



Ministry of Urban Development
Government of India



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Appraisal Checklist for Urban Transport Projects

Toolkit - June 2015

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Abbreviations

ATL	Average Trip Length
ATT	Average Trip Time
BAU	Business as Usual
BRTS	Bus Rapid Transit System
CCTV	Closed Circuit Television
CMP	Comprehensive Mobility Plan
DP	Development Plan
DPR	Detailed Project Report
FIRR	Financial Internal Rate of Return
FOB	Foot over Bridge
FSI	Floor Space Index
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GOI	Government of India
GPS	Global Positioning System
HCV	Heavy Commercial Vehicle
HDV	Heavy Duty Vehicles
HIG	High Income Group
HSD	High Speed Diesel
IUT	Institute of Urban Transport
IPT	Intermediate Public Transport
ITS	Intelligent Transport System
ISBT	Inter State Bus Terminal
JnNURM	Jawaharlal Nehru National Urban Renewal Mission
KMPL	Kilometre per Litre
LCV	Light Commercial Vehicle
LDV	Light Duty Vehicles
LIG	Low Income Group
LoS	Level of Service
LRT	Light Rail Transit



MAV	Multi Axle Vehicles
MIG	Middle Income Group
MoUD	Ministry of Urban Development
MRTS	Mass Rapid Transit System
NH	National Highway
NMT	Non Motorised Transport
NMV	Non Motorised Vehicle
NOx	Nitrogen Oxide
NUTP	National Urban Transport Policy
O & M	Operation and Management
PCTR	Per Capita Trip Rate
PCU	Passenger Car Equivalent
PHPDT	Peak Hour Peak Direction Traffic
PM	Particulate Matter
PPP	Public Private Partnership
PT	Public Transport
RoW	Right of Way
RSPM	Respiratory Suspended Particulate Matter
SLB	Service Level Benchmarks
SOx	Sulphur Oxides
SPM	Suspended Particulate Matter
SPV	Special Purpose Vehicle
TKM	Tonne-Kilometre
UFCC	Urban Freight Consolidation Centre
ULB	Urban Local Body
UMTA	Urban Metropolitan Transport Authority
UTF	Urban Transport Fund
VKM	Vehicle Kilometre
VOC	Volatile Organic Compound
WFPR	Workforce Participation Rate



Background

In the recently launched missions on Smart cities and Atal Mission on Redevelopment and Urban Transformation (AMRUT) efficient urban mobility and public transport is one of the core infrastructure elements. It includes smart parking, intelligent traffic management, integrated multi-modal transport, public transport etc. as the thrust areas for smart solutions under transport sector in both the mission. Cities and state authorities would be required to prepare detailed project reports on urban transport projects for development of sustainable urban transport system. In order to work out the sound project reports and to assess and appraise the urban transport projects there is a need to have some checklist.

It is in this context the Institute of Urban Transport (IUT) under the purview of Ministry of Urban Development has prepared a toolkit on Appraisal Checklist for Urban Transport Projects. The toolkit has elaborated on the assessment of urban transport projects in terms of economic, social and environmental impact so as to optimise the benefits and develop the sustainable urban transport system. The toolkit is based on in-depth study of best practices at national and international level in the field, the existing toolkits, guidelines and policy documents on various aspects of urban transport and wide consultation with stakeholders comprising experts, policymakers, city officials, academicians, professionals etc. at various stages.

It will be a useful reference guide to the city and state authorities and professional urban transport planners & practitioners for preparation and evaluation of urban transport projects.

OBJECTIVE

The objective of this toolkit is to guide the States/ULB's/Para-statal agencies to appraise urban transport projects for improving urban mobility in a sustainable manner by addressing minimization of greenhouse gas emissions; encouraging social inclusiveness and gender equality; and promoting economic efficiency.



CATEGORIZATION OF URBAN TRANSPORT PROJECTS

Five categories of urban transport projects included in this toolkit are:

1. Transport Planning (includes Comprehensive Mobility Plan);
2. Public Transport (confined to City Bus System and Bus Rapid Transit System only);
3. Non-Motorised Transport Plan (comprising of walk and cycle);
4. Transport Infrastructure (comprising of Network Improvement and Expansion; and Parking Management Plan) and
5. Urban Freight (Freight Management Plan and Freight Terminals/Consolidation Centres).

