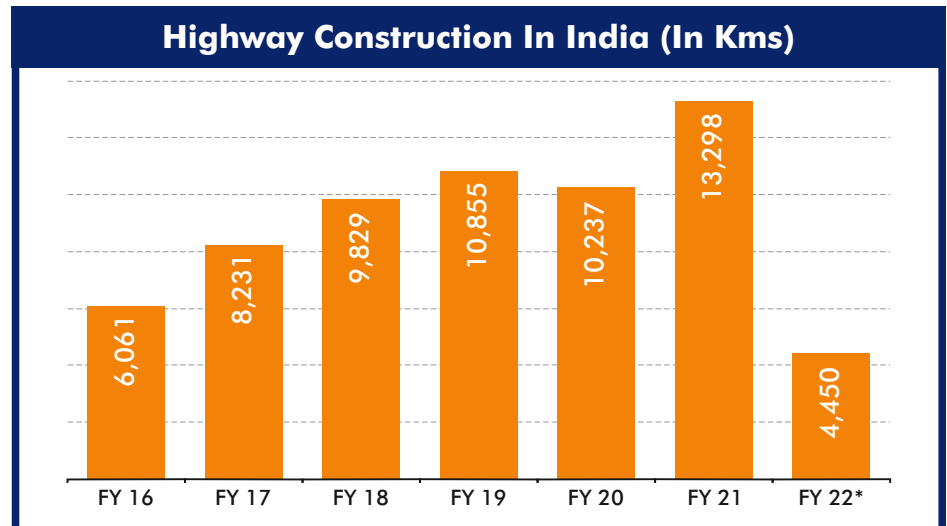
The government is digging deeper to provide a fundamental and robust infrastructure to push India's growth in the 21st century. In this regard, the Ministry of Road Transport and Highways through its multiple implementation wings, working to construct enhanced highway infrastructure in the country and connect the road arteries to facilitate better transportation needs. To open up new avenues of regional connectivity, the Ministry also declares major State/UTs roads as National Highways based on the respective government's/administration's proposals under the fixed guidelines.



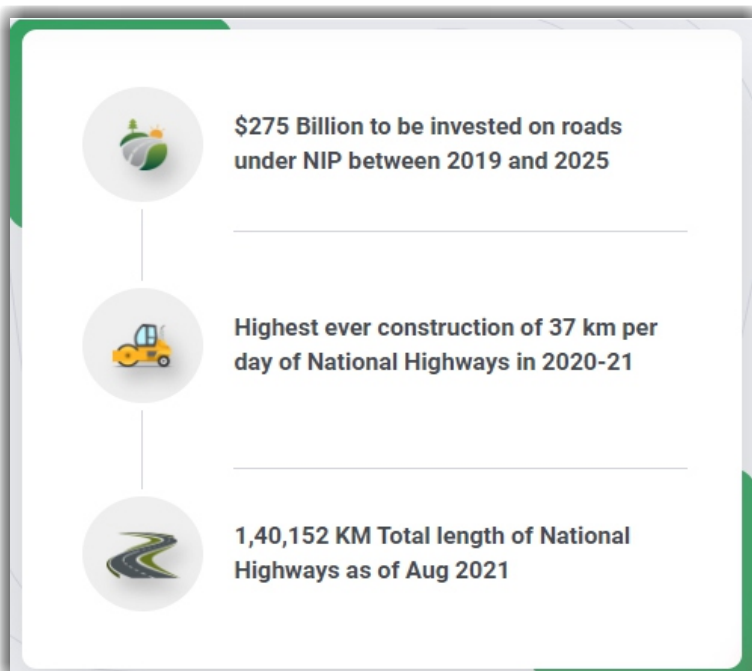
The NHAI is a primary nodal agency for NH development, maintenance and management while maintaining the best industry practices in implementation for the best commuter experience and convenience at par with global standards. The agency was constituted by the National Highway Authority of India Act, 1988 and to date has completed around 1,32,499 km of national highways across the length and breadth of the country. Along with its effective implementation and speedy construction, the government has also strengthened the National Highway construction and its up gradation through National Highways Development Projects (NHDP) for economic and social well-being.



