



Indian Highways

Emerging Opportunities for Profitable Partnership



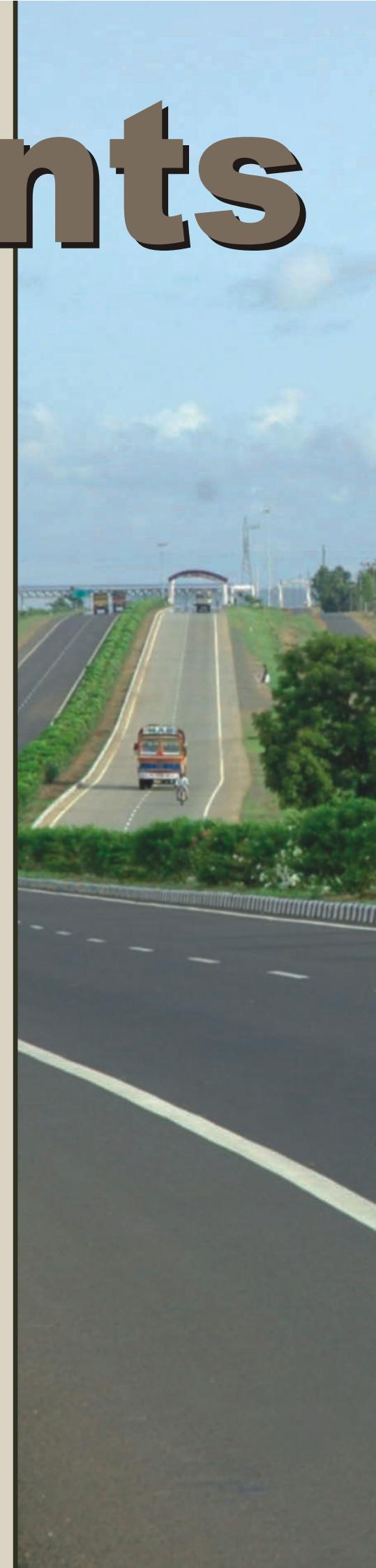
NATIONAL HIGHWAYS DEVELOPMENT PROJECT



Infrastructure is critical to improved productivity across all sectors. The current level of annual Gross Capital Formation in the infrastructure sectors is about 4.6% of GDP and needs to be ramped up to 8 % during the course of the Eleventh Five Year Plan. This would require a very significant scaling up of investment from the public as well as the private sectors. While public investment in infrastructure would continue to increase, the role of private participation needs to expand significantly to address the deficit in infrastructure services.

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Indian Road Infrastructure

A Perspective



Road sector constitutes a substantial part of infrastructure in India. India has the second largest road network in the world - 3.3 million kilometers. Out of this, National Highways (NHs) constitute only 2% of length, but share almost 40% of the total traffic on Indian Roads. As on 31st August 2006, 10% of National Highways was 4 or 6 lane; about 55% two-lane; and 35% single-lane.

The National Highways, with a total length of 66,590 km serve as the arterial network of the country. The development of National Highways is the responsibility of the Government of India. The Government of India has launched major initiatives to upgrade and strengthen National Highways through various phases of National Highways Development Project (NHDP).

The NHDP envisages six laning of 6500 km; four laning of 17,500 km; and upgrading of 20,000 km of National Highways, besides initiating work on 1000 km of Expressways over the next five years. It is estimated that this will involve investments of about Rs. 2,20,000 Crore (US\$ 50 billion) over the next 8-10 years. It will attract foreign direct investments.

The Road sector after being declared as an industry, now has plenty of opportunities for engineering companies, civil work contractors, professionals and construction equipment manufacturers. Apart from providing an economic boost to the country, it will have multiple effects in giving major impetus to cement and steel industries, manufacturing of state-of-the-art road building equipments and most importantly, large scale opportunity of employment generation for different classes.

Initially the National Highways Project phases-I & II were mostly public funded with share of Build-Operate-Transfer being not more than 10% of the total programme. However, now the bulk of the Highways programme is proposed to be undertaken through Public Private Partnerships (PPPs). This would include all Expressways, six laning and four laning projects, two lane with paved shoulder, Ring Roads & Bye-passes etc. to be undertaken henceforth under NHDP. Well laid out policy and regulatory framework, including a Model Concession Agreement (MCA), is already in place.