Brief outline of five types of urban transport project structured in the toolkit is as under:

CATEGORY 1: TRANSPORT PLANNING

This category includes mobility plans for cities and urban agglomerations like Comprehensive Mobility Plans, Comprehensive Traffic and Transportation Study, Comprehensive Transportation Study and Traffic and Transportation Master Plan as well as Regional Transportation Plan. The checklist highlights on the components of existing transport scenario, development of sustainable mobility plans and its benefits in terms of social, economic and environmental benefits.

Note 1: refer following documents and guidelines issued by MoUD (moud.gov.in)–

- Comprehensive Mobility Plan (CMP) - A Toolkit (Revised), 2013
- Code of Practice for design of Urban Roads, 2012
- National Urban Transport Policy, (NUTP), 2006

CATEGORY 2: PUBLIC TRANSPORT

Public Transport Projects involve appreciating the role of existing public transport system and selection of system technologies and their planning, operations and management.

Under this category Appraisal checklist for City Bus System, Bus Rapid Transit System (BRTS) projects, allied infrastructure like Bus Stations, Bus Terminals, Transit Centres, Depots and Workshops, Control Centres, ITS for City Bus System and BRTS is included. Also, it includes planning for feeder services, multimodal integration and institutional reforms.



Source: www.indiaprwire.com

**The checklist contains the followings:**

- **Existing Condition** – City Profile, Travel and Traffic Characteristics, Surveys Conducted and Existing Public Transport Characteristics (Available Modes, Route Details and Bus Typology, Physical & Financial Performance, Infrastructure etc.)
- **Proposals** –
 - ❖ Route Planning – Planning of new routes and route rationalisation of existing routes.
 - ❖ Assessment of Fleet - Number and typology of fleet.
 - ❖ Infrastructure Planning - Stations/ Terminals/Depots
 - ❖ ITS – Control Centre, On Bus ITS, ITS in Stations/ Terminals/Depots, Services for the people.
 - ❖ System Design for BRTS – Network and Roadway; Vehicles, Services and Operations; and Feeder Network & Infrastructure.
 - ❖ Cost - Total Cost, Funding Pattern, Fund Transfer Mechanism, Financial Intermediary for timely payment to manufacturers etc and Financial Analysis.
 - ❖ Governance – Roles & Responsibilities of agencies/government bodies and Institutional Reforms
- **Benefits** - Sustainable Benefits in terms of society, economy and environment.

Note 2: refer following documents and guidelines issued by MoUD (moud.gov.in)–

- Guidelines for Financing of Buses for Urban Transport Systems, 2009
- Guidelines for Purchase of Buses and Ancillary Infrastructure for Urban Transport Systems, 2013
- Handbook on Service Level Benchmarks (Urban Transport), 2009
- Guidelines and Toolkits for Urban Transport Development in Medium Sized cities in India, Module 2, Bus Rapid Transit (BRTS): Toolkit for feasibility Studies, 2009
- Development of Training Material under Sustainable Urban Transport Project, Reference Guide Volume 2 Public Transport, 2013



CATEGORY 3: NON-MOTORIZED TRANSPORT

This category mainly involves NMT facility improvement plan. The sub components of NMT Improvement Plan includes provision of clear walkable footpath throughout the city, cycle tracks, streetlights, cycle stands and NMT designed signals at all junctions. It also includes planning for pedestrian crossing facilities like at-grade crossings, foot over bridge and subways.

The checklist contains the followings:

- **Existing Condition** – City Profile, Surveys Conducted and Existing Non-Motorised Characteristics (Walk and Cycle)
- **Proposals** –
 - ❖ Footpath and Cycle Tracks – Network Coverage, Geometric Design, Pavement Materials, Street Lighting, Disabled Friendly Infrastructure etc.
 - ❖ Crossing Facilities – Geometric Design and Design Capacity
 - ❖ Cycle Parking – Parking Facilities at Interchanges & PT Stops
 - ❖ Road Safety
 - ❖ Public Bicycle Sharing Scheme – Control centre, Customer service and ITS for PBS.
 - ❖ **Cost** – Total Cost, Funding Pattern and Contracting Mechanism if any.
 - ❖ **Governance** – Roles & Responsibilities of agencies/government bodies.
- **Benefits** – Sustainable Benefits in terms of society, economy and environment.