As per the government statistics, NH construction has seen exponential growth with a 17% CAGR between FY 2016-2021. Even during the pandemic when the world was on standstill, India constructed more than 13,000 km of National Highways in the FY 2021 and has touched the highest construction mark of the last seven years.



Source: <https://www.ibef.org/industry/roads-india>



Source: <https://www.investindia.gov.in/sector/roads-highways>

Over the last few years, the government is putting significant budgetary support for the sector through various comprehensive schemes such as National Infrastructure Pipeline, Gati Shakti Master Plan, Bharamala Pariyojna, etc to bring its capital expenditure to around 18% for Road and National Highway Infrastructure development till FY 2019-25. The budgetary outlay under the Union Budget 2022-23 for the sector was US\$ 26.04 billion through which the Ministry has developed 5,835 km of National Highways for FY 2022 till December.

The NHAI has planned to construct around 25,000kms national highway until FY 2022-23. For this, the 50km per day construction speed has to be achieved from the 37 km per day construction speed achieved in FY 2020-21 by the agency. Under the Gati Shakti plan also the Ministry has finalized a high-impact national highway project list including Delhi Mumbai Expressway to work on priority and in a faster mode through Gati Shakti digital portal.

The scenario has increased the Average Annual construction length for road construction in the country by 83% during FY 2015-2021 in comparison to FY 2010-2014 and brought major employment opportunities. The high rate of NH construction also positively affects the other sectors such as Steel, Cement, Heavy Equipment & Machinery, etc in an integrated development approach in the coming years.

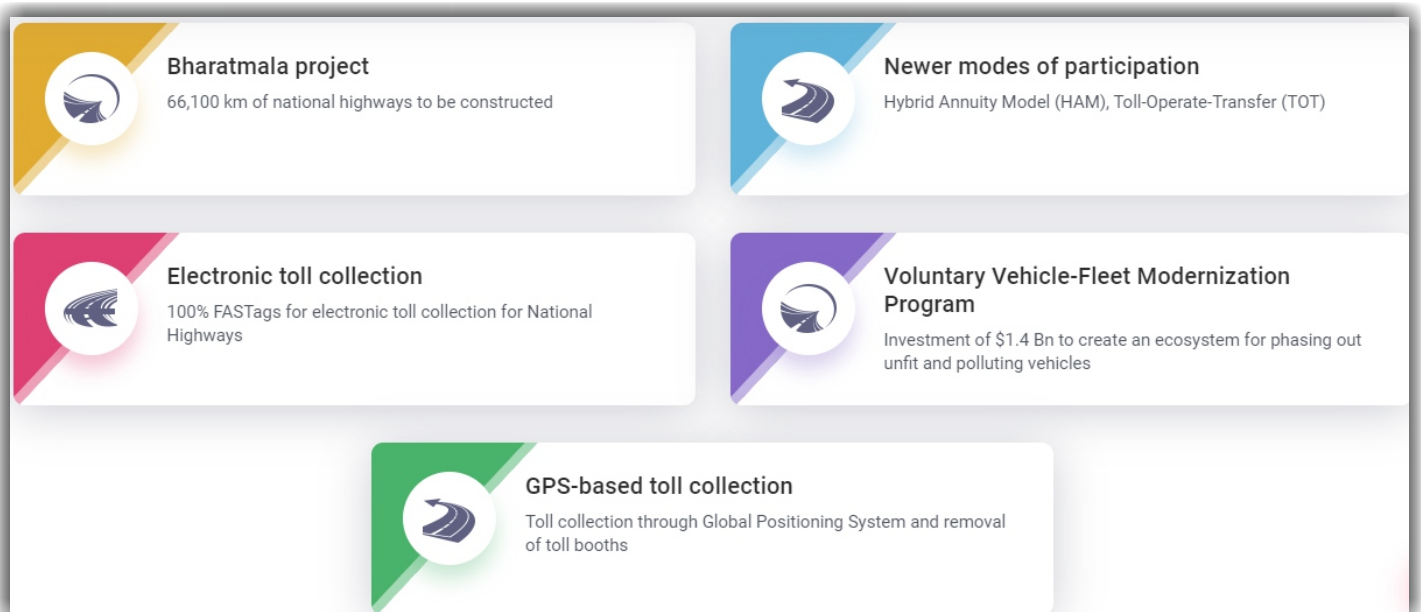
The highway construction has shown encouraging trends from both the demand as well as supply sides. Thus has witnessed outstanding performance and innovation through technology adoption in the sector. This all has cumulatively raised expectations and projected a CAGR of more than 36% between FY 2016-2025.

