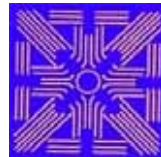


Regional Rapid Transit System (RRTS) for National Capital Region



Rajeev Malhotra
Chief Regional Planner
NATIONAL CAPITAL REGION PLANNING BOARD

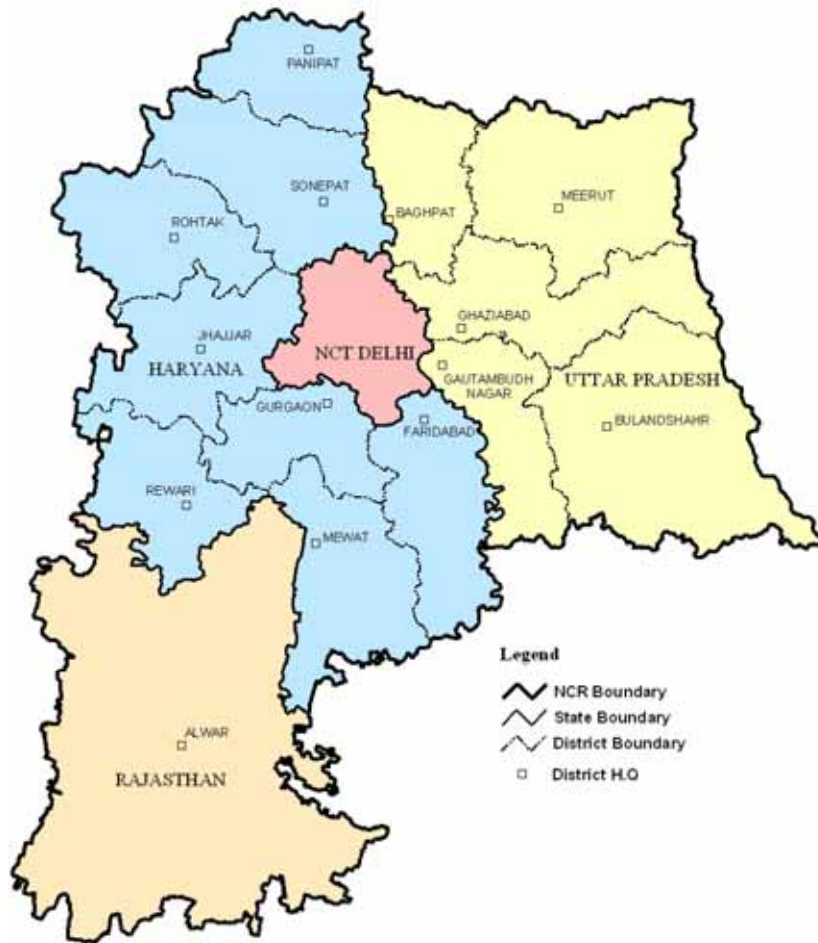
8th September, 2011

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NATIONAL CAPITAL REGION PLANNING BOARD

NCR: Constituent Areas



(Area in sq kms)	RP-2001	RP-2021
NCT-Delhi	1,483	1,483
Haryana	13,413	13,413
U.P.	10,853	10,853
Rajasthan	4,493	7,829
Total	30,242	33,578

NCR area of 33,578 sq kms is

- 1.06% of India's area
- 86.00% of Kerala
- 75.90% of Haryana
- 66.67% of Punjab

NCR area is almost 23 times that of NCT-Delhi (1,483 sq kms)

NCR area is more than the combined area of 3 States of Tripura, Nagaland and Sikkim (27,885 sq kms)



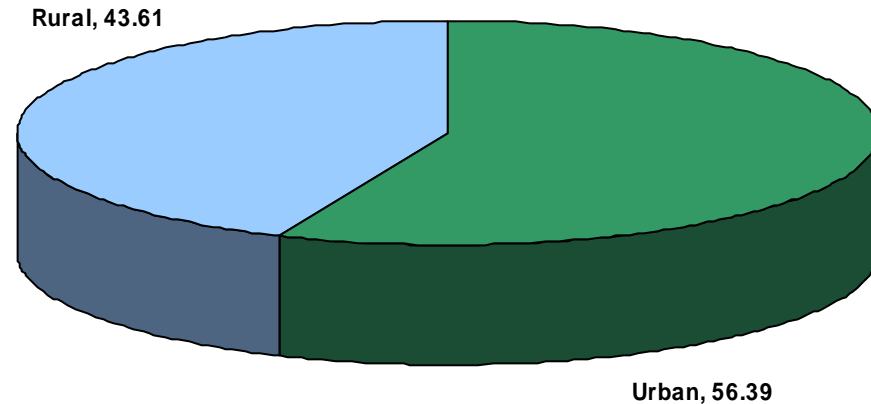
NCR: Population Distribution

Population Projection as per Regional Plan-2021 for NCR

Year	Population (in Lakhs)				
	NCR	Delhi	Haryana	Rajasthan	U.P.
2001	371.00	138.50	86.87	29.92	115.70
2011	486.19	179.90	117.55	37.91	150.83
2021	641.38	234.87	160.16	48.06	198.29

Urban-Rural Components of Population in NCR (1981-2001)

	Percent share (%)		
	1981	1991	2001
Urban NCR	45.87	50.23	56.39
Rural NCR	54.13	49.77	43.61
Urban NCR*	24.53	29.39	34.47

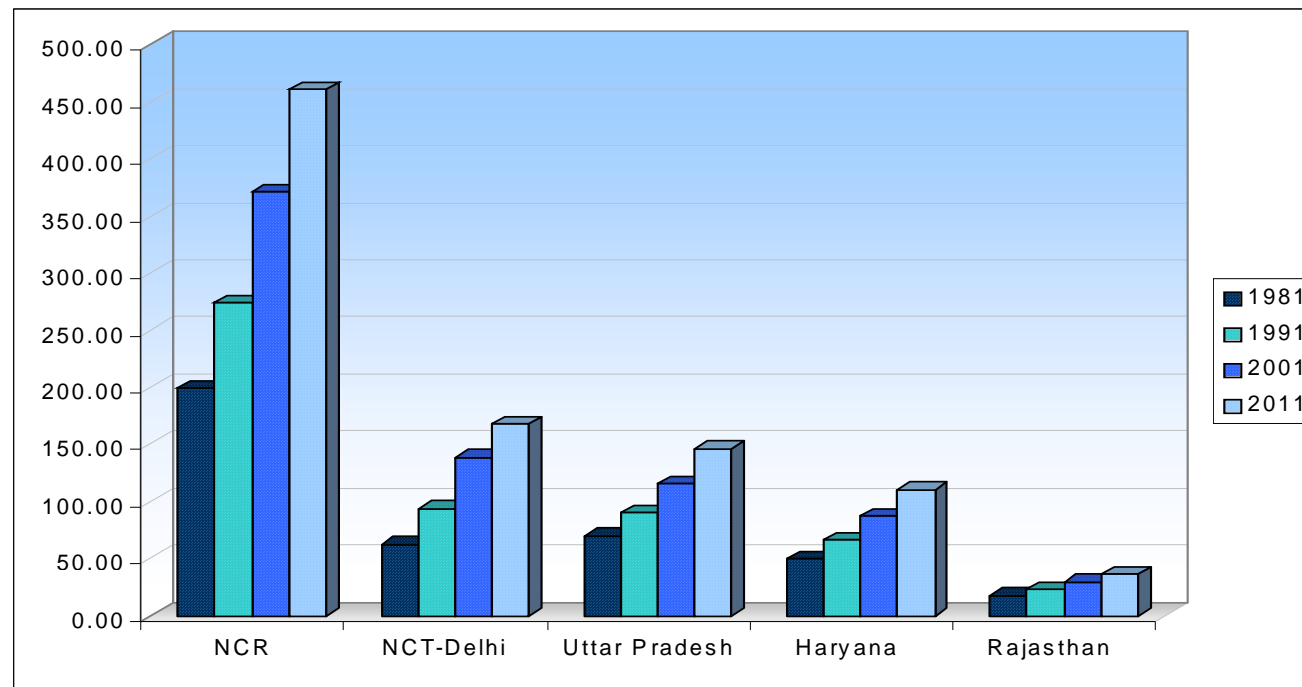


*Urban NCR excluding NCT-Delhi



Subregion-wise Population of NCR

Sub-region	Population (lakhs)	
Year	2011 Proposed	2011 Actual
NCT-Delhi	179.90	167.53
Haryana	117.55	110.38
Rajasthan	37.91	36.72
UP	150.83	145.84
NCR	486.19	460.47



Sub-region/	Population (lakhs)				Decadal Growth Rate (%)			Share of Population (%)			
	1981	1991	2001	2011	1981-91	1991-01	2001-11	1981	1991	2001	2011
NCT-Delhi	62.20	94.21	138.51	167.53	51.45	47.02	20.96	31.28	34.43	37.33	36.38
Haryana	49.39	66.44	86.87	110.38	34.53	30.76	27.06	24.84	24.28	23.42	23.97
Rajasthan	17.56	22.97	29.93	36.72	30.82	30.31	22.75	8.83	8.39	8.06	7.97
Uttar Pradesh	69.69	90.02	115.70	145.84	29.17	28.53	26.05	35.05	32.9	31.19	31.67
NCR	198.83	273.63	371.00	460.47	37.62	35.59	24.12	100	100	100	100



Regional Plan 2021: Aims and objectives

To promote growth and balanced development of the National Capital Region through

- Providing suitable economic base for future growth in identified regional settlements to absorb economic impulse of Delhi
- Promoting sustainable development
- Providing rational land use pattern
- Developing urban infrastructural facilities
- **Providing efficient and cost effective rail and road based transport network**
- Minimizing adverse environmental impact
- Innovative methods of resource mobilization and attracting private investments



Regional Plan 2021: Thrust areas

- Development of Metro Centres and Regional Centres as powerful growth nodes to attract major activities
- **Provide regional transport linkages-Regional Rapid Transit System (RRTS) and its interface with Delhi metro**
- Construction of peripheral expressways and orbital rail corridor around Delhi
- **Development of core urban infrastructure (transport, power, water supply, sewerage, drainage etc.) in NCR towns**
- Facilitate development of the region's economy through Model Industrial Estates, Special Economic Zones etc. outside NCT-Delhi
- **Development of counter-magnet areas outside NCR - Gwalior, Bareilly, Kota, Hissar and Patiala, Ambala, Dehradun and Kanpur**
- Public-private partnership