Source: www.dnaindia.com

Note 3: refer following documents and guidelines issued by MoUD and IRC–

MoUD (moud.gov.in)–

- Code of Practice for design of Urban Roads, 2012
- Service Level Benchmarks in Urban Transport , 2009

IRC Codes

- IRC: 103 – 2012 - Guidelines for Pedestrian Facilities
- IRC: 86 – Geometric Design Standards for Urban Roads in Planning
- IRC: 69 – Space Standards for Roads in Urban Areas
- IRC: 92 – Guidelines for Design of Interchanges in Urban Areas
- IRCSP: 41 – Guidelines for the Design of “At Grade Intersections” in Rural and Urban Areas
- IRC: 65 – Recommendations, Practice for Traffic Rotaries



CATEGORY 4: TRANSPORT INFRASTRUCTURE

This category consists of road projects, network improvement, and off-street & on street parking management.

The checklist contains the followings:

- **Existing Condition** – City Profile, Surveys Conducted, Existing Road Network Characteristics including Intersections and Existing Parking Characteristics (Off Street, On Street and Parking Management)

- **Proposals** –

- a) For Network –

- ❖ Geometric Design – Horizontal and Vertical Alignment, Weaving Length, Entry/Exit Angles etc.
- ❖ Pedestrian and Cycle Facilities – Pedestrian pathways, cycle tracks, crossing facilities and cycle parking.
- ❖ Road Marking and Signages
- ❖ Road Safety
- ❖ Design Capacity and Design Period
- ❖ ITS – Control Centre, Automatic Traffic Classifier & Counter, Variable Message Signboard, Traffic Signals, Electronic Road Pricing System, Lane Control System etc.

- b) For Parking -

- ❖ City Policies
- ❖ Location and Type of Off-Street Parking – Surface, Multi-Storeyed, Underground etc.
- ❖ Zoning for Parking – Delineation of Parking Zones on the basis of users, duration, type of vehicles, pricing etc.
- ❖ Management Plan



Source: www.wikiwand.com

**Note 4: refer following documents and guidelines issued by MoUD and IRC
MoUD (moud.gov.in)–**

- Public Transport Accessibility Toolkit
- Service Level Benchmarks in Urban Transport

IRC Codes: IRC: 103 – 2012 – Guidelines for Pedestrian Facilities



- ❖ Proposed Parking Characteristics like Capacity, Accumulation, Volume, Load Duration, Turnover, Composition, Tariff etc.
 - ❖ ITS – Parking Guidance & Information System, Smart Payment System, Security System etc.
 - ❖ Cost Analysis – Project Cost, Financial Analysis, Financial Structuring & Proposed Phasing etc.
 - ❖ Governance – Roles & Responsibilities of agencies/government bodies.
- **Benefits** – Sustainable Benefits in terms of society, economy and environment.

CATEGORY 5: URBAN FREIGHT

Urban Freight Planning and Management comprises projection of freight traffic growth; planning for industrial and commercial activities, distribution and storage facilities in the city, location of wholesale markets, direction of city growth etc. It also includes planning for non-motorised freight transport while addressing the issue of the last leg connectivity in freight movement along with freight handling facilities like freight centres (like Freight Villages, Distribution Business Centres, Logistic Centres), Urban Freight Consolidation Centres, Integrated Freight Complex and Truck Terminals.

The checklist contains the followings:

- **Existing Condition** – City Profile, Surveys Conducted and Existing Freight Characteristics and Existing Freight Infrastructure such as Goods Terminal, Industrial Area, Service Centre, Parking Provisions, and Circulation etc.
- **Proposals** –
 - ❖ Freight Traffic Projections
 - ❖ Urban Freight Model
 - ❖ Urban Freight Management
 - ❖ Freight Handling Facilities
 - ❖ Cost Analysis – Project Cost, Financial Analysis, Financial Structuring & Proposed Phasing.
 - ❖ Governance – Roles & Responsibilities of agencies/government bodies.
- **Benefits** – Sustainable Benefits in terms of society, economy and environment.