Policy Initiatives Of the Government of India in the Road Sector



- Amendment in the National Highway act, 1956 allowing private agencies to build, maintain, manage and operate the National Highways for specified duration, and levy fees to recover costs and generate reasonable returns.
- Setting up of the National Highways Authority of India (NHAI), an autonomous body for development and maintenance of National Highways.
- Committee on Infrastructure headed by Prime Minister set up to:
 - ↳ Form policies to ensure time bound development of world class infrastructure
 - ↳ To maximize the scope of Public Private Partnership
 - ↳ Monitor progress of key projects
- For four-laning of projects through NHAI, provision of Viability Gap Funding up to 40% of project cost on case to case basis to make projects viable.
- Duty free import of high capacity and modern construction equipment.
- 100% Income Tax exemption in any consecutive 10 year out of 20 years of operations (including the period of construction).
- Provision of encumbrance free site for work i.e. the Government would meet all expenses relating to acquisition of land and other pre- construction activities.
- Procurement procedure:
 - ↳ Well defined and transparent,
 - ↳ Investor-friendly Concession Agreement,
 - ↳ International Competitive Bidding.
- Foreign Direct Investment up to 100% in road sector.
- Easier external commercial borrowing norms.
- Longer concession period of up to 30 years.
- Right to collect and retain user fee (toll).

National Highways Development Project (NHDP)

The Government of India launched the NHDP in two phases in 1999 at an estimated cost of almost US\$ 14 billion (at 1999 prices).

It is being speedily implemented by the National Highways Authority of India (NHAI) - the nodal body set up for the development and maintenance of National Highways. The assets created are being operated and maintained through private agencies.

NHDP-I & NHDP-II

Components	Total Length
• The Golden Quadrilateral (GQ) [Delhi - Mumbai - Chennai Kolkata - Delhi]	5,846 km
• North-South Corridor (Srinagar to Kanyakumari), East-West Corridor (Silchar to Porbandar)	7,300 km
• Port connectivity and other projects	1,325 km
Total	14,471 km



Delhi-Jaipur Section of NH-8

Contours of Future Development

The Government of India has expanded the National Highways Development Projects. It includes five new phases:

- Up gradation and 4-laning of 10,000 km of National Highways on Build-Operate Transfer (BOT) basis, under NHDP Phase - III at a total estimated cost of US\$ 14.17 billion.
- Strengthening and widening of another 20,000 km of National Highways to two lane with paved shoulders, under NHDP Phase - IV at a total estimated cost of US\$ 6.04 billion.
- Widening of about 6,500km of National Highways to 6-lane on Design-Build-Finance-Operate (DBFO) basis, under NHDP Phase - V at a total estimated cost of US\$ 8.96 billion.
- Construction of Expressways of about 1,000 km on DBFO basis, under NHDP Phase - VI at a total estimated cost of US\$ 3.62 billion.
- Construction of Ring Roads, Bye-Passes, Grade Separators, Flyovers etc. in several important cities (on BOT basis where feasible) under NHDP Phase - VII at a total estimated cost of US\$ 3.62 billion.

Financing of National Highways Development Project (NHDP)

The Government of India, under the Central Road Fund Act, 2000 created a non-lapsable, dedicated fund for NHDP by levying cess on High-Speed Diesel and Petrol at the rate of Rs. 2.00 per liter.

From the fund created, the NHDP has been allocated Rs. 6400 crores in the year 2006-07.

Allocation of the fund from Central Road Fund

- 50% of the cess collected from Diesel is meant for rural roads.
- Allocation of fund from balance 50% cess from Diesel and the entire cess on Petrol for different categories of roads is as follows:
 - i. 57.5% on National Highways,
 - ii. 12.5% on Road Over Bridges / Rail Over Bridges (to be constructed by the Railways),
 - iii. 30% on Roads other than National Highways.

Sources of Financing of NHDP

- Creation of non-lapsable and dedicated Central Road Fund for financing road sector and crediting cess on diesel and petrol therein.
- Securitization of cess (market borrowings on strength of future inflow of cess).
- Involving private sector and encouraging Public Private Partnership (PPP).
- Availing long-term external loans from the World Bank and Asian Development Bank.
- Tolling the roads.