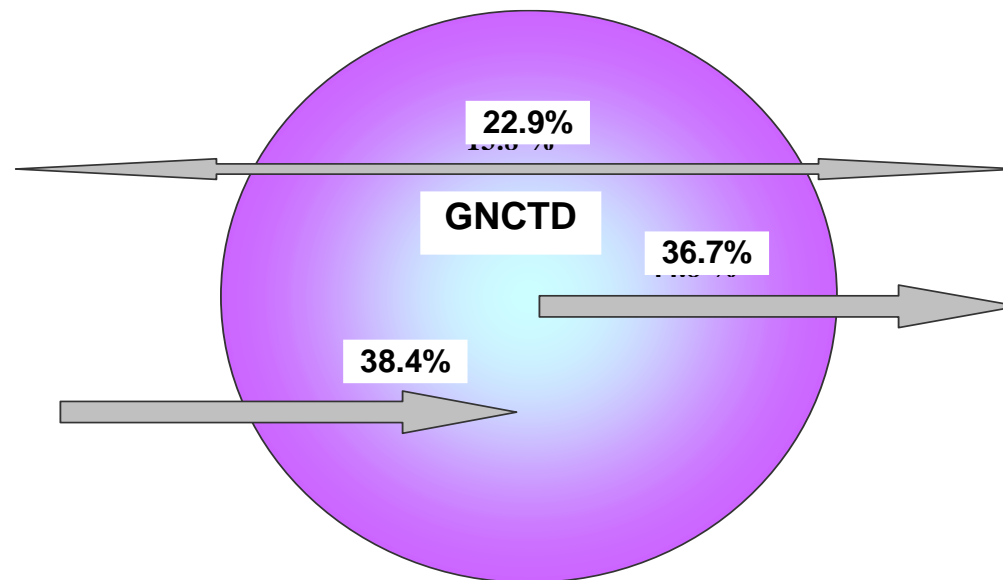
INTEGRATED TRANSPORT PLAN FOR NCR-2032



Integrated Transportation Plan for NCR

- Board undertook the study on 'Integrated Transportation Plan for NCR' with perspective year 2032
- Integrated Transportation Plan for NCR-2032 was approved by the Board in its 31st meeting held on 11.11.09
- Travel Pattern (Passenger Modes) : Study Indicates 11,07,043 passenger modes crosses Delhi Borders in a day (year 2007)

Internal-External (IE) : 36.7% (Origin within NCTD)
External-Internal (EI) : 38.4% (Destination within NCTD)
External-External (EE) : 22.9% (both O & D outside NCTD)



Integrated Transportation Plan for NCR

Mode-wise distribution of Trips

Mode	Year - 2007		Year - 2032	
	Trips per day (Million)	%	Trips per day (Million)	%
Bus	1.03	27.83	6.18	46.7
Sub-urban Rail/ RRTS/ Regional MRTS	0.61	16.61	2.91	21.9
i) Sub-urban Rail/ RRTS	0.61	16.61	1.70	12.8
ii) Regional MRTS	-	-	1.21	9.1
Auto-Rickshaw	-	-	0.66	5.0
Car	1.12	31.90	2.22	16.7
2-Wheeler	0.87	23.57	1.28	9.6
Total	3.63	100%	13.25	100%



Integrated Transportation Plan for NCR

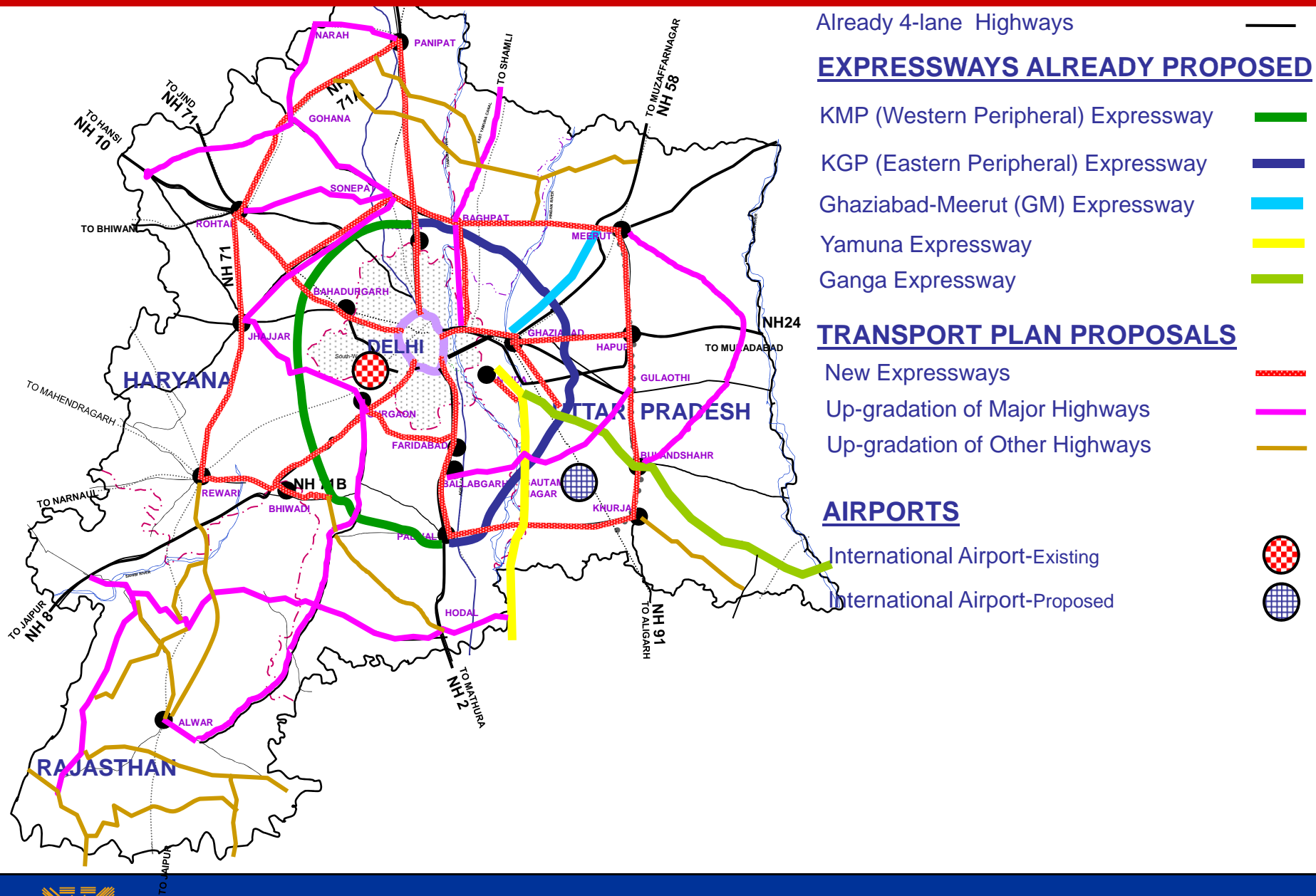
- The study was completed and the Transport Plan was approved by the Board in its 31st meeting held on 11.11.09 which provides for following components

Road System Expressways National Highways State Highways Other Roads	Rail System New Rail Lines RRTS Mass Rapid Transit System	Others Logistic Hubs Integrated Freight Complex Highway Facilities Centres
Bus System Bus Fleet & Infrastructure Bus Terminals	Airports International Domestic	

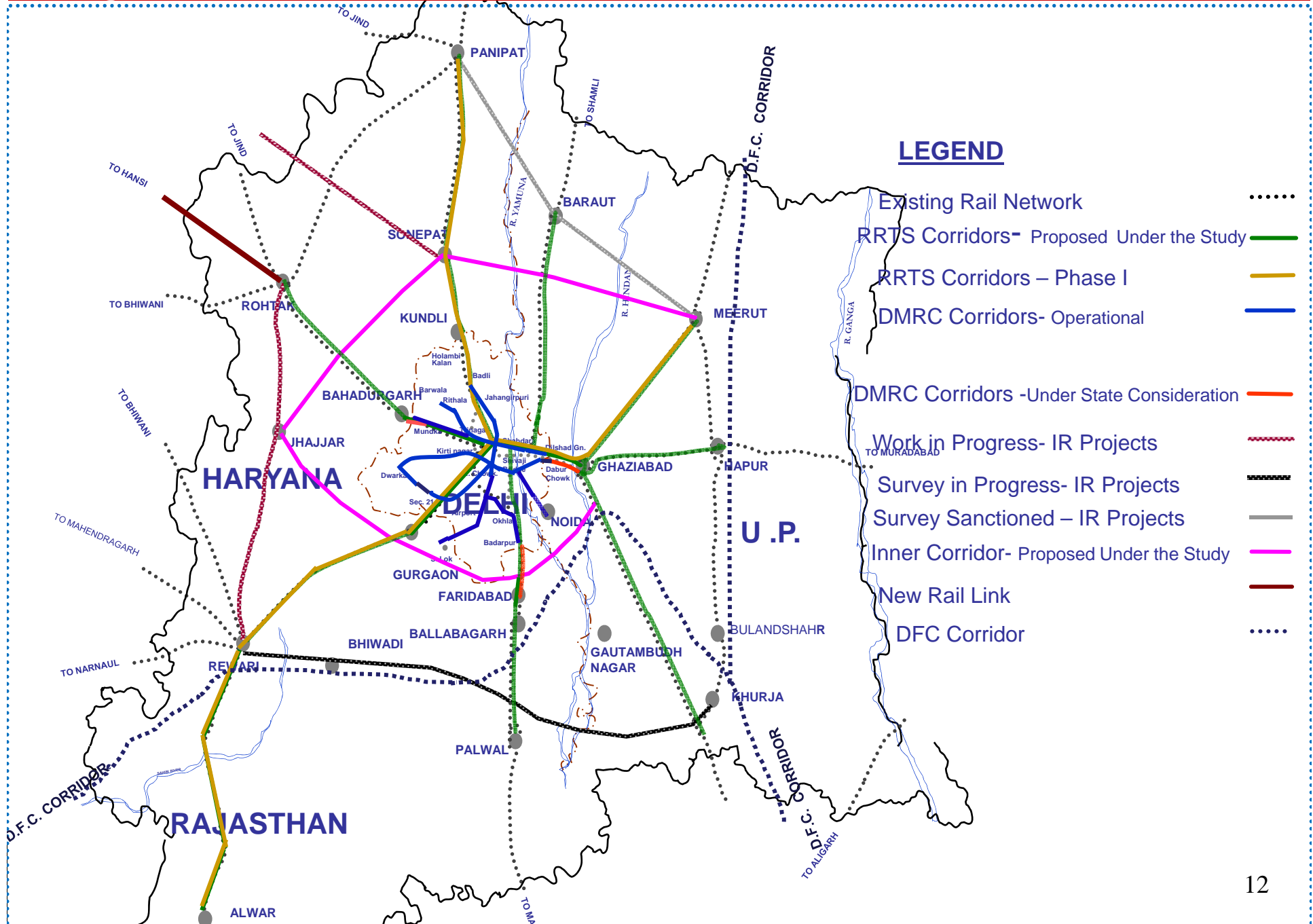
- It recommended prioritization of **RRTS corridors**