Source: www.supplychains.com

Note 5: refer Note State of the Art Report Toolkit on Urban Freight Transport Planning and Management



STRUCTURE OF APPRAISAL CRITERIA CHECKLISTS

Appraisal Criteria Checklists has been prepared for each of the five identified urban transport project categories in the following format

- **Introduction** – Assess the existing city profile and transportation scenarios
- **Proposal** – This includes the details of proposals provided in the project report.
- **Funding** – Assess the sources of fund identified for the projects as well as the amount that would be required to implement the project.
- **Governance** – Appraise the roles and responsibilities of various agencies that would be involved in the planning, development, and operation and management of the project.
- **Sustainable Benefits** – Appraise the sustainability of the project in terms of social, economic and environmental aspects.

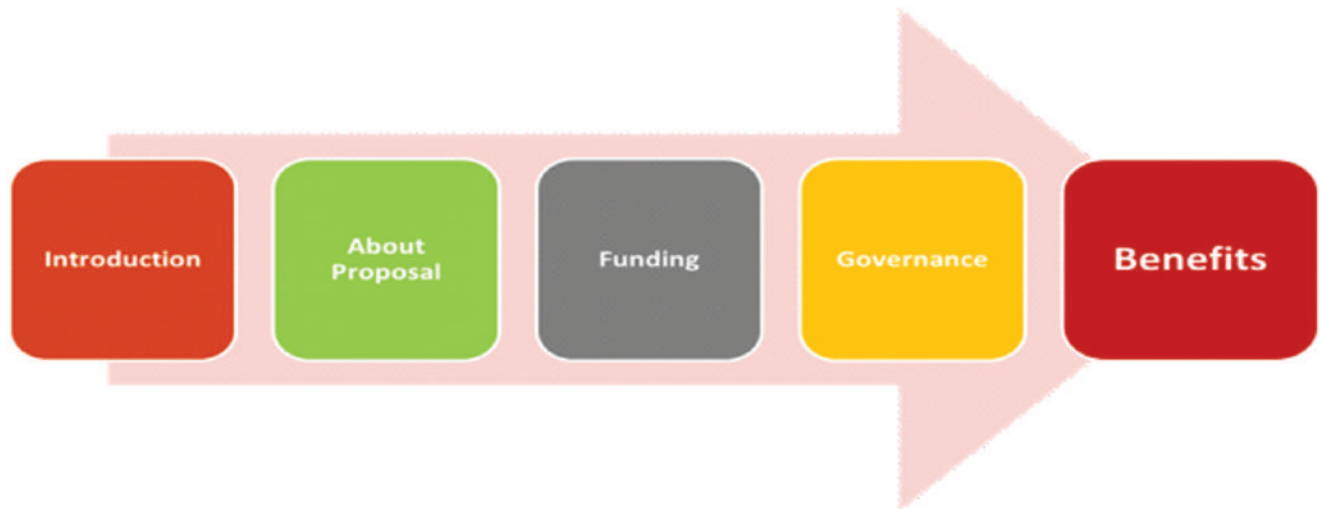


Figure 1: Components of Appraisal Criteria Checklist



STEPS INVOLVED IN STAKEHOLDER CONSULTATIONS

Stakeholder Consultations conducted at various stages to receive valuable inputs in finalising the categories and indicators for evaluation of urban transport projects.

- **Step 1:** Expert committee comprising MoUD, academia, consultants, researchers, NGOs, Traffic Police, State Transport Departments, State Transport Corporations and other relevant agencies were set up.
- **Step 2:** Based on the inputs received from expert committee and literature survey both at national and international level, the classification of urban transport projects were divided into five categories namely Transport Planning, Public Transport, Non-Motorised Transport, Transport Infrastructure and Urban Freight and prepared draft indicators.
- **Step 3:** Comments were sought on draft transport indicators from the expert committee for evaluation of each category.
- **Step 4:** The suggestions received were incorporated and the finalised sustainable transport indicators presented at Urban Mobility India (UMI) Conference, 2014 for further feedback
- **Step 5:** Prepared draft report on evaluation criteria checklist for urban transport projects and circulated the same it amongst all the expert committee members.
- **Step 6:** Validation workshop organized where all the expert committee members were invited to discuss on the draft evaluation criteria checklist of each category. Based on the feedback, the toolkit has been finalized.