Funding of NHDP & Other Projects as Approved by Government

	Phase-I at 1999 Prices		Phase-II at 2002 Prices		Phase-III A at 2004 Prices	
	Rs. (crs.)	US\$ (million)	Rs. (crs.)	US\$ (million)	Rs. (crs.)	US\$ (million)
Cess / Market Borrowings including BOT (Annuity) Projects	18,846	4097	23,420	5091	-	-
World Bank/ Asian Development Bank Loan Assistance	7,862	1709	7,609	1654	-	-
Share of Private Sector (BOT/NHAI-SPV)	3,592	781	3,310	720	12,000	2609
Budgetary Support	-	-	-	-	10,000	2174
Total	30,300	6587	34,339	7465	22,000	4783

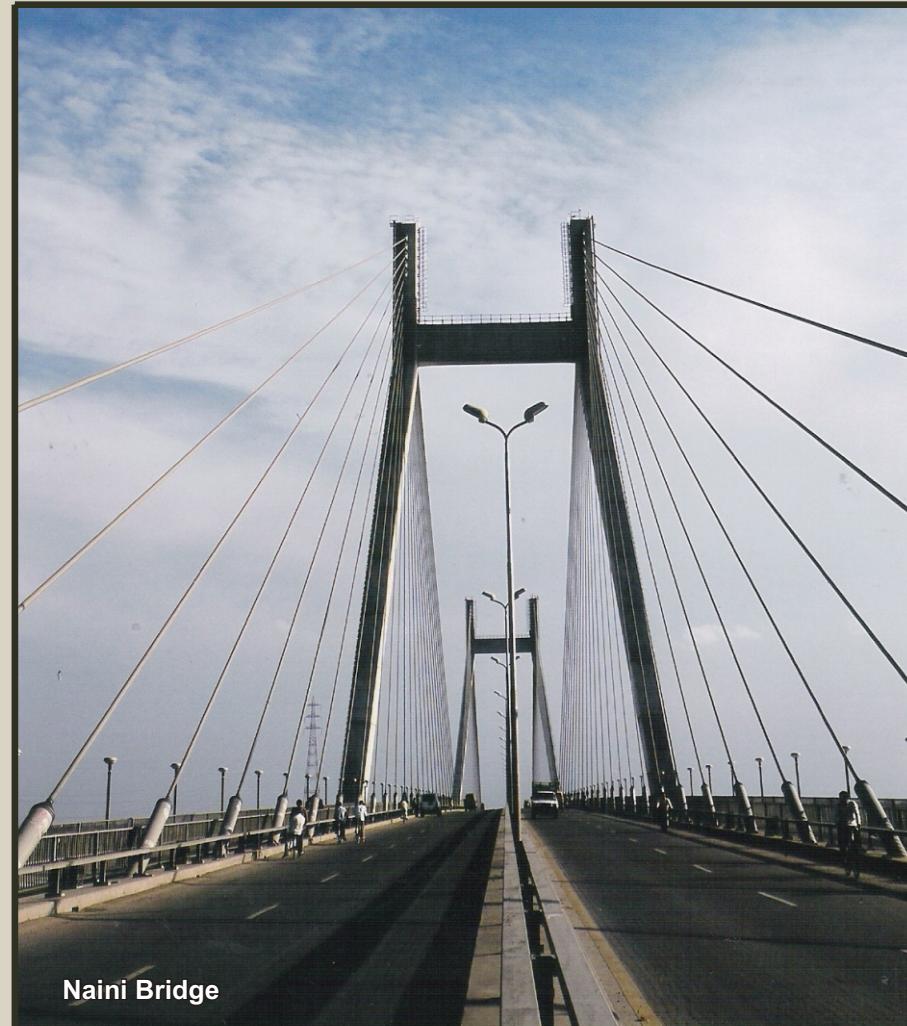
Public Private Participation

The first two phases i.e. NHDP-I and NHDP-II were mostly funded through the Government where the share of BOT Highways was only 10%. Now, from the NHDP-III onwards, the funding mechanism is mostly Public-Private Participation except some stretches where it may not be viable on BOT. Also high traffic corridors are being offered to the concessionaire there by making the Public-Private Participation an attractive and profitable proposition.