Integrated Transportation Plan for NCR-2032: Road Network & Airports

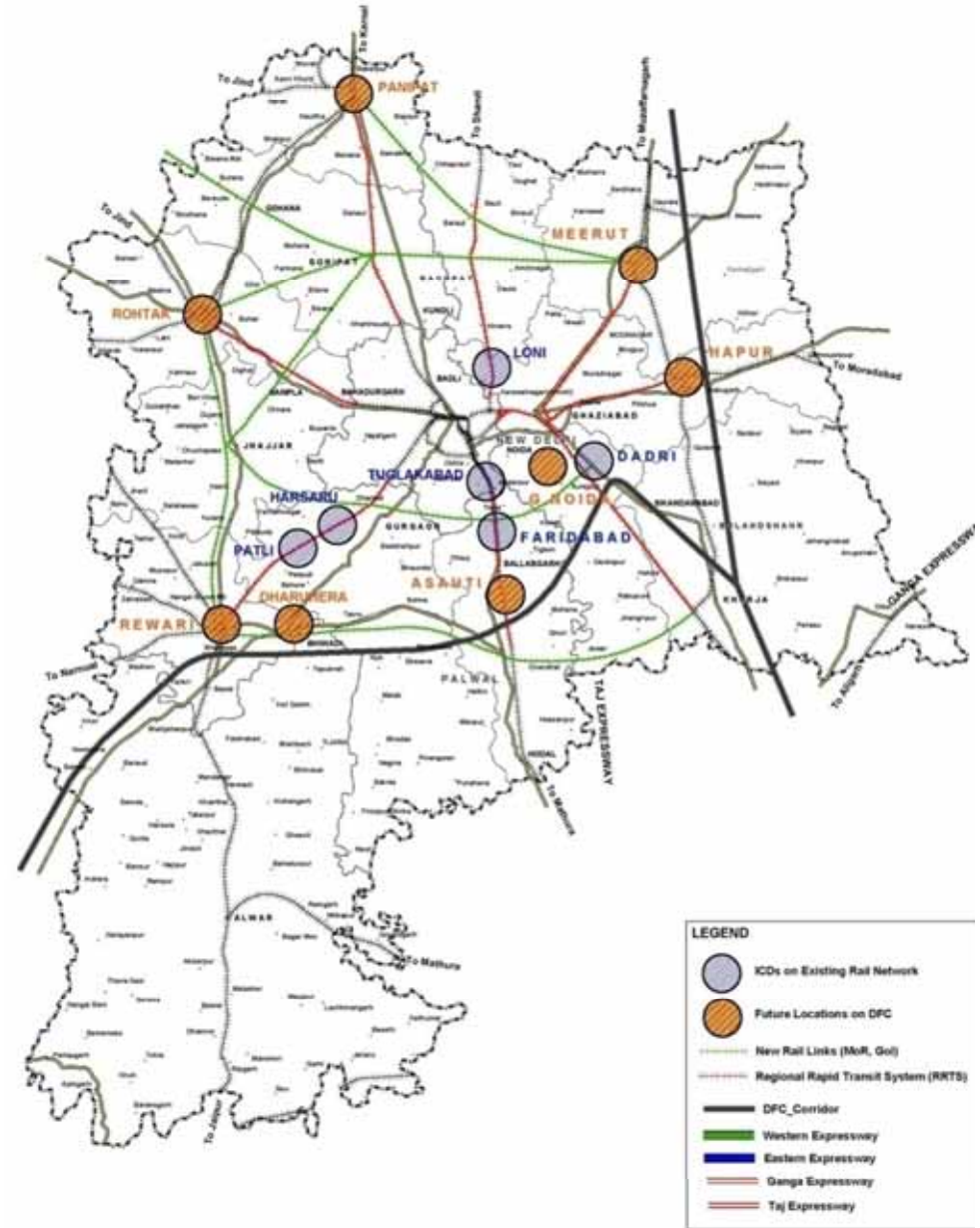


Integrated Transportation Plan for NCR-2032: Rail Network



Inland Container Depots and DFC

- Logistic Hubs/ Inland Container Depots
 - Existing = 6
 - Additional = 8
 - Total = 14
- Integrated Freight Complex
 - In every Regional and Sub-regional Centres as part of city Master Plans



REGIONAL RAPID TRANSIT SYSTEM (RRTS)



Proposed RRTS Corridors

Sl. No.	Corridor
1	Delhi – Sonipat - Panipat
2	Delhi - Ghaziabad -Meerut
3	Delhi - Gurgaon – Rewari - Alwar
4	Delhi – Faridabad – Ballabgarh - Palwal
5	Ghaziabad – Khurja
6	Delhi - Bahadurgarh - Rohtak
7	Ghaziabad-Hapur
8	Delhi-Shahadra-Baraut



Prioritization of RRTS Corridors

Task Force met on 9.12.2009 and decided to take up following three RRTS corridors on priority for the study on Feasibility-cum-Detailed Project Report (DPR)

- Delhi-Gurgaon-Rewari-Alwar - 158 Km
- Delhi-Sonepat-Panipat - 89 Km
- Delhi-Ghaziabad-Meerut - 67 Km

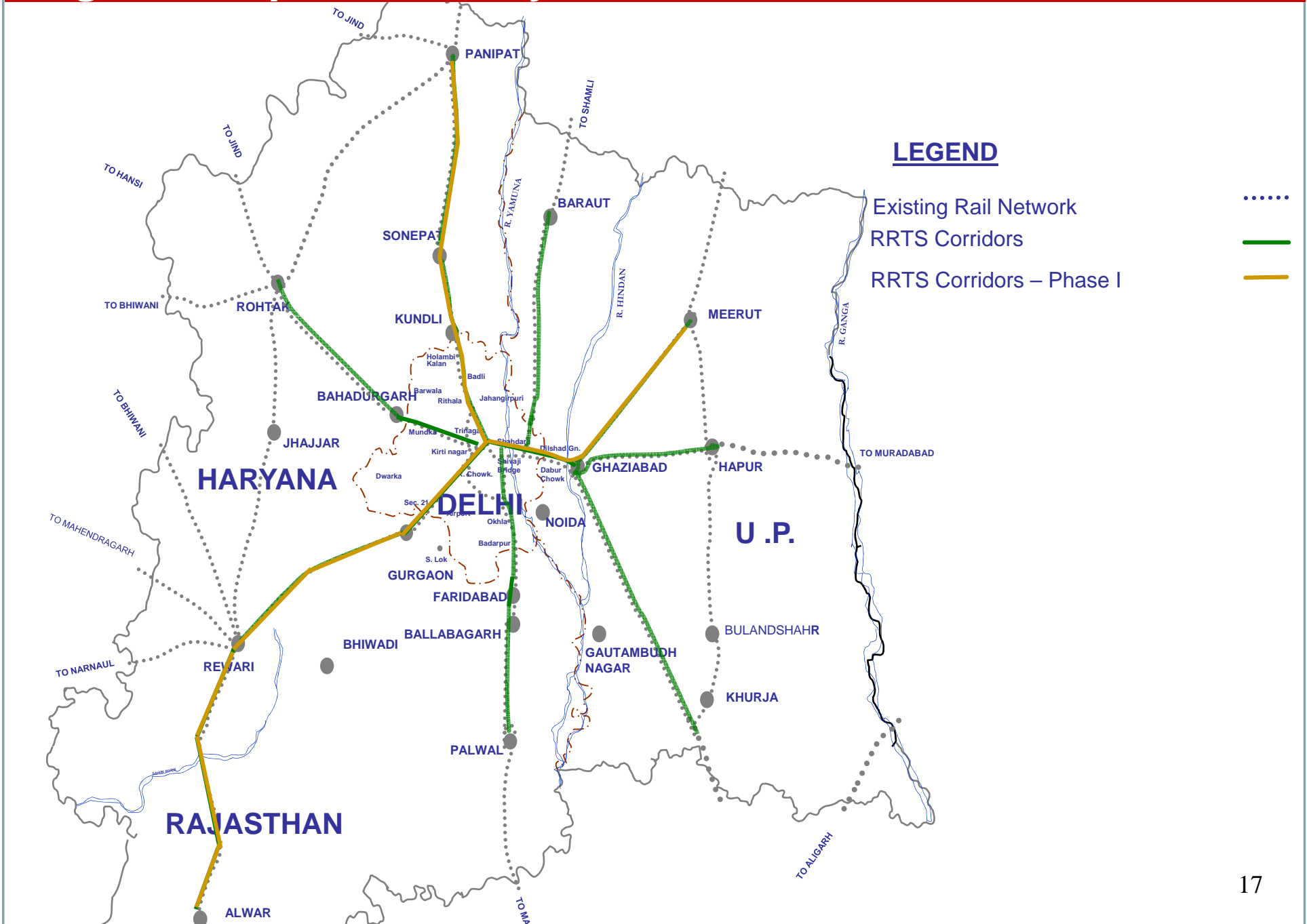
Ministry of Urban Development, Government of India is Financing the study

Objectives of the Study

To prepare Feasibility as well as Detailed Project Report (DPR) for the prioritized Regional Rapid Transit System (RRTS) Corridors



Regional Rapid Transit System



Regional Rapid Transit System

- Feasibility Study-cum-DPR preparation in progress
- Combination of Elevated and Underground sections
- Broad Gauge
- Operating Speed of 160 km/ hr with acceleration of 1.0 m/ sec²
- Automatic fare collection system
- TOD to be used to meet part of capital costs
- Land to be provided by respective State Governments
- Possibilities of PPP are under considered for implementation
- Other parameters are under finalisation