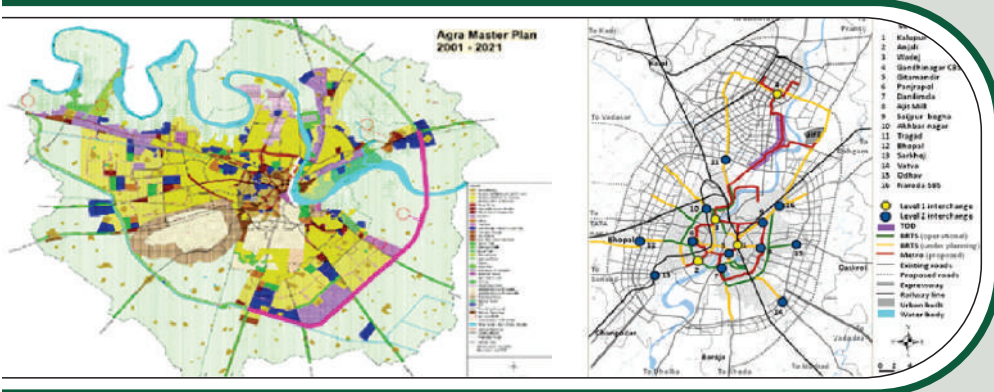
APPRAISAL CRITERIA BASED ON THE PROJECT BENEFITS

The benefits of the projects will be appraised under three categories i.e. social; economic and financial; and environmental benefits as per the following indicators

- **Social Indicators:** It includes modal shift to public transport and non-motorised transport, network coverage of public and non-motorised transport, accessibility, reduction in accidents, road security and reduction in motorised traffic on road.
- **Economic Indicators:** It comprises per capita transport infrastructure, share of GDP contributed by transport, staff per bus ratio, travel time and speed, reduction in fuel dependency and land used by transport infrastructure.
- **Environmental Indicators:** The environmental indicators include energy/fuel consumption, reduction in greenhouse gas emissions, emissions per capita (NO₂, SO₂, SPM and RSPM) and percentage of vehicles on clean fuels.

Category wise detailed appraisal checklist is given in the succeeding section.





Category 1:

Transport Planing

Comprehensive Mobility Plan







Category 1:

Transport Planning

Comprehensive Mobility Plan

I. TASK 1 – DEFINING THE SCOPE OF CMP					
1. Planning Area and Horizon					
i.	Name of City and State				
ii.	Planning Area/ Site Area (sq. km)				
iii.	Base Year				
iv.	Horizon Year				
v.	Plan Phasing Duration (in years):				
	Immediate				
	Short Term				
	Medium Term				
	Long Term				
2. Vision					
	Vision is in line with sustainable transport system definition i.e. if the vision addresses	Yes	Partial	None	Remarks
i.	Environmental Sustainability and Safety				
	- Reducing Air and Noise Pollution				
ii.	Social Sustainability				
	- Accessibility and Mobility for all socio economic groups, gender, all age group and the disabled.				
	- Affordability				
	- Traffic Safety				
iii.	Economic Sustainability				
	- Integrated Land use Transport Planning				



- Financial Efficiency and Fuel Efficiency					
- Reduction in Travel Time and Waiting Time					
3. Objective					
Key focus area of NUTP i.e. planning for people taken care of i.e. if the objectives of the CMP address the following:		Yes	No		
i.	Prioritize mobility for all socio economic groups and gender.				
ii.	Encourage sustainable modes of transport like Improvement of Public Transport, NMT and pedestrian facilities				
iii.	Provide a platform to integrate land use with transport planning				
4. Review of Existing Studies/Plans/Reports					
Existing Plans/Studies		Yes	No		
i.	Perspective Plan/Master Plan				
ii.	City Development Plan				
iii.	Existing Traffic and Transportation Studies				
iv.	DPRs of Transport related Projects				
5. Stakeholder Consultation					
Consultation		Yes	Yes		
i.	Stakeholder Involvement considered while preparing vision for CMP? Involvement/consultation should be throughout the study.				
ii.	Citizen Involvement considered while preparing vision for CMP? Involvement/consultation should be throughout the study.				
II. TASK 2 – DATA COLLECTION AND ANALYSIS OF EXISTING URBAN TRANSPORT AND ENVIRONMENT					
1. Review of City Profile					
i. Socio Economic					
a.	Current Population (in No.)				
b.	Population Growth Rate (Decadal)				
c.	Population Density (in No.) – Gross Density and Built Up Density				
d.	Average Household Size (in No.)				
e.	Projected Population (Phase Wise)	Immediate	Short Term	Medium	Long Term