Public Private Partnership is proving to be a successful mechanism for developing and maintaining the National Highways. In 2005, 30 BOT contracts covering a length of 1600 kms were awarded. Almost all future projects are envisaged in the BOT mode.

Types of Public Private Participation

- Common forms of public private partnership in the road sector would be Design Build Finance & Operate, Build-Operate-Transfer (Toll) and Build-Operate-Transfer (Annuity) projects.



Naini Bridge

In Design, Build, Finance & Operate, the Private Sector meets the up front cost of design, construction and expenditure on annual maintenance and recovers the entire cost along with the interest from toll collection during the concession period. To increase the viability of the projects, a capital grant up to a maximum of 40% is provided by the client. Model Concession Agreement (MCA) ensures equitable rights to both the client and the entrepreneur.

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The Annuity projects, the Private sector is required to meet the entire upfront cost (no grant is paid by the client) and the expenditure on annual maintenance. The concessionaire recovers the entire investment through pre-determined annuity payments by the client.

By March 2008, around 175 contracts covering a length of 15,803 kilometers having an estimated cost of Rs. 76,544 crores (US\$ 16,640 million) are targeted for award on BOT basis under different phases of NHDP

BOT under NHDP: as on September 2006

Phases of NHDP	Length in kms.	Cost (Rs. crs.)	Cost (US\$ million)
NHDP Phase II	714	4,655	1012
NHDP Phase III	7177	46,794	10173
NHDP Phase IV	5064	7,039	1530
NHDP Phase V	2848	18,056	3925
Total	15803	76,544	16640

Contracts under Public Private Partnership: as on September 2006

BOT Toll	No. of Contracts	Total Length In km	Cost	
			Rs. (crores)	US\$ (million)
Awarded	44	2505	15,718	3417
Completed	7	420	2,247	488
Annuity				
Awarded	20	1150	7,695	1673
Completed	8	476	2,354	512

BOT toll contracts under Negative Grant: as on September 2006

BOT Toll	No. of Contracts	Total Length (km)	Cost	
			Rs. (crores)	US\$ (million)
Awarded	17	835	6,208	1350
Completed	-	-	-	-

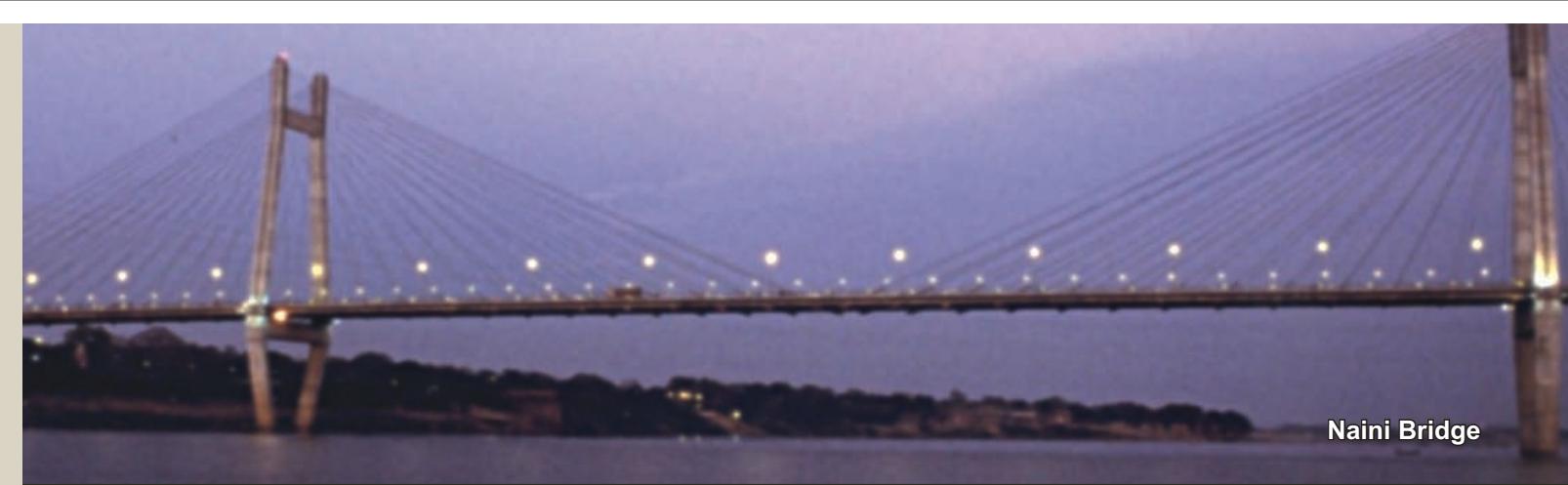
Of all these projects the most notable fact is, there is a negative grant of Rs. 1,900 crores (US\$ 413 million) for 17 contracts covering 835 km involving Rs. 6,208 crores (US\$ 1350 million).