Progress of the Study

Sl. No.	Corridor	Consultant	Reports submitted till date
1	Delhi-Gurgaon-Rewari-Alwar (158 km)	M/s. Urban Mass Transit Company Ltd., New Delhi	<ul style="list-style-type: none"> ▪ Inception Report, ▪ Existing Condition Report ▪ Travel Demand Forecast Report ▪ Alignment Report
2	Delhi-Ghaziabad-Meerut (67 km)	M/s. Delhi Integrated Multi-Modal Transit System Limited, New Delhi	<ul style="list-style-type: none"> ▪ Inception Report, ▪ Existing Condition Report ▪ Travel Demand Forecast Report ▪ Alignment Report
3	Delhi-Sonipat- Panipat (89 km)	M/s. Delhi Integrated Multi-Modal Transit System Limited, New Delhi	<ul style="list-style-type: none"> ▪ Inception Report, ▪ Existing Condition Report ▪ Travel Demand Forecast Report ▪ Alignment Report

- Alignment of all the three RRTS Corridors have been identified in consultation with the State Governments and approved by the Task Force
- Specifications for RRTS are also finalised
- Approval of the specifications by the Competent Authority has been conveyed to the Consultants on 19.08.11
- Feasibility report will be submitted by the Consultants next month

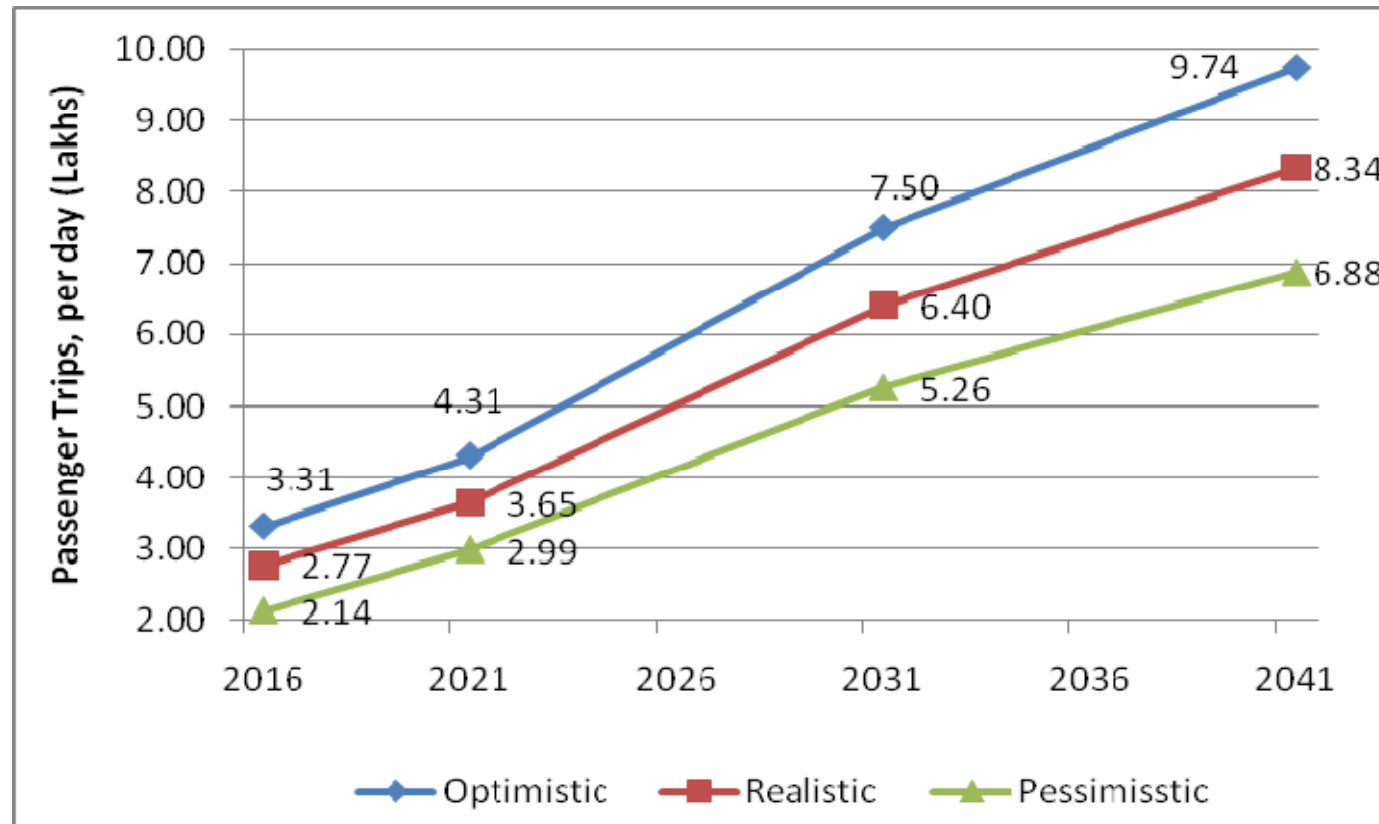


Delhi-Sonepat-Panipat Corridor of RRTS



Delhi-Sonepat-Panipat Corridor

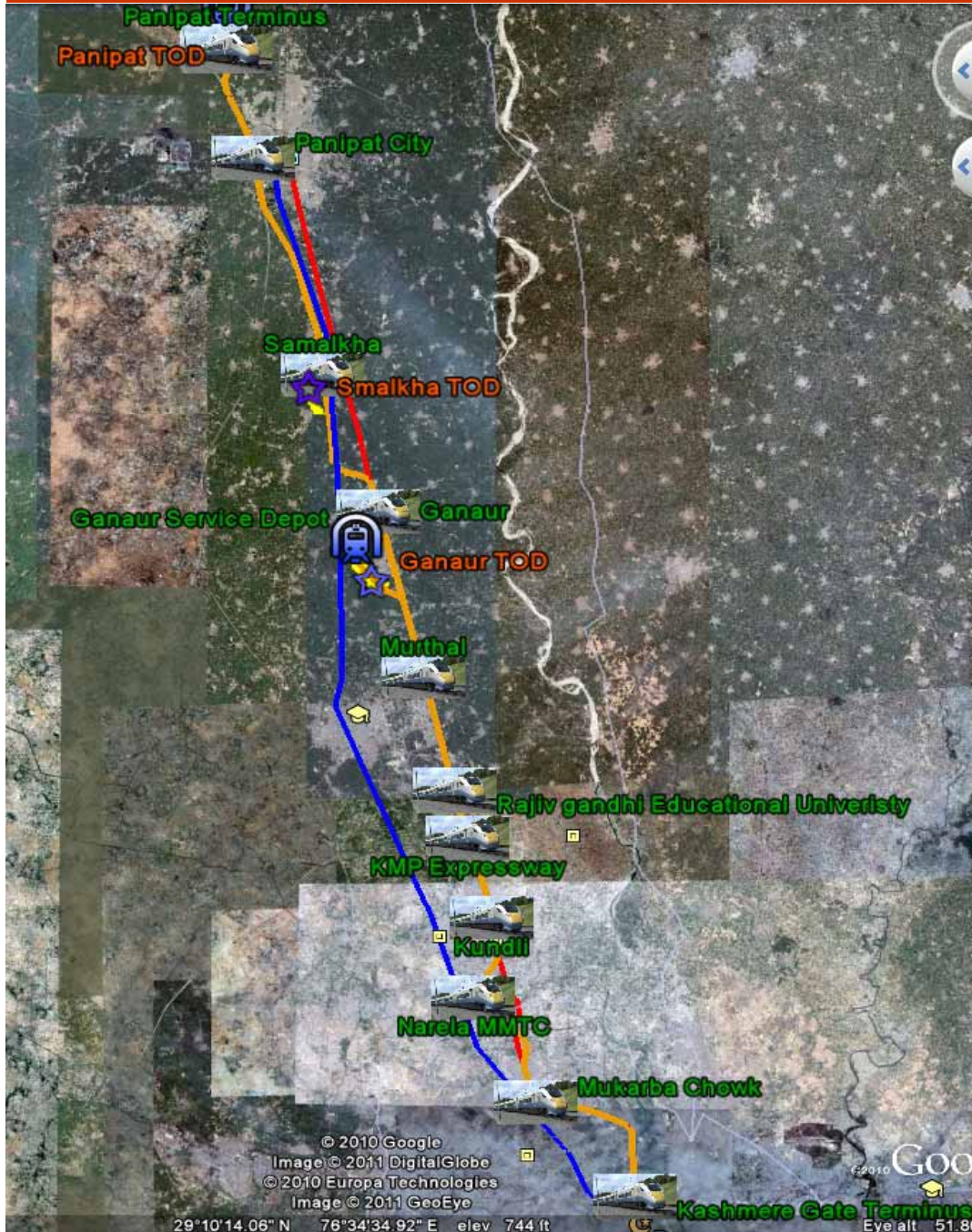
Projected Travel Demand - Passenger trips/day (in Lakh)



- Length of Corridor : 103 km
- Cities proposed to be connected : Delhi (ISBT Kashmere Gate), Kundli, Murthal, Gannur, Samalkha and Panipat



Delhi-Sonepat-Panipat Corridor



Proposed Alignment

Legend

Proposed Alignment —

Existing Railway Line —

National Highway —

No. of Stations – 10

Total Length – 105 Km

Delhi-Sonepat-Panipat Corridor: Station Locations & distances

Sr. No	Stations	Station location	Inter Station Distance (KM)	Indicative Cumulative Distance (KM)
1	Panipat Terminus and Depot	At Grade		0
2	Panipat City	Elevated	8.8	8.8
3	Samalkha	Elevated	17.2	26.0
4	Gannaur (at NH1)	Elevated	11.8	37.8
4(a)	Gannaur Depot (along the spur)	At Grade	6.0	43.8
5	Murthal (Sonepat)	Elevated	12.6*	56.4
6	Rajeev Gandhi Education City (Rai)	Elevated	8.5	64.9
7	KMP Expressway interchange	Elevated	4.2	69.1
8	Kundli Border	Elevated	6.5	75.6
9	Narela MMTTC	Elevated	6.9	82.5
10	Kashmere Gate Terminus	Elevated	22.5	105.0**

* distance from Gannaur Station at NH1 to Murthal

** including spur length of 6KM (4 (a))

Note : Final length shall be prepared based on topo surveys conducted along with Feasibility Report.