f.	Projected Employment (Phase Wise)	Immediate	Short Term	Medium	Long Term	
g.	Per Capita Income (in Rs)					
h.	Average Household Income (in Rs)					
i.	Expenditure on Transport (in Rs)					
j.	Investment in Transport Sector – Mention the different categories in which investment has been made	Year 1	Year2	Year 3	Year 4	Year 5
k.	Workforce Participation Rate (WFPR) (in %)			Male	Female	Overall
ii.	Land Use					
	Land Use (in %)	Existing Overall	Existing Built up Area	Proposed (as per Master Plan)		
	Residential Area (which should include slums)					
	Commercial Area					
	Public and Semi-Public					
	Recreation					
	Industrial					
	Transportation					
iii.	Transport Related					
a.	Number of Registered Vehicles in Year.....					
	Two Wheelers					
	Three Wheelers					
	Four Wheelers					
	Taxis					
	Buses					
	Trucks (LCV)(Up to 7.5 tonnes)					
	Trucks (HCV)					
	Any Other					
b.	Average Annual Growth of Vehicle (in %)					
c.	Road Network (in km)			Length	Percentage	
	NH					
	SH					
	Arterial					
	Sub Arterial					
	Collector					



d.	Public Transport						
	Mode	Road Based			Rail Based		
		Bus	BRTS	IPT	Metro	LRT	Sub Urban Rail
	Length (in km)						
	Number of Buses/Coaches/Vehicles						
	Number of Buses/Coaches/Vehicles per 1000 population						
	Infrastructure						
	- Number of Stops/Stations						
	- Kernel Density of Bus Stops						
	- Number of Terminal						
	- Number of Buses per Terminal						
	- Number of Depot						
	- Number of Buses per Depot						
	- Number of Workshop						
	- Number of Buses per Workshop						
	ITS Infrastructure						
	- Total Number of Stations/Terminals having CCTVs						
	- Total Number of Stations/Terminals having PIS						
	- Number of PT vehicles having GPS						
e.	Airport (Number)						
iv.	Environment and Safety						
a.	Number of Accidents (mention year)						
	Fatal Accidents						
	Serious Accidents						
	Minor Accidents						
b.	Pollution (Existing)						
	PM2.5 (tonnes)						
	PM10 (tonnes)						
	SO2 (tonnes)						
	NOx (tonnes)						
	CO (tonnes)						
	VOC (tonnes)						
	CO2 (million tonnes and tonnes per capita)						



2. Traffic Surveys Conducted	
i.	Road Network Inventory
ii.	Speed and Delay in Peak and Off Peak Hour
iii.	Classified Traffic Volume Counts Survey at -
	Outer Cordon Location
	Mid-Block Location
	Screen Line Location
	Roadside Origin-Destination Survey
iv.	Classified Turning Movement Survey at Intersections
v.	Pedestrian Volume Survey
vi.	Parking Survey
	Off Street Locations
	On Street Locations
vii.	Commuter Survey at Public Transport Terminals
viii.	Mass Transport and Intermediate Public Transport (IPT) Passengers Survey
ix.	Vehicle Operators Survey
x.	Household Survey
3. Traffic Analysis Zones	
i.	Total Number of Traffic Analysis Zones
ii.	Number of Internal Traffic Analysis Zones
iii.	Number of TAZ per sq. km of study area
4. Review of Existing Transport System	
i.	Road Network Inventory
a.	Pedestrian Infrastructure
i.	Length of Road by Availability of Footpath (in km and %)
	No Footpath
	Footpath on One Side
	Footpath on Both Side



ii.	Availability of Footpath by Width (in km and %)		
	Up to 2 m ¹		
	More than 2 m ¹		
iii.	Number of Pedestrian Crossings		
	Zebra Crossings		
	Foot over Bridges		
	Subways		
b.	Infrastructure for Bicycles		
i.	Length of Road by Availability of Cycle Track (in km and %)		
	No Cycle Track		
	Cycle Track on One Side		
	Cycle Track on Both Side		
ii.	Number of Cycle Stands		
c.	Cycle Rickshaw		
i.	Fleet Size		
ii.	Average Vehicular Km per Day		
iii.	Average Earning per Day		
iv.	Average Trip Length		
v.	Average Number of Trips per Day/per Rickshaw		
vi.	Average Distance per Day/ per Rickshaw		
d.	Road Network		
i.	Distribution of Road Network by Carriageway (in %)		
	Carriageway	Length	Percentage
	Single Lane		
	Double Lane		
	Four Lane Undivided		
	Four Lane Divided		
	Six Lane Divided		
	Six Lane Undivided		
	Eight Lane or More		
ii.	Length of Road by Availability of Street Light (km)		
	No Street Light		
	Street Light on One Side		
	Street Light on Both Side		