The ongoing government initiatives are impacting each stakeholder in the sector such as encouraging vehicle owners to buy new fuel-efficient vehicles through the Vehicle Scrapping Policy, electric mobility through expanding charging infrastructure and financial subsidies under the FAME scheme, relaxation for contractors under various schedules to increase liquidity in infrastructure projects, etc. This together opens tremendous growth opportunities in the area of national highway development in the country.





The various structured infrastructure projects such as Bharatmala along with technological advancements in the areas of Artificial Intelligence, Big Data Analytics and Cloud storage-supported platforms incorporated by the ministry have helped in the sector's growth. It has introduced new avenues of opportunities for entities providing digital solutions to enhance overall work efficiency and helps to keep live monitoring of project implementation to meet deadlines and increase cost-effectiveness.



Source: <https://www.investindia.gov.in/sector/roads-highways>

The scenario is making the breeding ground for India's comprehensive economic and social development. The other reasons for working as drivers of growth for the development of National Highways in the country are as under:



The strategic importance of developing the NH in the currently changing geopolitical scenario is also a big push for the sector. The total 28 Emergency Landing Strips (ELS) across the strategically important regions of the country are strengthening and supporting India's Defence infrastructure in the time of need.

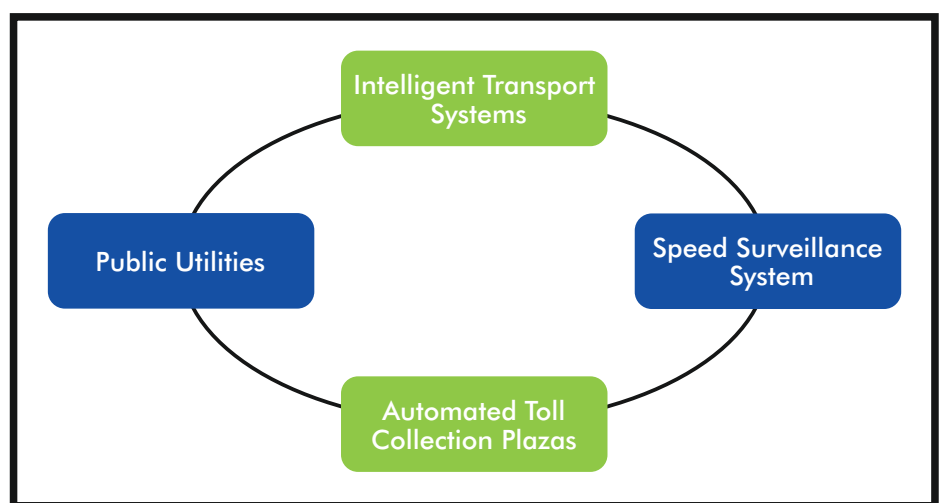
Along with this Greenfield connectivity through expressways is also changing the economic development of adjoining areas in terms of facilities, employment opportunities, etc. Thus, the speedy construction of the National Highway Infrastructure in the country is paving the way for a developed India and serving the best across the sectors and regions for everybody's good.

India with more than 5 million km length of road has positioned itself as one of the largest road networks across the globe. The vast road and national highway infrastructure for a thriving economy like India play an ace role. The importance of the well-developed national highways in the country is many fold as this touch almost all the sectors of the economy in a significant way but some of the major ones are as under:



These highways are not only spinning the wheel of economic growth but also benefiting the social settings of Indian society. As this works as a backbone to find avenues in employment, health, education, tourism and other areas while bringing people closer to each other in a tightly knitted social fabric.