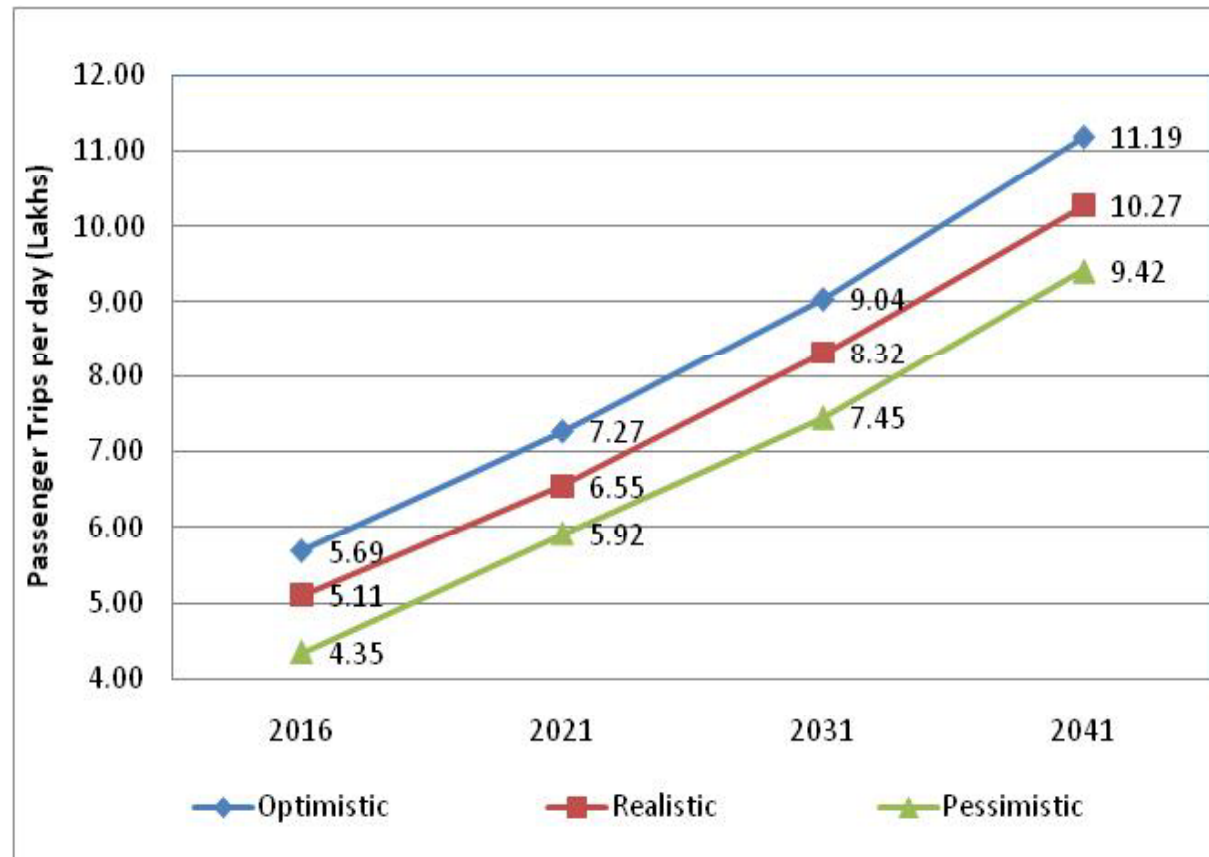


Delhi-Ghaziabad-Meerut Corridor of RRTS



Delhi-Ghaziabad-Meerut Corridor

Projected Travel Demand - Passenger trips/day (in Lakh)



- Length of Corridor : 90 km
- Cities proposed to be connected : Nizamuddin Railway Station, Sahibabad, Mohan Nagar, Ghaziabad, Murad Nagar, Modi Nagar and Meerut



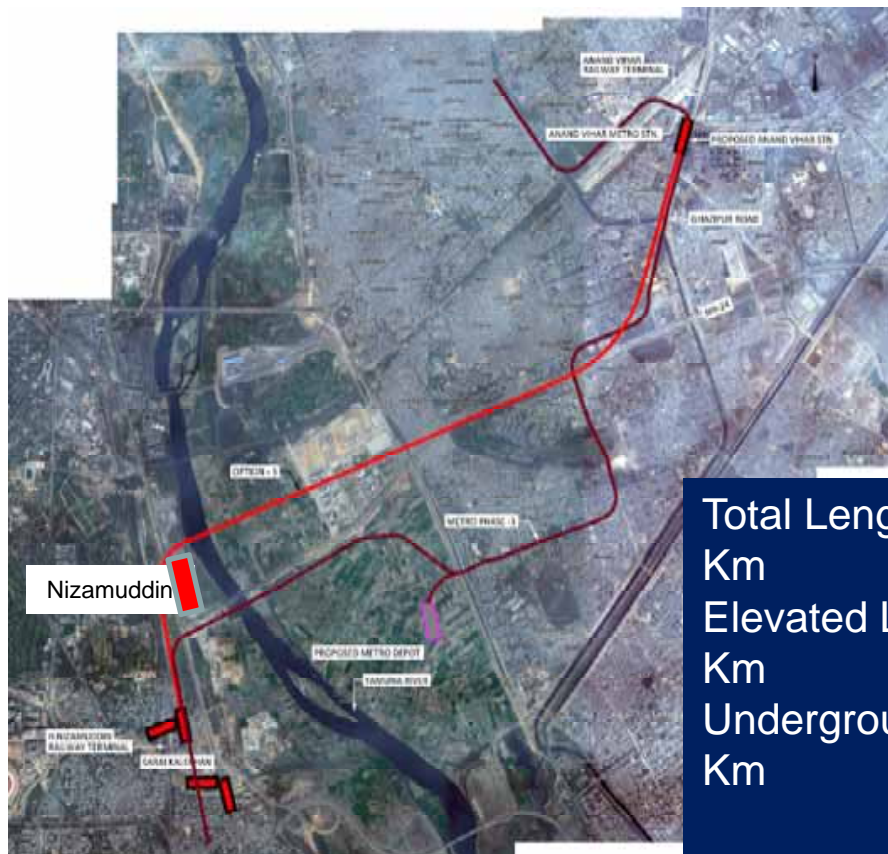
Delhi-Ghaziabad-Meerut Corridor

Proposed Alignment

Proposed Alignment

No. of Stations	- 17
Total Length	- 90 Km
Elevated Length	- 64 Km
Underground Length	- 26 Km

Anand Vihar – Nizamuddin Alignment



Total Length	- 10.79
Km	
Elevated Length	- 2.27
Km	
Underground Length	- 8.52
Km	



Delhi-Ghaziabad-Meerut Corridor: Station locations & distances

S No	Stations	U /G - Elevated	Distance (Km)
1	Delhi(Hazrat Nizamuddin)	Underground	00.00
2	Delhi(Anand Vihar)	Underground/2 km elevated	9.92
3	Sahibabad	Elevated	6.4
4	Mohan Nagar	Elevated	2.5
5	Ghaziabad	Elevated	2.8
6	Guldhar	Elevated	3.7
7	Duhai	Elevated	4.2
8	Murad Nagar	Elevated	6.9
9	Modi Nagar	Elevated	9.8
10	Meerut South	Elevated	8.4
11	Shatabdi Nagar	Underground	7.3
12	Meerut Central (HRS Chowk)	Underground	3.5
13	Begum Pul	Underground	3.1
14	Meerut North(Pallavpuram)	Elevated	7.75
15	Modipuram	Elevated	4.7
		Total Route length	80.97
	Spur(Shatabdi Nagar- Shastri Nagar)		
	Shatabdi Nagar	Underground	00.00
	Hapur Road(Nauchandi Park)	Underground	4.95
	Shastri Nagar(Medical College)	Elevated	3.55

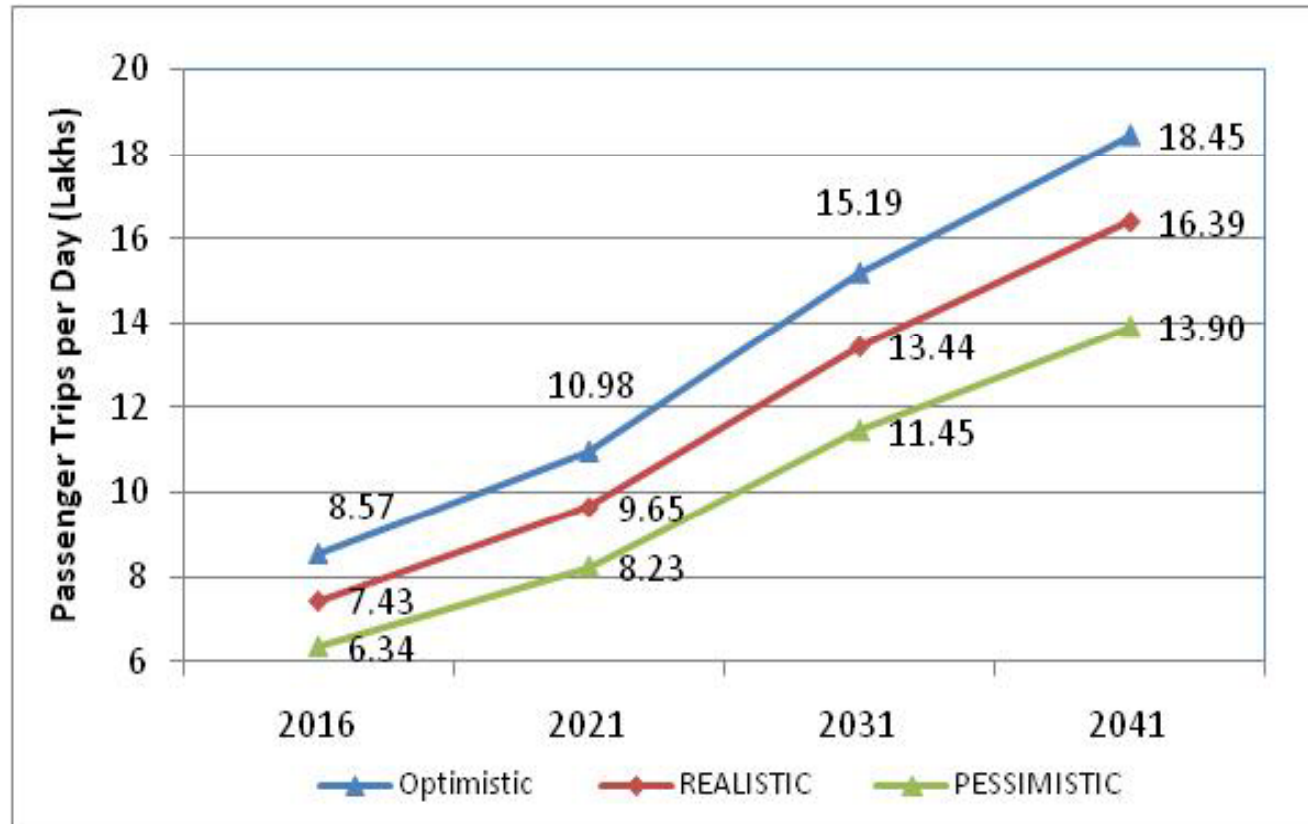


Delhi-Gurgaon-Alwar Corridor of RRTS



Delhi-Gurgaon-Alwar Corridor

Projected Travel Demand - Passenger trips/day (in Lakh)

