Urban ITS Market in India

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Table of Content

1. Executive Summary

The regular increase in the vehicles has made it essential for every city in India to improve its traffic-transport; tracking and security system to monitor maintain the traffic situation so to smooth the traffic flow and to help the users to get the maximum utilization of the transport system.

There were various studies carried out by the government agencies to understand and plan to fulfill the demand of the present as well as future scenario keeping in mind the population growth in next 20 years down the line.

This report summarizes the different initiatives and policies carried out by the government and World Bank on the investment strategy for the Urban ITS in India to fulfill the demand keeping in mind the demand for future

The report will talk about India and its present Urban Transportation which will also explains the need of ITS in India. Different Initiatives for fulfilling the demand taken by the government are also explained in this report.

It also covers the summary of the report submitted by A High Powered Expert Committee (HPEC) in March 2011 set by the Ministry of Urban Development, India in the chairmanship of *Dr. Isher Judge Ahluwalia*, Chairperson - Indian Council for Research on International Economic Relations for estimating the investment requirements for Urban Infrastructure Services.

The report also highlights the list of upcoming Urban ITS projects which are inline with the Investment Strategy by the government and World Bank for India

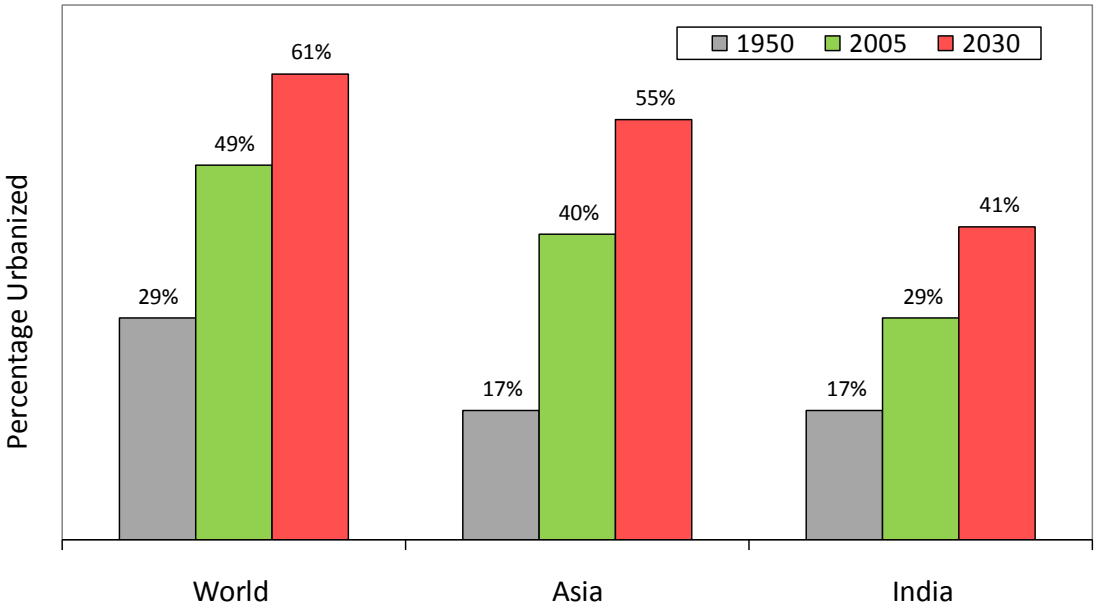
Finally this report links the current Allocations with the Projects for next 5 years.

2. About India

India is the second highest populated country in the world after China. The Population in India has reached more than 1.17 Billion. India is the second fastest growing economy in the world. Sixth largest crude consumer and fifth largest oil importer in the world,

India having one of the largest road networks and expecting a good growth in next 5-10 years down the line.

India has witnessed a phenomenal growth in urban population as a result vehicles on roads have greatly increased in the last decade.



Source: ADB. 2006. Urbanization and Sustainability in Asia. Manila, Philippines.