These developed highways add positive changes in the life of commuters in form of exposure to less pollution, less congested roads, cost-effectivity that encourage frequent travel along with other environmental benefits. Some of the following measures taken to enhance commuter's safety and comfort in NH are:



The development of road networks in India is focused to reduce the cost of supply chain management significantly to 6% from the current level of 18%. It will automatically bring down the prices of commodities and give a sigh of relief to consumers and keep a check on rising inflation.

This will also make Indian goods more cost-competitive in the global market. Thus, it will help in boosting the country's export and bring more foreign reserves into the kitty. It ultimately makes the Indian market more attractive for investors and brings more public funds, private investments, and FDI into the sector.

Even during the pandemic, when all other modes of travel were restricted, these national highways played a major role in the supply of essential goods and the movement of people. It played a vital role in India's fight against Covid 19 pandemic and kept giving the Indian economy hope of swift recovery.

An efficient and developed national highway infrastructure provides unparalleled growth to a nation and that is what India is expecting with the continuous development of India's national highways and expressways at the current time. Some of the major impacts that it put on India's growth as a thriving nation are as under:



Provide Uninterrupted Flow of Traffic with Enhanced Safety

Develop Connectivity for Remote and Isolated Areas and bring Tribal Communities together to Contribute in National Growth

Enhance Fuel Efficiency by following International Standards that can Ease the Burden on Economy as well as Environment

Strengthen Countries Public and Goods Transport System

Strengthen Supply Chain and Provide Safe Commutation

Provide Strategic Support

The national highways contribute largely to the nation-building process and touch the life of every citizen. In this regard, bringing more innovation and facilitating its development further through more technology-enabled tools are important. So that, the monitoring of project implementation along with operation and maintenance can be taken care of on priority. It will help in keeping the wheel of economic prosperity rotating with a green and safe policy outlook for India's highway infrastructure development in the years to come.



The Government of India through its policy framework, trying to boost private and foreign investments in the national highway infrastructure development along with its operation and management. The strategy is to balance profits and enhance efficiency in project execution. As per the data of the Department for Promotion of Industry and Internal Trade (DPIIT), the major investment poured through these two streams in the construction development sector in FY 2022 are:

## Private Sector

Duration: FY 2022 (Till December 2021)

Investment: Around US\$ 2 billion

## Foreign Direct Investment (FDI)

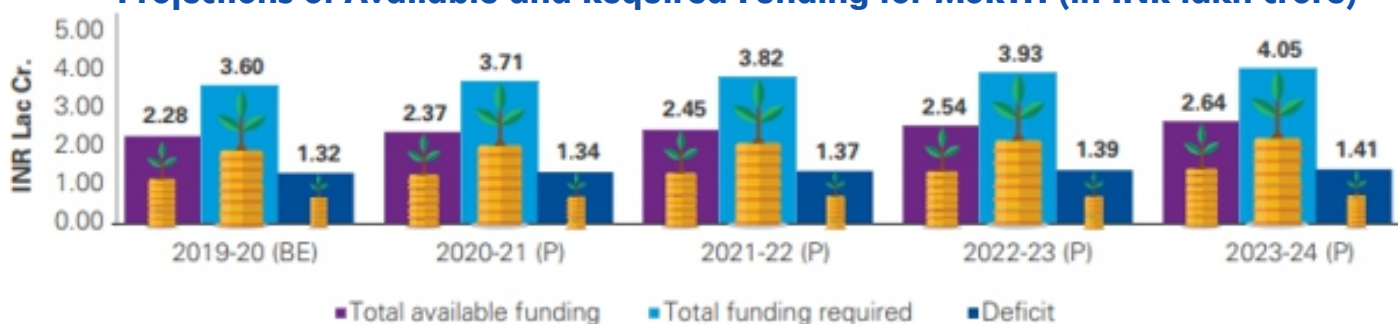
Duration: FY 2000-FY 2022

Investment: US\$ 26.21 billion

But, still the government's greater push towards infrastructure development has generated higher needs for funds from various sources to bridge the deficit. As per the data of the Ministry of Road Transport and Highway, there are 4942 government projects in the area worth US\$ 417.58 billion available across the 647 districts. Thus, there is a chance to pour in more investment through promoters in government road and national highway infrastructure projects and add feathers to India's success tale.