Bituminous work in progress near Kanpur on NH-2

Investment Environment in India

- One of the most attractive destinations for Foreign Direct Investment (FDI). 100% FDI allowed in the road sector.
- Flexible operating environment for investors.
- Comprehensive agreements to avoid double taxation with a large number of countries.
- Strong independent legal system.
- Equitable dispute resolution mechanism.
- Robust economy targeted to grow at the rate of 7-8%.
- Well-structured institutional framework for entrepreneur-friendly environment.
- Large pool of trained and skilled work force.
- Assured funding for Highway projects.
- Modern financial systems with capital market supporting the world's third largest investor base; sound banking network includes most global banking corporations connecting every corner of the country in a seamless grid.
- Advanced R&D facilities available at reputed institutes of international standards.



Foreign Participation

Given the unmatched investment opportunity, Contractors and Supervision Consultants from around 27 countries are already in India, helping implement one of the world's largest Highways projects.

Construction Firms	No. Of Foreign Firms	No. of Projects	Length (km)	Cost Rs (crs.)	Cost US\$ (million)
BOT (Toll)	9	10	602	4,055	882
BOT (Annuity)	5	5	361	2,045	445
EPC Contractors	32	65	3,288	16,029	3485

S.No.	Country	Contractors	Consultants
1	Australia	-	2
2	Bangladesh	-	1
3	China	7	-
4	Canada	-	2
5	Denmark	-	3
6	France	-	2
7	Germany	-	3
8	Indonesia	1	-
9	Iran	1	-
10	Italy	-	1
11	Japan	-	1
12	South Korea	5	-
13	Malaysia	17	3
14	Netherlands	-	1
15	New Zealand	-	2
16	Philippines	1	-
17	Russia	1	-
18	Singapore	-	1
19	Saudi Arabia	1	-
20	Spain	2	-
21	Sweden	-	1
22	Switzerland	-	1
23	Taiwan	1	-
24	Thailand	2	-
25	Turkey	1	-
26	UK	4	8
27	USA	1	8
Total		45	40

The road ahead

Enormous Opportunities

Emerging Projects

India has plans drawn up for several new programmes in the Highways sector, estimated to cost about US\$ 48 billion in the next 7 years (2005-2012). Most of these projects are envisaged to be implemented through Public Private Partnership.



Different Phases of NHDP

Phases of NHDP	Length in kms	Cost Rs. (crs)	Cost (US\$ billion)
NHDP-I (Balance Work)	1,738	8,811	1.92
NHDP-II (Balance Work)	6,736	43,623	9.48
NHDP-III	10,000	65,197	14.17
NHDP-IV	20,000	27,800	6.04
NHDP-V	6,500	41,210	8.96
NHDP-VI	1,000	16,680	3.62
NHDP-VII	-	16,680	3.62
Total	45,974	2,20,000	47.81