Figure:1

3.India – Urban Transportation Scene

As per the sources for Ministry of Urban development, Government of India,

- 2nd Largest urban system
- 60% GDP generated from urban areas
- 5161 towns and cities
    - 7 megacities (4 million + population)
    - 28 cities with population 1-4 million
    - 13 cities in 0.8 to 1.0 million range, will cross 1 million by next census
    - 40 cities in 0.5 to 1 million population range and balance state capitals

Source: "NUTP and JnNURM- Government of India Initiatives to Strengthen Public Transport", S.K. Lohia, OSD (MRTS), MoUD, GOI

http://www.slideshare.net/jaaaspal/the-role-of-spv-in-transportation-sector

Figure:2

4.Government Initiatives

The First Transportation policy in India was launched in 2006. The name of this policy was National Urban Transport Policy (NUTP). This policy focused on moving people and not vehicle

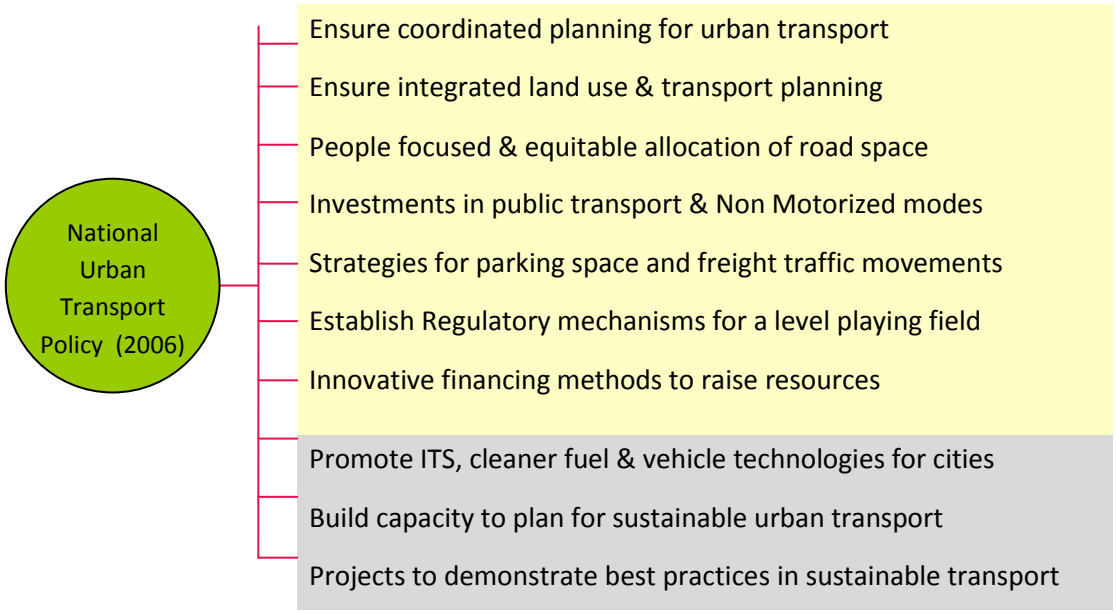


Figure: 3

Source: "NUTP and JnNURM- Government of India Initiatives to Strengthen Public Transport", S.K. Lohia, OSD (MRTS), MoUD, GOI

http://www.slideshare.net/jaaaspal/the-role-of-spv-in-transportation-sector

5.Need of ITS

From 1981 to 2001, population increased in six major metropolises by 1.9 times but motor vehicles increased by 7.75 times.

The total number of vehicle registered in 2001 was 55 Mn and which has become more than double in 2011

As per the Ministry of Urban Development, the forecast for vehicle population in India will reach more that 120Mn in 2015 and will touch 246 Mn in 2025. Therefore total on road vehicle fuel consumption will reach 115 Mn Ton in 2015 and will 220 Mn Ton in 2025.

Therefore the regular increase in the vehicles has made it essential for every city in India to improve its traffic-transport; tracking and security system to monitor maintain the traffic situation so to smooth the traffic flow and to help the users to get the maximum utilization of the transport system

6. Investment Planning Required for Traffic Support Infrastructure

should be approximately USD 19.6 Billion. This amount does **1. Report by Dr. Ahluwalia**

May 2008, A High Powered Expert Committee (HPEC) was set by the Ministry of Urban Development, India in the chairmanship of *Dr. Isher Judge Ahluwalia*, Chairperson - Indian Council for Research on International Economic Relations for estimating the investment requirements for Urban Infrastructure Services. After the study, the team submitted a report on their summary and recommendations to the Ministry of Urban Development in March 2011. Their recommendations were as following:-