## Projections of Available and Required Funding for MoRTH (in INR lakh crore)

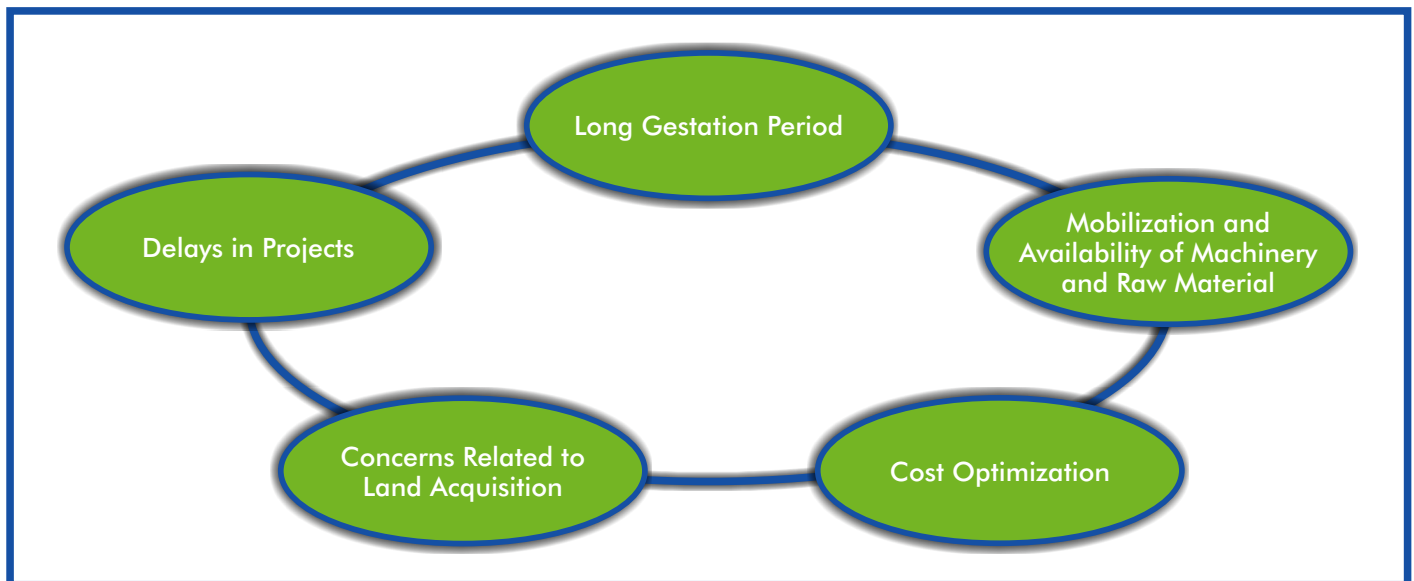


Source: <https://assets.kpmg/content/dam/kpmg/in/pdf/2019/09/india-technology-issues-trends-roads-highways.pdf>

India mostly operated in the Public Private Partnership model in national highway construction. But over time, the ministry has also monetized its national highway assets through Toll-Operate-Transfer (ToT) model. This helps to raise the fund and also keep a check on the standard of operation and toll management at national highways as applicable under contract. It counters one of the major challenges of infrastructure development concerning large investments to construct, operate and maintenance of the same through public funds.

The long gestation period of these projects brings lots of risks but to make it attractive enough, the government of India in 2020 declared a 100% tax investment for institutional investors putting investments in India's infrastructure projects through Sovereign Wealth Funds as well as Pension Funds. The new investment instruments envisaged by the government make the investment process easier through 'Real Estate Investment Trusts' and 'Infrastructure Investment Trusts'.

Still, looking at the magnitude of risk involved in these long-duration projects, the challenges related to their development and maintenance remain a concern for stakeholders such as:



All these bottleneck issues at the implementation level increase the risk associated with the project. The delayed process is also deemed to increase the project cost and thus put an extra burden on public funds or private investors. But, these bottleneck issues can't bring down the importance and benefits achieved by the continuous development of national highway infrastructure to cater to the rising transportation needs of the country.