Expressways

Future Prospects

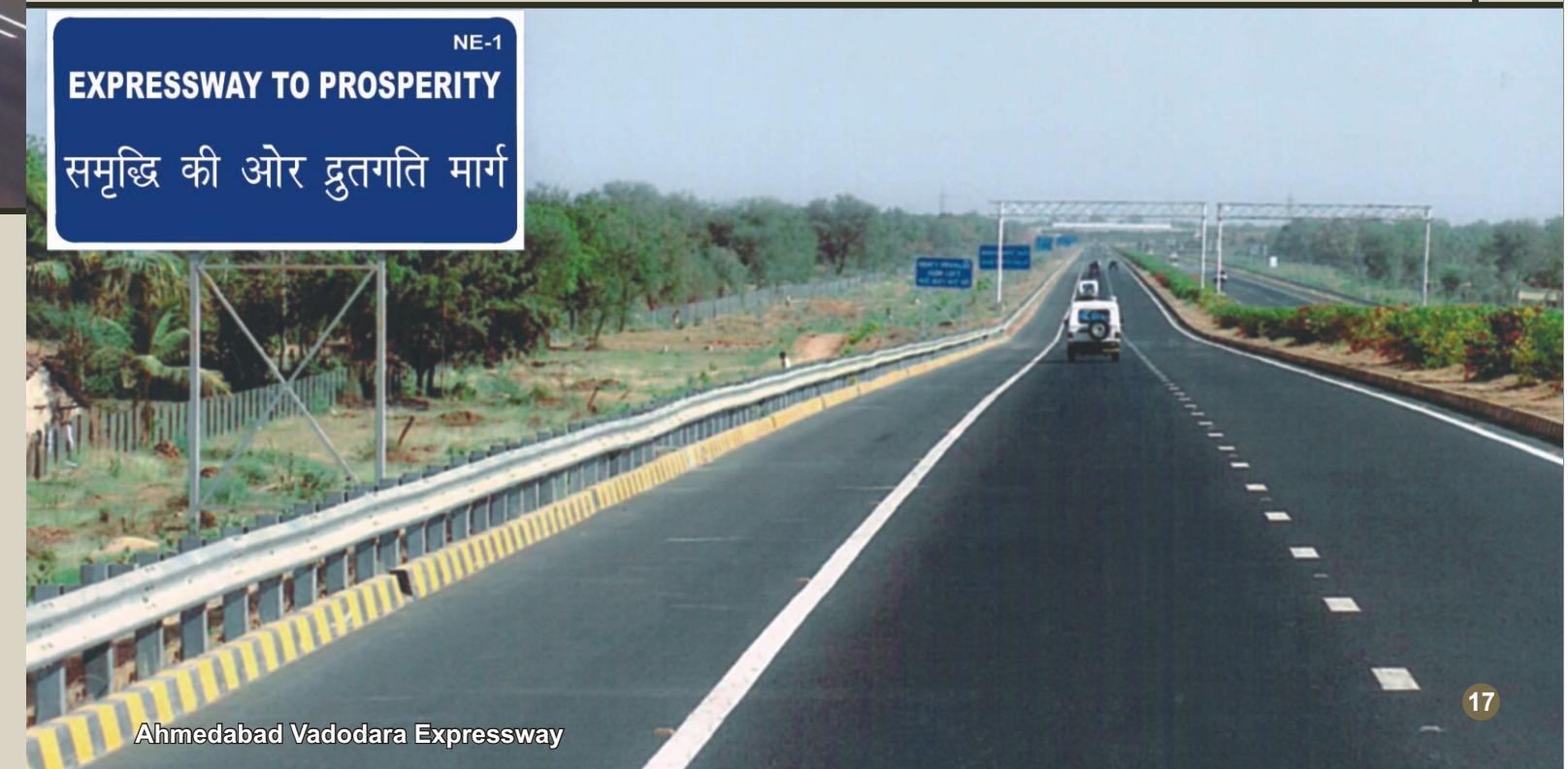
To sustain India's economic growth, the Government has given top priority to build high-speed road corridors, including access-controlled Expressways.

1,000 km of Expressways at an estimated cost US\$ 3.62 billion at 2005 prices, is to be built on DBFO basis. Out of this, 400 km of Vadodara-Mumbai corridor in Western India has already been identified for construction, as an extension of the existing Ahmedabad-Vadodara Expressway.

Expressways, for the rest 600 km, the most potential routes

- Bangalore - Chennai
- Delhi - Agra
- Delhi - Chandigarh
- Delhi - Jaipur
- Delhi - Meerut
- Kolkatta - Dhanbad

Reputed Indian and international consultants would be appointed to prepare feasibility Reports/Detailed Project Reports (DPRs) and cost estimates. The consultants are to be appointed after competitive bidding based on technical competence, experience and financial proposals. They would study issues relating to Traffic, Topography, Soil Investigation, Environment and Resettlement & Rehabilitation matters, etc.