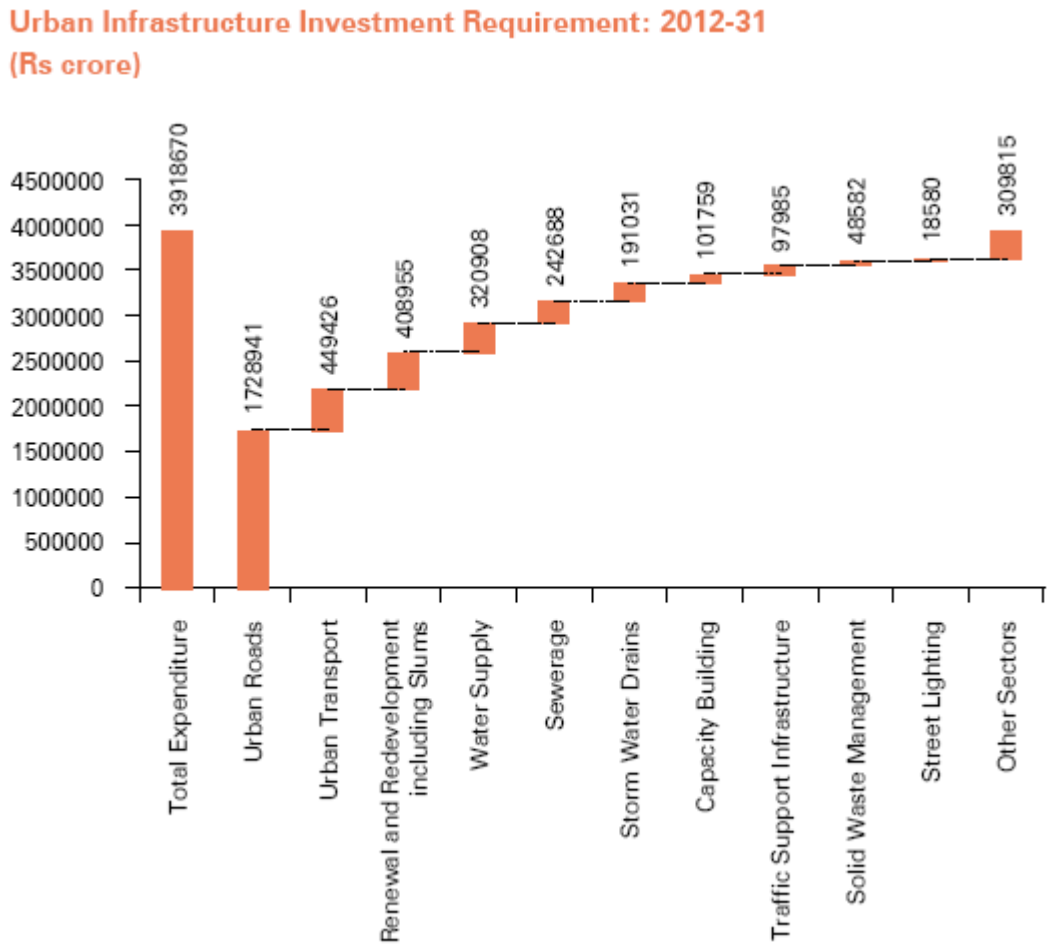


Figure: 4

They recommended that out of USD 784Bn, the investment in Traffic support Infrastructure not include the operation and maintenance cost of the Traffic Support Infrastructure for 20 years.

The relative Share of Sectors in Investment requirement (%)