The Government of India has given an active push to India's fundamental road and national highway infrastructure development. The ministry has worked religiously on its mandate to develop a safe, efficient and sustainable world-class national highway infrastructure to accelerate its socio-economic growth through seamless connectivity. To improve the efficiency of the national and economic corridor, the Ministry is taking up a comprehensive plan to develop efficient multi-modal connectivity and cost-effectively strengthen the supply chain.


**Saaf Niyat**
**Sahi Vikas**

## Paving the Roads of Development



**BHARATMALA  
PARIYOJANA:  
PHASE-I**  
**₹5,35,000 crore**  
**for expanding**  
**highways sector**  
with multi modal  
integration

## SETU BHARATAM PROJECT FOR SAFER ROADS

Making all National Highways free  
of railway level crossings, by 2019,  
by building **Railway Over**  
**Bridges/ Under Passes**  
Total outlay of  
**₹20,800 Crore**



The development of 22 Greenfield Expressways along with other national highway projects and multi-modal logistic parks under the Bharatmala Pariyojna is going to transform the road infrastructure settings in the country soon. It will accelerate India's growth engine towards the route of a US\$ 5 trillion economy. The major policy initiatives taken by the Government so far to develop an international quality national highway infrastructure across the country are as under:

### **Bharatmala Pariyojana**

It is an ambitious program of the government to develop an economic corridor of around 26,000 km length along the Golden Quadrilateral and North-South and East-West corridors to make it efficient enough to carry India's majority of freight traffic. It will help to enhance the logistic efficiency of the country on these congestion-free highways and reduce the logistic cost significantly. The estimated cost of around Rs 7 lakh crore including other ongoing schemes for the purpose is approved so that the implementation can be done on a priority basis and acceleration to economic growth can be provided.

### **Setu Bharatam**

An investment of Rs 50,000 crore has been made under this flagship scheme of the Ministry of Road Transport and Highways (MoRTH) to construct bridges on all railway-level crossings to make travel on national highways safer and smoother by 2019. This will include the widening, rehabilitation and replacement of such bridges along with new construction.

### **Connectivity in LWE Area**

As a special project, the ministry with an estimated cost of about Rs 7,300 crore planned to develop a stretch of around 1,177 km of highways along with an additional 4,267 km of state roads in the areas affected by Left Wing Extremism in the country. It will amalgamate these remote areas into the mainstream and bring opportunities for employment and livelihood in the region.

### **Char Dham Pariyojana**

The ministry through its dedicated program for the improved connectivity for Char Dham in Uttarakhand i.e. Kedarnath, Badrinath, Yamunotri and Gangotri through the development of a national highway. The estimated total cost of the project is Rs 9474 crore to make the travel of pilgrims, tourists and travellers much safer in all weather and give a boost to the tourism sector in Uttarakhand.

Thus, all these initiatives provide unprecedented growth to the Indian economy along with fulfilling India's geostrategic needs with the projects such as the Z-morh tunnel on Srinagar- Leh national highway (NH1). The relentless work of the ministry through its various agencies for providing the interconnectivity of remotest corners in all weather has shown results and continuously pushed India towards realizing the dream of a developed India.

The next decade will be the witness of India's efficient and robust infrastructure with the gaps filled by the continuously developed national highways and providing a quality experience to its commuters travelling for personal, recreational, educational, or commercial purposes. The intense use of technology and ICT tools with an extra push for electric mobility will bring a more sustainable and pleasant experience for commuters on these highways. The sufficient charging infrastructure, public utilities and emergency response control room services across the length and breadth of these strategically important lifelines are changing the saga of travel for once and all.

The future of India's sustainable and green mobility is shining with the rising highway infrastructure and the country's social canvas is also going to be colored in the rainbow color with frequent and safe travels on these roads. The economic prosperity of the country will mark unparalleled growth with innovation in technology and engineering to facilitate national highway construction, operation and management in the years to come and bring joy across the sectors.



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