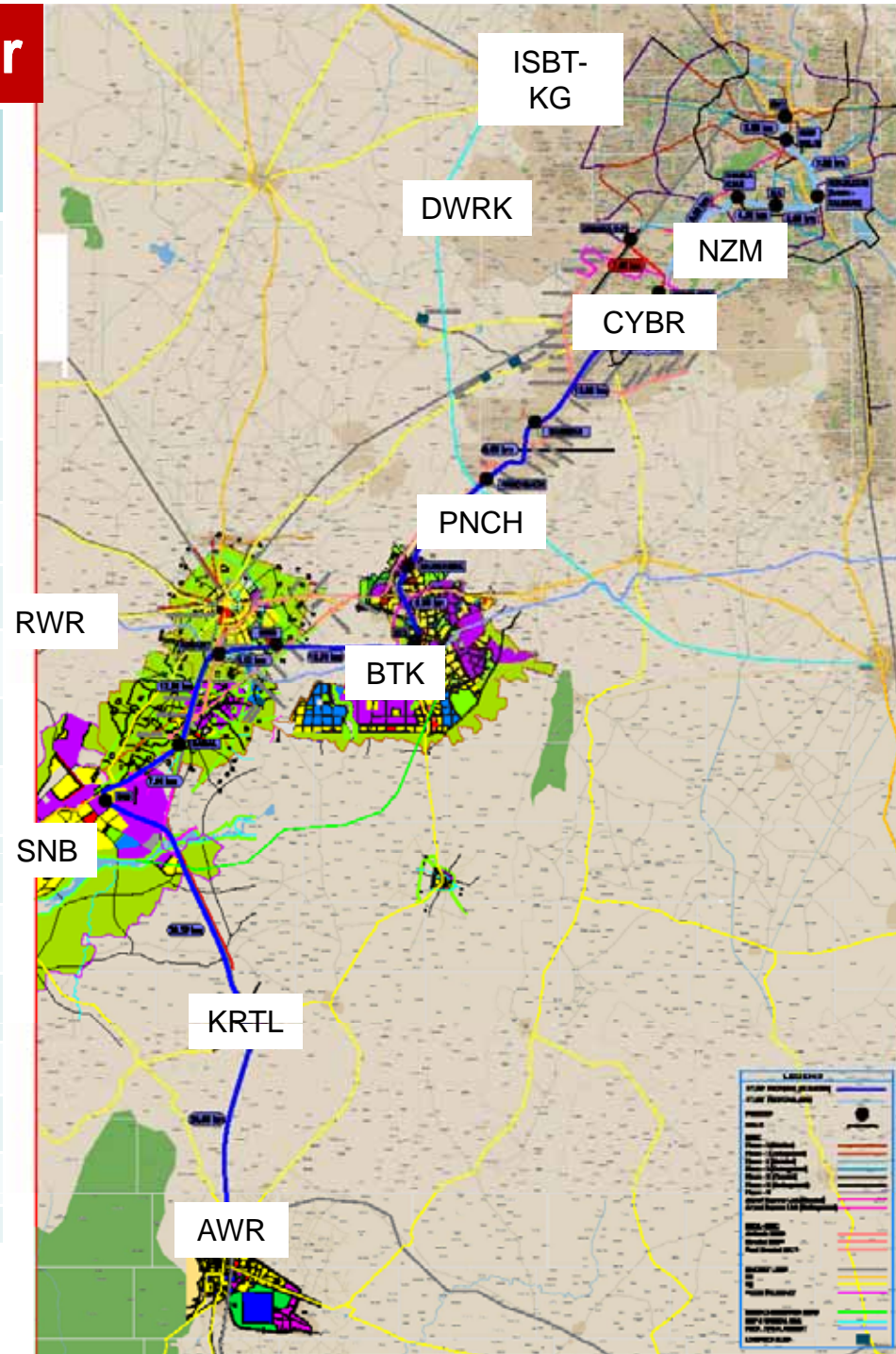


- Length of Corridor : 188 km
- Cities proposed to be connected : Delhi (Kashmere gate ISBT), Gurgaon, Manesar, Dharuhera, Bhiwadi, Rewari, Bawal, Shahjahanpur, Khairthal and Alwar



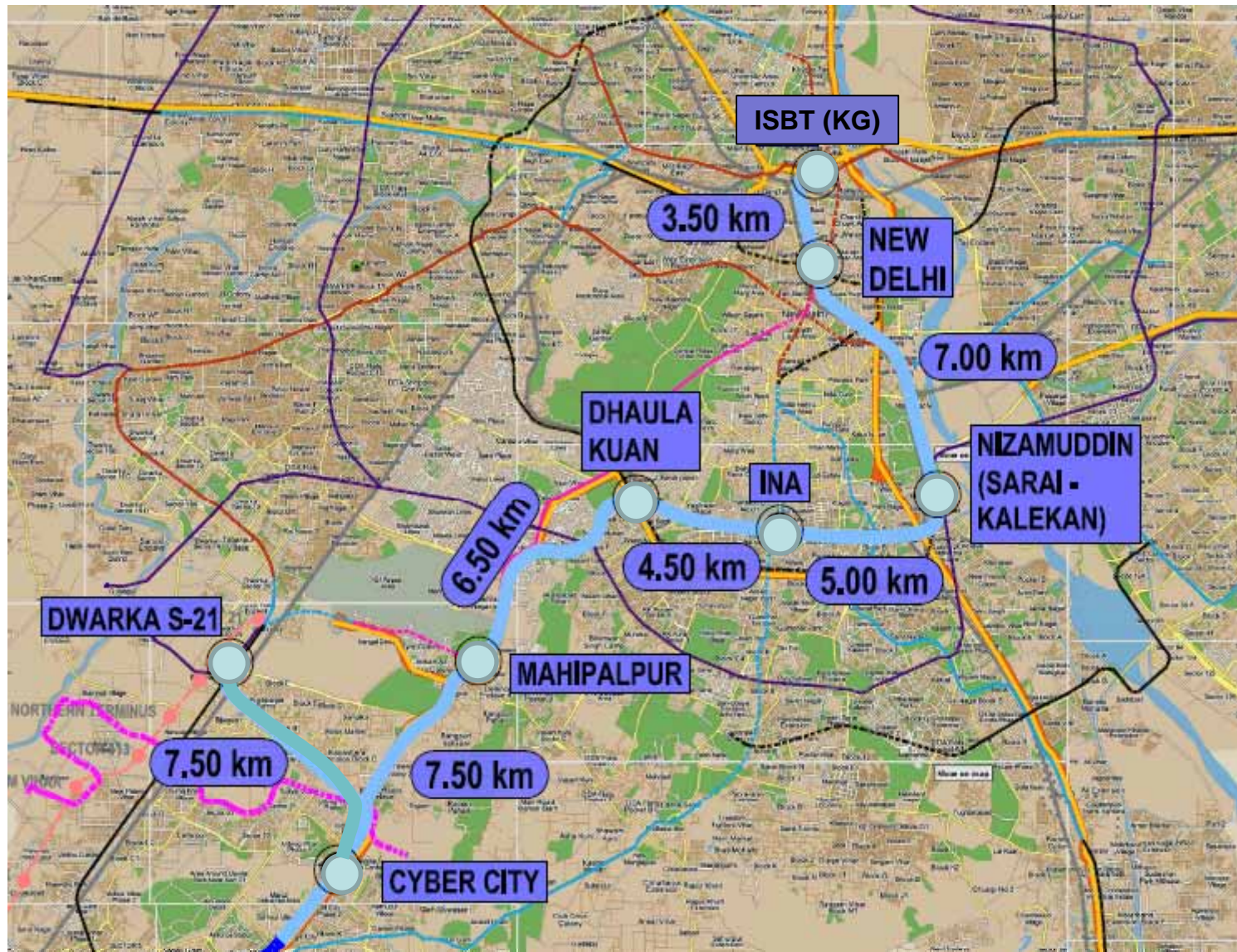
Delhi-Gurgaon-Alwar Corridor

From	To	Distance (Kms)	Cumulative Distance (Kms)
ISBT (KG)	New Delhi	3.50	3.50
New Delhi	Nizamuddin	7.00	10.50
Nizamuddin	INA	5.00	15.50
INA	Dhaura Kuan	4.50	20.00
Dhaura Kuan	Mahipalpur	6.50	26.50
Mahipalpur	Cyber City	7.50	34.00
Cyber City	Rajiv Chowk	7.50	41.50
Rajiv Chowk	Manesar	13.00	54.50
Manesar	Panchgaon	9.50	64.00
Panchgaon	Dharuhera	13.00	77.00
Dharuhera	BTK	9.00	86.00
BTK	MBIR	15.00	101.00
MBIR	Rewari	5.50	106.50
Rewari	Bawal	12.50	119.00
Bawal	SNB	7.00	126.00
SNB	Khairtal	29.50	155.50
Khairtal	Alwar	24.50	180.00