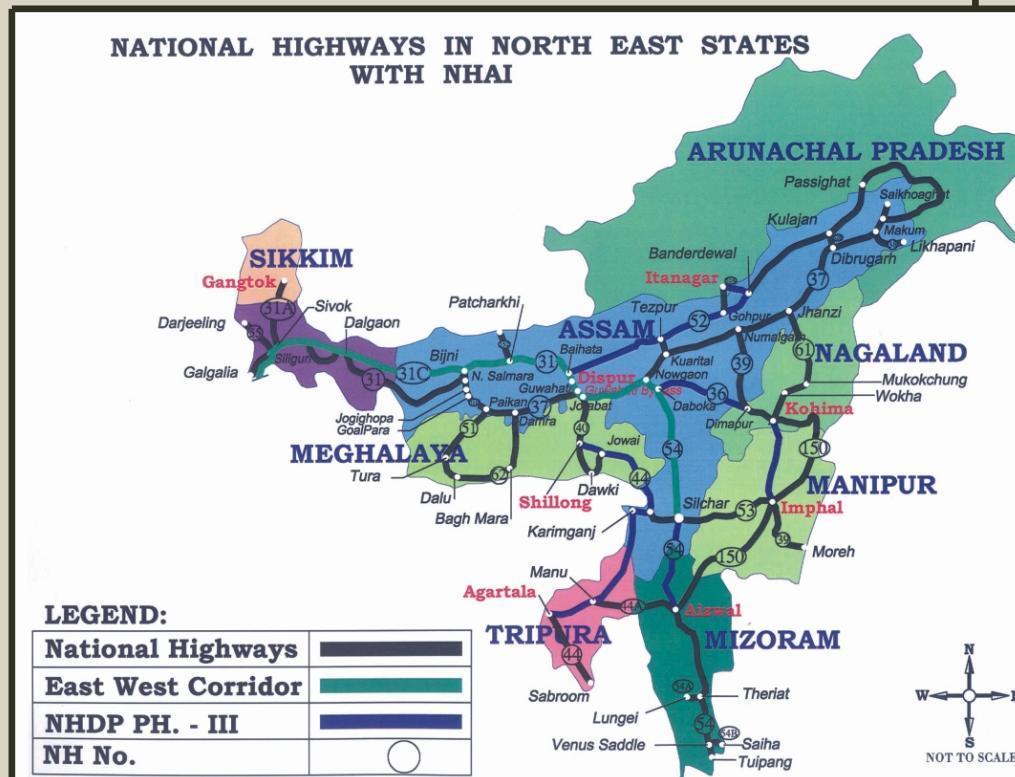


Special Emphasis

North-Eastern States

Special Accelerated Road Development Programme in North-Eastern States (SARDP-NE)

Appreciating the need for accelerated development of roads and with a view to developing economy of this region in a big way, Government of India has formulated a Special Accelerated Road Development Programme for North-Eastern States (SARDP-NE) covering 7616 km length of National Highways, State Roads and Strategic Roads. The first phase (Phase A) of SARDP-NE comprises of a length of 1110 km of National Highways and 200 km of State Roads respectively at an estimated cost of Rs. 4618 crore (US\$ 1004 million) and is targeted for completion by the year 2009.