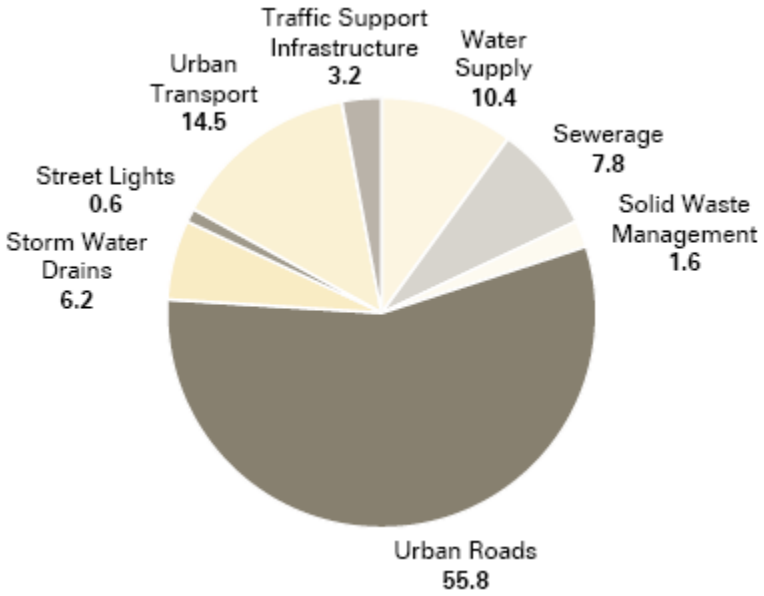


Figure: 5

Source: DrIsher Ahluwalia HPEC_Urban Development Report March2011
Download Link: http://www.indiantollways.com/urban-its/

The Phasing Plan (As per the report)

Assumptions for Base Year (2011-12)

	Amount in INR	Amount in USD
GDP	**7268038 Cr**	**1453.6 Bn**
Investment for Urban Infrastructure	**51000 Cr**	**10.2 Bn**

Assumption for GDP Growth

- Projected at 8 per cent per annum

Phasing of Investment in urban infrastructure, renewal and redevelopment (including slums), and capacity building:

- 15 per cent per annum, during Twelfth Plan period (2012-13 to 2016-17)
- 12 per cent per annum, during Thirteenth Plan period 2017-18 to 2021-22)
- 8 per cent per annum, during Fourteenth Plan period (2022-23 to 2026-27)
- 8 per cent per annum, during Fifteenth Plan period (2027-28 to 2031-32)

Projected Investment Requirement for Urban Infrastructure, Renewal and Redevelopment, and Capacity Building 2012-13 to 2031-32