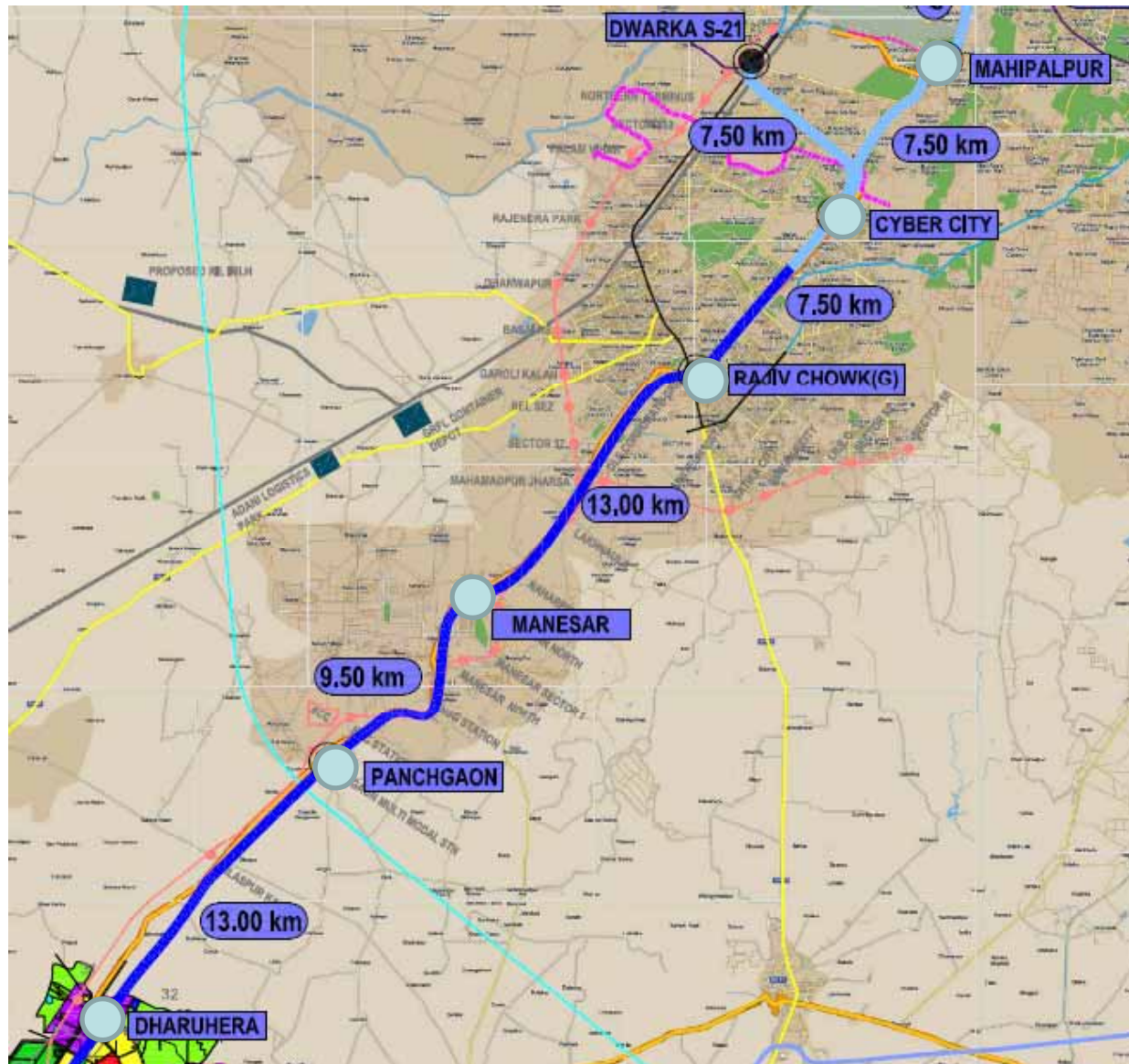


NATIONAL CAPITAL

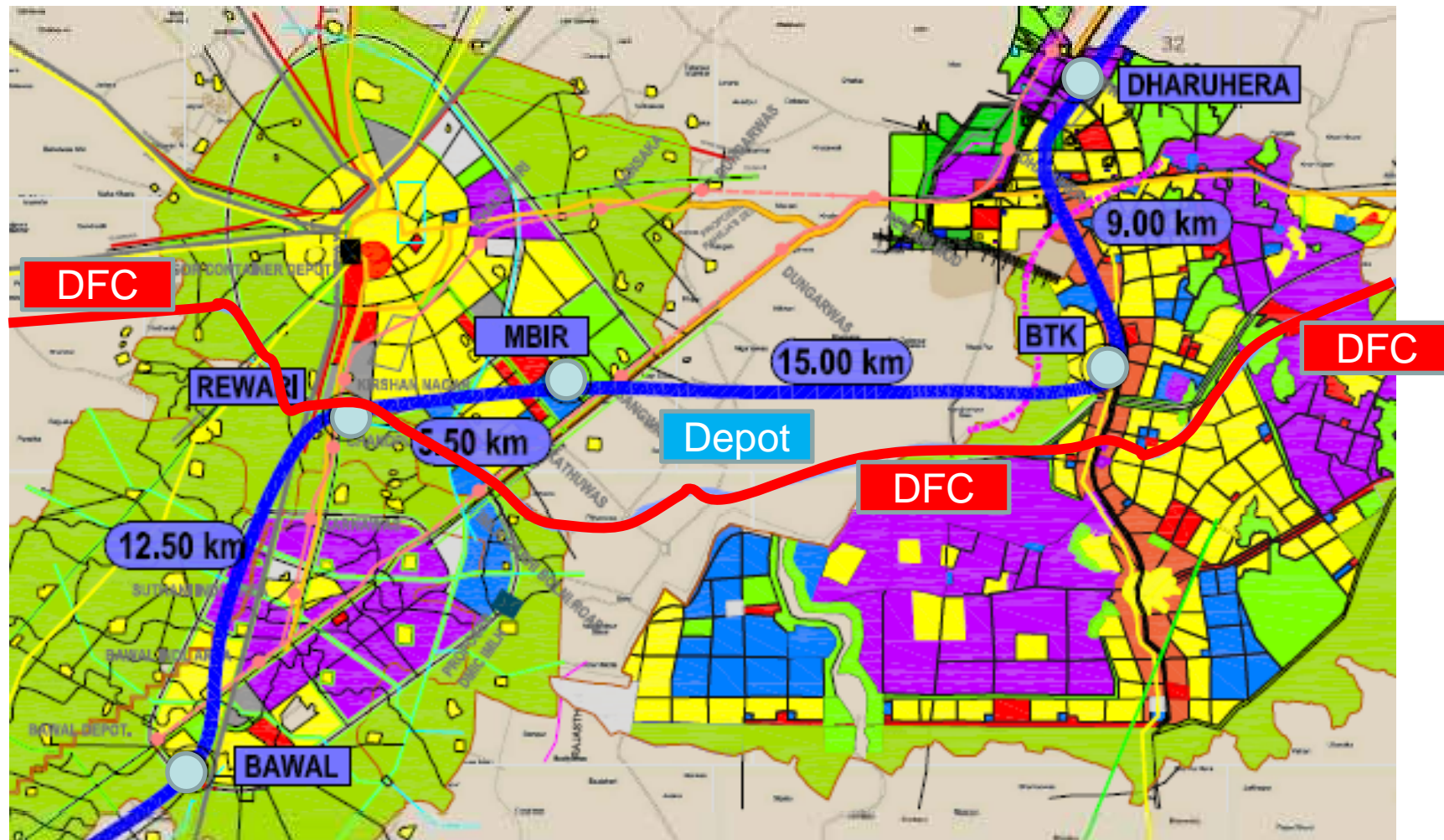
Delhi-Gurgaon-Alwar Corridor: Selected Route in Delhi



Delhi-Gurgaon-Alwar Corridor : Selected Route in Haryana

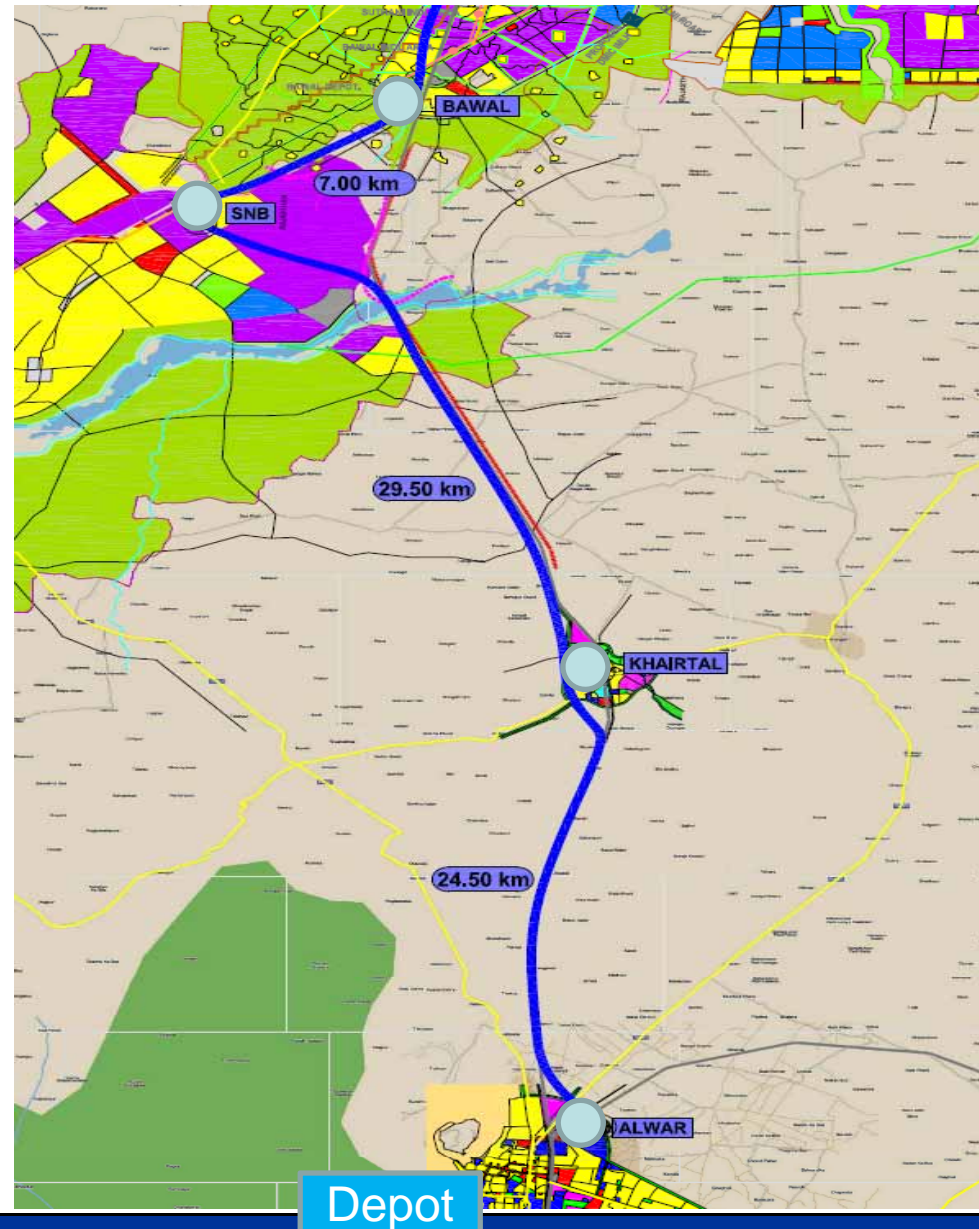


Delhi-Gurgaon-Alwar Corridor: Haryana/ Rajasthan



Delhi-Gurgaon-Alwar Corridor

Selected Route: Rajasthan



***Proposed Institutional Arrangement:
National Capital Region Transport Corporation (NCRTC)***



National Capital Region Transport Corporation (NCRTC)