Main Objectives of SARDP- NE

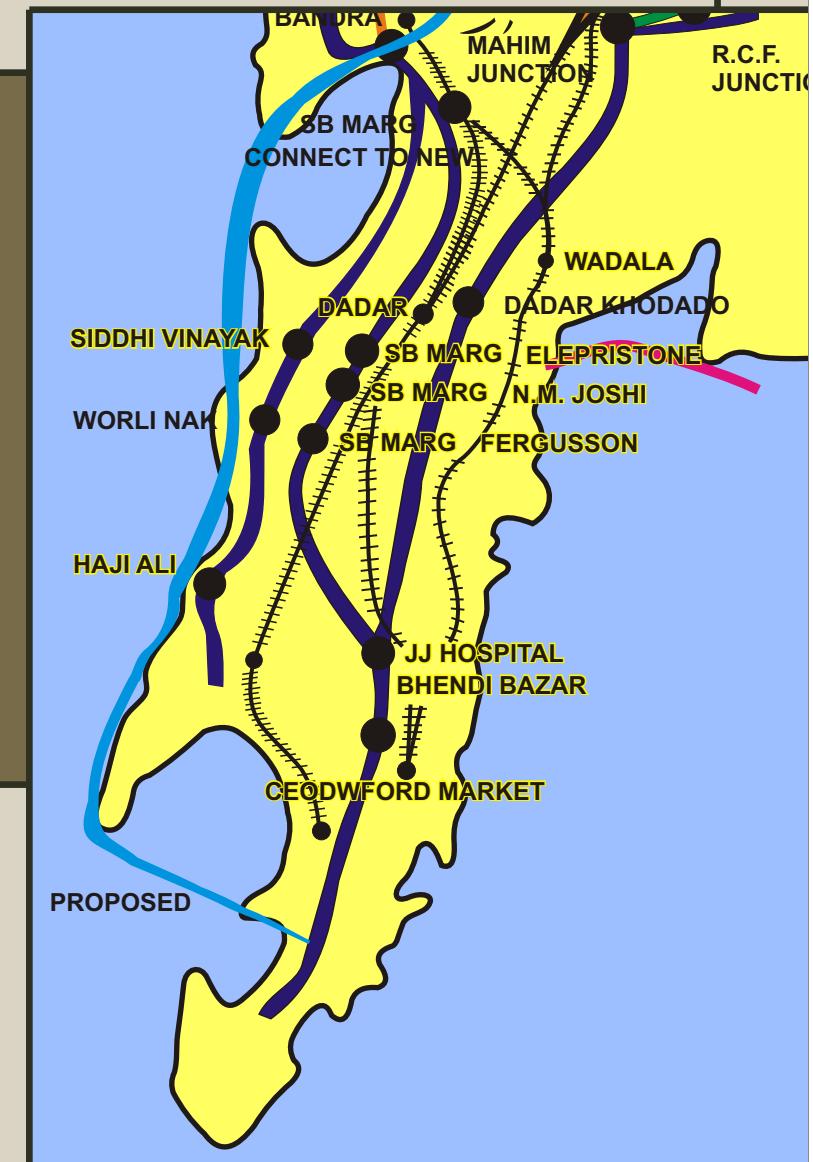
- To connect all State capitals with improved/upgraded National Highways.
- To provide connectivity to all the District Headquarters of the NE Region.
- To improve connectivity to the neighboring countries.
- To provide road connectivity to backward and remote areas of NE Region to boost socio-economic development.
- To improve some of the important roads of strategic importance.

Other projects of importance

Bandra Worli Sea Link Project

Salient Features

- Link connects Western Expressway at Mahim junction to Khan Abdul Gaffar Khan Road in Worli
- Bridge length: 4 kms
 - ↳ 600 m Main Cable Stayed Bridge at Bandra
 - ↳ 350 m Worli Cable Stayed Bridge
 - ↳ 3150 m Approach Bridge in Precast segmental Construction with spans of about 50 m c/c
- Solid approach road at Bandra: 1.8 km (including toll plaza)
- Carriageway - 8 lanes
- Cable stayed bridge of 500m length on a central twin pylon



BANDRA WORLI SEA LINK PROJECT Financial Viability

Project Cost	Rs. 1306 Cr.
Traffic in PCU (2007-2008)	75000
Expected Annual Toll Revenue	Rs. 82 Cr.
Project IRR	11.09 %
Concession period	30 years (up to 2037)

Emerging Opportunities

With such a large number of new projects on offer under Public Private Partnership in the road sector, there are immense investment opportunities for:

- Investors
- Companies with diverse business lines wanting to diversify to road sector.
- Contractors
- Consultants
- Operations and Maintenance Operators
- Equipment Manufacturers / suppliers
- Toll Operators
- ITS companies



Ahmedabad-Vadodara Expressway

For Building and Maintaining of Toll Plazas and User Facilities

- About 100 toll plazas are expected to be commissioned in the next 3 years. The value of the systems required is about US\$ 4.5 million per toll plaza.
- The equipments required include Central Toll Management Software, Automatic Traffic Counter and Classifier, Boom Barrier, Close Circuit TV, Smart Card/ Swipe Card Reader, Fare Display Unit, Voice Communication System and Electronic Toll Collection with On Board Unit (OBU)/Transponder.



Toll plaza at Chennai Bypass

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