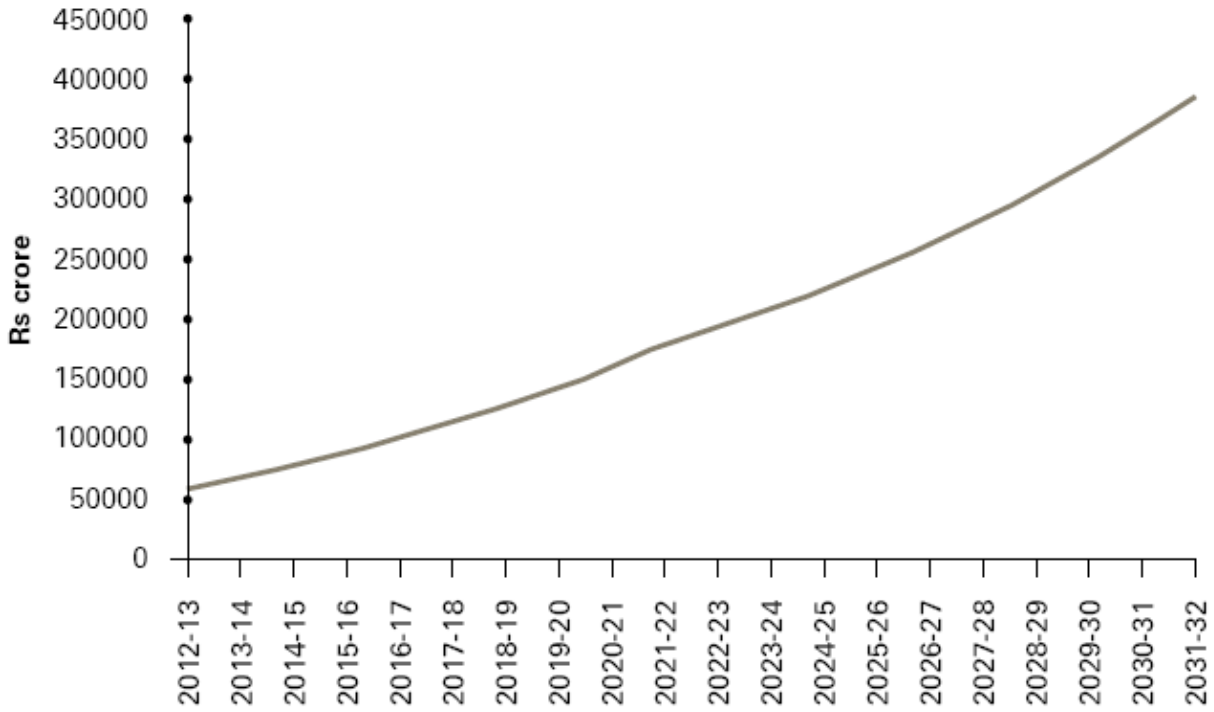


Figure: 6

Estimating Operations and Maintenance cost

Maintenance of existing assets has remained largely unattended. Recognizing the importance of maintaining assets for better service delivery, the Committee has made separate estimates of operations and maintenance (O&M) requirements.

The O&M cost considered for the estimation exercise includes the cost of O&M of physical assets, staff, and related administrative cost for the respective sectors. The O&M computation takes into account both the cost of O&M of existing assets as well as of new assets that will be created over the 20-year period.

The total operation and Maintenance expenditure for the Traffic Support Infrastructure was estimated approx USD 7.34 Bn

The Phasing Plan

The estimated annual O&M expenditure is expected to rise from Rs 35,516 crore in 2012-13 (0.45 per cent of GDP) to Rs 2.08 lakh crore by 2031-32 (0.61 per cent of GDP) of the Rs 18.1 lakh crore for the eight sectors, O&M cost of urban transport and urban roads amounts to Rs 6.8 lakh crore (38 per cent of the total), followed by Rs 5.5 lakh crore for water supply (30 per cent of the total).

Total estimation for Traffic Support Infrastructure

Table B10
Aggregate Cost for Traffic Support Infrastructure

	Rs Crore
Capital Expenditure	
Investment for Unmet Demand	42393
Investment for Additional Demand	26912
Investment for Replacement	28680
Total Capital Expenditure	**97985**
Operations & Maintenance Cost	**36690**
Aggregate Cost	**134675**

Figure: 7

Source: DrIsher Ahluwalia HPEC_Urban Development Report March2011
Download Link: http://www.indiantollways.com/urban-its/

Service Standards and Key Assumptions for Traffic Support Infrastructure

Service Standards		
ITS & ATC	For Class IA cities	One ITS & ATC for every 1 million population
Vehicular and Pedestrian Underpasses	For Class I cities	• 1 vehicular underpass for every 8 sq. km area • 1 pedestrian underpass for every 1 km of arterial road length
Parking Systems	For Class I cities	20 per cent of total number of cars and two-wheelers in Class I cities
Bus Terminals	For Class I and II cities	1 terminal for every 1 million population
Bus Depots	For Class I, II, and III cities	1 depot for every 70 buses
Unit Cost and Service Life of Assets		
	Unit Costs	**Service Life**
ITS & ATC	Rs 40 crore	5 years
Vehicular and Pedestrian Underpasses	Rs 2.5 crore	10 years
Parking Systems*	Rs 50000 to Rs 800000 per equivalent car space	-
Bus Terminals	Rs 3 crore	-
Bus Depots	Rs 7.5 crore (> 70 buses) Rs 5 crore (< 70 buses)	10 years

Source: DrIsher Ahluwalia HPEC_Urban Development Report March2011
Download Link: http://www.indiantollways.com/urban-its/

Figure: 8

* Parking systems considered include normal parking, multi-level parking, semi-automated parking, and fully automated parking.

- Service backlog for traffic support infrastructure assumed to be 100 per cent
- No replacement costs are assumed considered for terminals and parking systems for the period of estimation
- Vehicle ownership of cars is assumed at 25 per 1000 population and two-wheelers at 125 per 1000 population
- Assumed that existing buses have enough depot facilities and
- Annual O&M requirements:
  - ITS & ATC: 10 per cent of PCIC,
  - Vehicle and pedestrian underpasses: 5 per cent of PCIC,
  - Parking: 2 per cent of PCIC,
  - Depots: 3 per cent of PCIC,
  - Terminals: 3 per cent of PCIC.