- The National Capital Region Transport Corporation (NCRTC) has been proposed as a wholly government owned company under Companies Act 1956 under Ministry of Urban Development, with equity participation as given below:

<i>Participants</i>		Equity
<i>Government of India</i>		
Ministry of Urban Development/MoR	:	45%
NCR Planning Board	:	5.0%
<i>State Governments</i>		
Government of NCT Delhi	:	12.5%
Government of Haryana	:	12.5%
Government of Rajasthan	:	12.5%
Government of UP	:	12.5%



National Capital Region Transport Corporation (NCRTC)

- The Corporation will be responsible for over all development of Integrated Multi-Modal Transport System including Commuter Rail and feeder bus services for commuter in NCR

Present Status of Formation of NCRTC

- Draft EFC Note for setting up NCR Transport Corporation (NCRTC) has been circulated by the Ministry for comments
- MoU among NCR Constituent States, NCR Planning Board and MoUD signed on 29.6.2011 to implement the project through NCRTC
- Appropriate debt: equity ratio will be formulated for implementation
- Sub-joint venture companies under umbrella company to implement each RRTS corridor
- Inter-se contribution among the State Governments on the projects will be decided by NCRTC



Thank you

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SOME MAJOR ACHIEVEMENTS



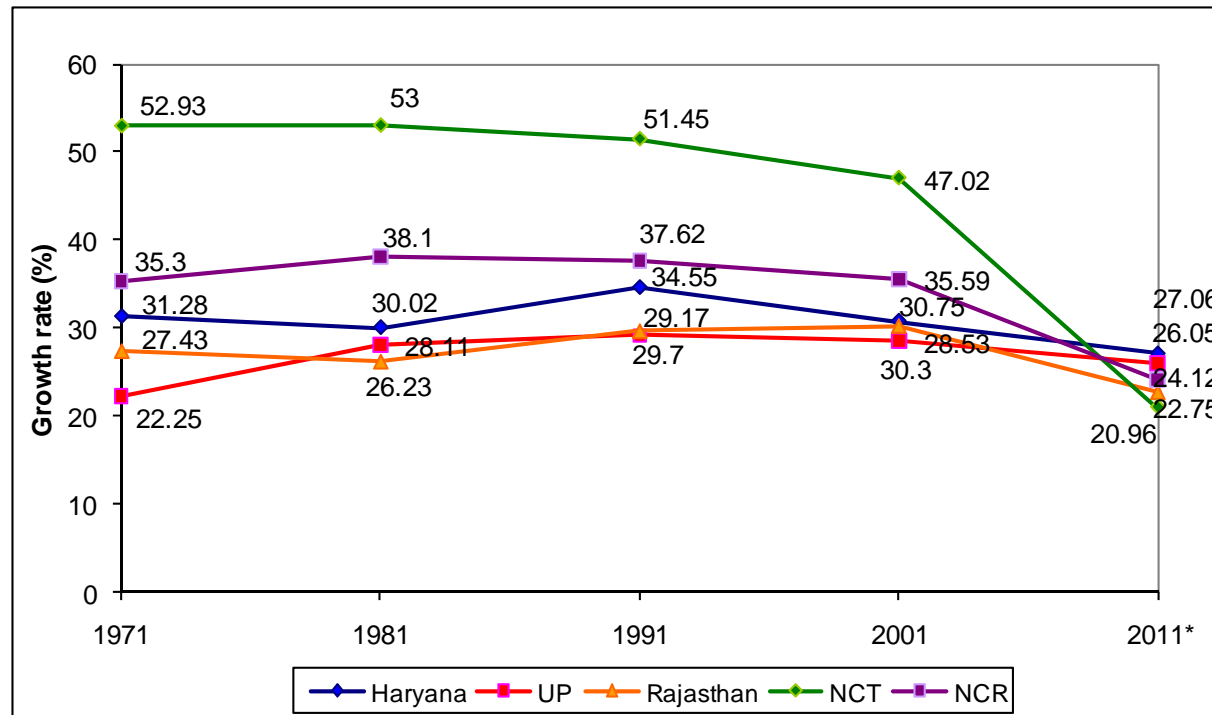
Implementation of Regional Plan : Achievements

- Population growth rate of Delhi reduced from 51.45% (1981-1991) to 47.02% (1991-2001) for the first time since independence. It further came down to 20.96% during 2010-11 (as per 2011 Census provisional results)
- Percentage share of net-migrants in the decadal growth of population of NCT-Delhi declined from 45.06% in 1961-1971 to 39.82% in 1991-2001
- Percentage share of migrants from NCR States to NCT-Delhi declined from 65.76% in 1981-1991 to 57.09% in 1991-2001
- Number of out-migrants increased from 2.82 lakhs in the decade 1981-91 to 4.58 lakhs in decade 1991-2001.
- In the decade 1991-2001, the in-migration including inter-district migration to rest of NCR was 24.55 lakhs and to Delhi was 21.02 lakhs.



Achievements at a Glance

Declining rate of population growth of NCT-Delhi



Implementation of Regional Plan : Achievements

- Up-gradation of National Highways converging at Delhi [NH1, NH2, NH8, (NH10), NH24 & NH58] to 4-lane divided carriage way carried out
- Up-gradation of about 580 km of Outer Grid roads & Inner Grid roads in NCR as per the policies of RP-2001 have been carried out.
- Peripheral Expressway (Western & Eastern) around Delhi is under construction.
- Construction of Delhi-Meerut Expressway to be taken up by M/o Road Transport, Shipping & Highways under NHDP-VI. Preparation of detailed project report is in progress.
- Mass Commuter System for Delhi in the form of Delhi Metro Rail has been constructed and is in operation.
- Delhi Metro Rail has been proposed to extend to five out of six CNCR towns. Delhi-Noida, Delhi-Gurgaon & Delhi-Ghaziabad Lines have been commissioned. Delhi-Faridabad corridor has been agreed by the Ministry.

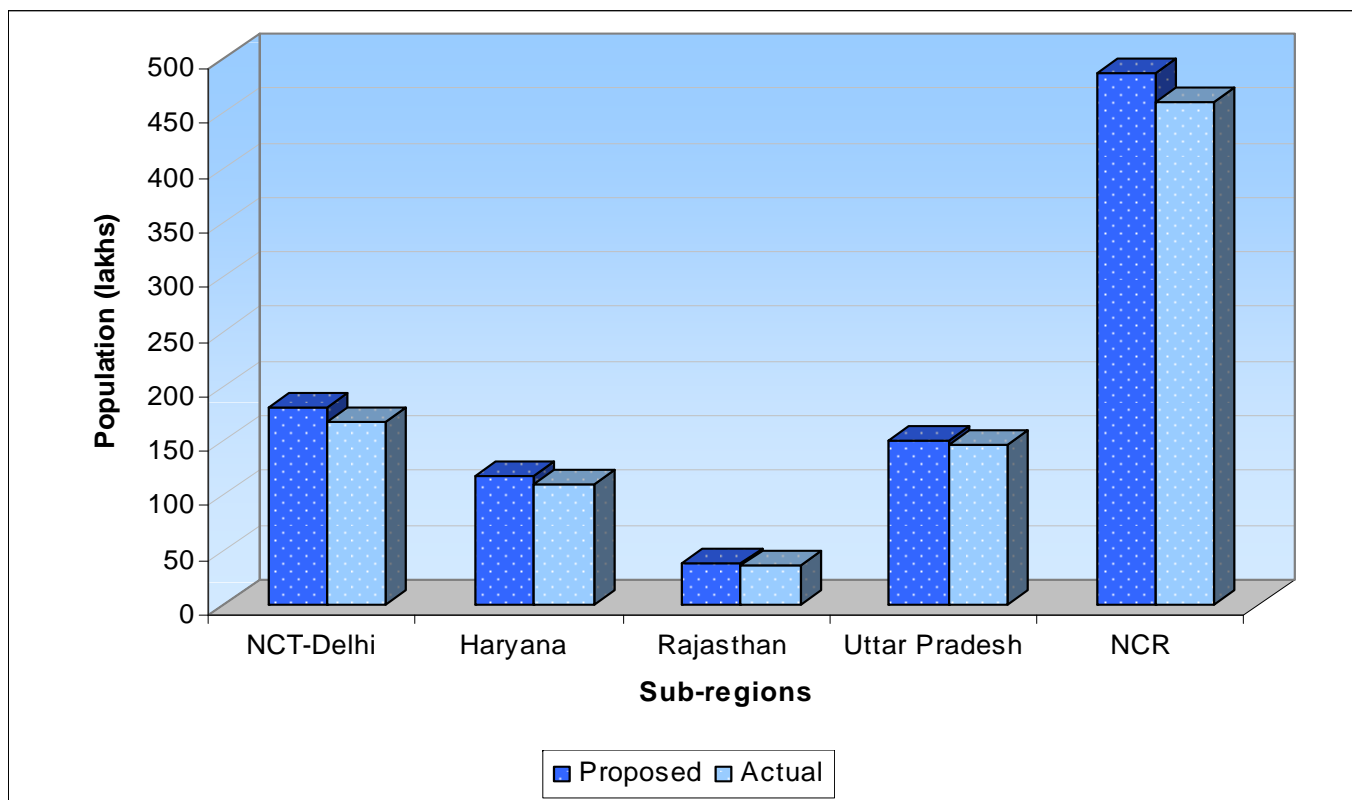


Achievements of Implementation of Regional Plan

- Participating states prepared 28 Master/Development Plans and 25 more Master/Development Plans are under preparation for various towns in NCR
- Board provided financial assistance to the State Governments & their implementing agencies for 263 infrastructure development projects through long term soft loan/low interest rate up to 75% of the estimated cost (Rs. 18008 crore).
- Loan amount of Rs. 7988 crore was sanctioned & Rs. 5815 crore released.
- Projects financed related to drinking water supply, sewerage & sewage treatment, Development of industrial estates, Rural water supply schemes, roads, residential sectors, commercial areas, power generation, transmission & distribution, etc.
- Education City – Kundli, Sampla, and Samalkha in Haryana Sub-region and Shahjhanpur-Neemrana-Behror in Rajasthan Sub-region are new townships proposed and are at various stages of planning.



Subregion-wise Population of NCR



Sub-region	Population 2011 (lakhs)	
	Proposed	Actual
NCT-Delhi	179.9	167.53
Haryana	117.55	110.38
Rajasthan	37.91	36.72
Uttar Pradesh	150.83	145.84
NCR	486.19	460.47