7. Assumptions on Market Size

Our Assumptions (Based on Ahluwalia):

Minimum Investment for ITS and Parking systems (Item 1 and 3 in the figure 8) = 25%

S.no.	Description	INR (in Crore)	Bn USD
01	Total Urban Traffic Support Infra (for 20 years)	134675	26.93
02	Total ITS and Parking systems (25 % of total)	33669	6.73
03	Investment Required per year for ITS	1683	0.34
04	Investment Projection for 5 years for ITS	8417	1.68

The total assumed Investment projected in next 5 years will be approximately USD 1.68Bn

Market size based on Assumption of Fund actual allocation being 50 % of the Projected Fund Requirement =4209 Crores (USD 0.84Bn)

Size of Major Projects floating in the market (Approx) = 1755 Crores (USD 0.35Bn)

Current Know Projects as % of total Projected Market Project = 41%

8. Actual Investments Planned

Current Fund Allocations for ITS:

Intelligent Traffic System Opportunities in India

A. Present scenario: Major ITS Projects in 2011-12

S.no.	Project	Project Details	Value
01	ITS Delhi	Tender came out in 2009 and again in 2010. 3 bidders submitted the tender. No bidder was up to the mark of the customer. No decision has been taken till now. Likely to get scraped and a fresh tender expected in 2012. RITES is the consultant for the project	**Approx Value USD 80 Mn**
02	Noida	Tender Expected in 2012, RITES is the consultant for the Project	**Approx Value USD 65 Mn**
03	Gujarat	EoI came in April 2011, Tender expected for the first phase in 2012. 5 cities with limited junctions. (n) code is the consultant for the project	**Approx Value USD 60 Mn**
04	Guwahati	Tender got scraped. expected in 2012 with some ATC	**Approx Value USD 25 Mn**
Total Value			**USD 230 Mn**

* 1 USD = INR 50

Sources: As Per Published Tenders in the past

B. World Bank Report (for ITS in Public Transport)

To encourage application of the National Urban Transport Policy and achieve a paradigm shift in India's urban transport systems in favour of sustainable development, the GOI has applied to the Global Environmental Facility (GEF) to implement GEF's Sustainable Urban Transport Project (SUTP) in India. The objectives of the SUTP are:

- To strengthen capacity of GoI, and participating states and cities in planning, financing, operating and managing sustainable urban transport systems and
- To assist states and cities in preparing and implementing demonstration "Green Transport" or "GEF-supportable Transport" projects (GT projects).

The project has two components:

- Component 1: National Urban Transport Capacity Development, and,
- Component 2: GEF Demonstration Projects

Component 2 will support identification, preparation, and implementation of a package of demonstration projects in the selected cities through a comprehensive and integrated planning, preparation, and appraisal process.

The consolidation of fund:

Agencies	Amount (Mn USD)
Government Grant of State Governments	**150**
Implementing Agencies	**200**
Co financing from the world bank	**25**
Total Funding	**375**

The total GEF grant proposed for the project is US$ 25.575 million (This grant includes US$ 575,000, US$ 225,000,000 and US$ 2,500,000 amount for project preparation, project cost and agency fee respectively), which will be complemented with a grant of US$ 150 million from GOI, State Governments, and Implementing Agencies (IA) along with up to US$ 200 million co-financing from the World Bank. The project will be implemented over a four-year period, starting from 2009.

This Environmental and Social Management Framework (ESMF) lays down the principles and guidelines for addressal of environment and social safeguard impacts due to the implementation of the Green Transport projects in the selected cities, to be taken up as part of the Component 2 of the SUTP. The 10 selected cities are Ajmer-Pushkar (Rajasthan), Ahmadabad (Gujarat), Hyderabad (Andhra Pradesh), Indore(Madhya Pradesh), Jalandhar(Punjab), Mysore(Karnataka), Naya Raipur(Chattisgarh), Pune, Pimpri-Chinchwad (Maharashtra), Trivandrum (Kerala)

GREEN TRANSPORT OR GEF- SUPPORTABLE TRANSPORT PROJECTS

The demonstration projects proposed by the agencies in these cities could be classified into the following five areas:

- Public transport improvement
- Non-motorized transport and pedestrian facilities
- Integrated land-use and transport facilities
- ITS (intelligent transport system) application to public transport systems
- City centre traffic and environment improvement.

Table 1-1 presents the types of project in the SUTP.

Table 1-2: Sub-projects in Phase I cities

City	Component	Subcomponent/Location
Ahmedabad	**Service improvements to planned BRT system**	Ahmedabad City
	Fare integration between existing AMTS service and new BRT	Ahmedabad City
	Automatic Fare Collection & control center for BRTS system	Ahmedabad City
	Automatic Traffic Control System (ATC)	Ahmedabad City
	Training for planning unit in BRTS organization	Ahmedabad City
	Bicycle Plan & Bicycle Rental Scheme	Ahmedabad City
	TA for transit oriented development	Ahmedabad City
Hyderabad	Pedestrian infrastructure improvement near MMTS	
	Footpath Improvements	Around MMTS Stations
	Pelican Signals	Around MMTS Stations
	Zebra Crossings & Signages	Around MMTS Stations
	FOBs	Around MMTS Stations
	Transit oriented development study	
	Multi-modal transfer site study	
Mysore	ITS for City Bus services	City Wide
	Retrofit for Bio fuel and storage depots	City Buses
	TA for sustainable transport plan	
Indore	Bus signal prioritization	Along BRTS Corridor
	Automatic Fare Collection	Along BRTS Corridor
Pune	Non-Motorised Transport	Development of Cycle tracks
		Improvement of pedestrian infrastructure
Pimpri -	Public Transportation Improvement	Setting up of BRT Corridors

Ahmadabad, Hyderabad, Mysore, Indore, Pune and Pimpri-Chinchwad have been identified as Phase I cities. Sub-projects in these cities are as presented in the Table 1-2.

Table 1-1: Type of Projects

Selected Cities	States	GEF Priorities				
		Public transport improvement	Non-Motorized Transport	Integrated land-use and transport system	ITS application	City center improvement
Ajmer-Pushkar	Rajasthan		X			
Ahmedabad	Gujarat				X	
Hyderabad	Andhra Pradesh		X			
Indore	Madhya Pradesh	X			X	
Jalandhar	Punjab		X			
Mysore	Karnataka	X			X	
Naya Raipur	Chattisgarh			X		
Pune	Maharashtra		X			
Pimpri - Chinchwad	Maharashtra	X				
Thiruvananthapuram	Kerala		X			

Some upcoming projects according to this report-

S.No.	**PROJECT**	**VALUES**
01	Ahmadabad	INR 19.95 Crores
02	AJMER	INR 33.4 Crores
03	HYDERABAD	INR 59.3 Crores
04	INDORE	INR 49.75 Crores
05	JALANDHAR	INR 224 Crores
06	MYSORE	INR 23.7 Crores (Phase I)
07	NAYA RAIPUR	INR 163.34 Crores
08	PUNE	INR 120.58 Crores
09	PIMPRI – CHINCHWAD	INR 674.59 Crores
10	TRIVANDRUM	INR 42.49 Crores

It is assumed that out of a total market size of 375 Million USD of **SUPPORTABLE TRANSPORT PROJECTS** **have an % of ITS for public transportation as 15 % = 56 Million USD**

C. Opportunities for next 3 years down the line

S.no	Project	Project Details	Value
01	Hyderabad	The Total Budget for ORR HTMS was kept as 50M$ but the HTMS cost expected is maximum 25M$ and so JICA is intending to have ITS in Hyderabad	Approx Value USD 25Mn
02	Jaipur	After the Implementation of BRTS, They will be going for the Traffic management system due to the heavy increase of traffic	Approx Value USD 20 Mn
03	Pune	Pune Municipal corporation is planning for Its. They are presently taking the survey of pune. No consultant finalized till now	Approx Value USD 20 Mn
04	Gujarat	Second phase after the start of the first phase	Approx USD 50Mn
05	Goa	Planning for ITS and city surveillance	Approx USD 20 Mn (for ITS)
06	Bangalore	Tender was submitted by multiple party in 2010. no result till date. Likely to get scraped and expected again in 2012-13	Approx Value USD 40 Mn
07	Guwahati	City Surveillance project. Tender got scraped. expected in 2012-13	Approx Value USD 25 Mn

Total Value for only ITS for next 3 year = 200 Million USD

A+B+C = 230 +56 + **200 Million USD = 486 Million USD**

9. Correlation of Current Allocations with Projections

Current Allocation of Projects = 486 Million for 3 years (consider over 5)

Market Projects for next 5 years (based on Dr. Alhuwalia Report) = 1.68 B USd

Current Allocation as a % of Market over 5 years = 28 %