iii.	<p>Illumination Level (in %)²</p> <p>Roads with equal or more than 30 lux</p> <p>Pedestrian Crossings with equal or more than 50 lux</p> <p>Cycle Track with equal or more than 20 lux</p>																																																																		
iv.	<p>Length of Road by Availability of On Street Parking (km)</p> <p>On Street Parking on One Side</p> <p>On Street Parking on Both Side</p>																																																																		
v.	Total Number of Intersections																																																																		
vi.	Total Number of Signalized Intersections																																																																		
ii.	Road Based Public Transport System																																																																		
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iii.	Fleet Utilisation Rate (in %)																																																																		
iv.	Average Km per Bus/per Day																																																																		
v.	Average Ridership per Day per Bus																																																																		
vi.	Occupancy Ratio																																																																		
vii.	Fuel Used																																																																		
	- Type																																																																		
	- Quantity (in litres per day)																																																																		
b. Route Detail																																																																			
i.	Route Coverage (km)																																																																		
	Route Coverage Density (i.e. Bus km/Road Network km)																																																																		
ii.	Average Headway																																																																		
iii.	Average Route Speed																																																																		
iv.	Average Waiting Time																																																																		
c. Cost and Fare																																																																			
i.	Operation Cost per km (in Rs)																																																																		
ii.	Fare Structure (in Rs)																																																																		
iii.	Revenue per km (in Rs)																																																																		
iv.	Profit/Loss per year (in Rs)																																																																		

²Urban road Codes



iii. Freight Transport				
a. Daily Goods Vehicle Travel	Vehicles	PCUs		
Internal to Internal				
External (Internal to External, External to Internal, External to External)				
b. Amount of Goods carried across the city/region (in tonnes)				
c. Types of Freight Handling Facilities (Yes/No; If Yes, then Number....)				
i.	Freight Centre/Logistic Park			
ii	Urban Freight Consolidation Centre			
Integrated Freight Complex				
Truck Terminals				
iv. Traffic Conditions on Road				
a. Average Speed³				
Average Speed of Private Mode Vehicles (in %)				
>=30 km/hr				
i.	25 - 30 km/hr			
15 - 25 km/hr				
<15 km/hr				
Average Speed of Buses on PT Corridor (in %)				
>=20 km/hr				
ii.	15 - 20 km/hr			
10 - 15 km/hr				
<10 km/hr				
b. Traffic Volume				
i.	Peak Hour Traffic per day (in PCU)			
ii.	Off Peak Hour Traffic per Day (in PCU)			
5. Study of Existing Travel Behaviour (Household Survey)				
i. Gender Information				
	Information	Male	Female	Total
a.	Population			
b.	Age			
Below 20 years				

³Service Level Benchmark by MoUD



	20 to 50 years
	> 50 years
c.	Distribution of Trips
	Below 20 years
	20 to 50 years
	> 50 years
d.	Average Trip Length
	Below 20 years
	20 to 50 years
	> 50 years
e.	Per Capita Trip Rate
ii.	Socio Economic Information
a.	Percentage of HH within 10 min walking distance of PT/ Para Transit
b.	Population by Educational Qualification (Number)
	No school education
	Primary education (up to 8th)
	Matriculation/up to 12th
	Graduate
	Others (Specify)
c.	Population by Occupation (Number)
	Salaried Employment (Regular Waged)
	Daily Wages Employment (Casual Labour)
	Self Employed (Work in HH Enterprise)
	Domestic Worker at Fixed Rate
	Honorary Worker
	Home Based Paid Work
	Home Based Unpaid Work (House Manager)
	Attending Educational Institute
	Pensioners/ Remittance Recipient
	Unemployed - Due to Disability



Unemployed - Seeking Work					
Others - Specify					
d. Vehicle Ownership					
Vehicle		Existing		Before Two Years	
Car					
Motorised Two Wheeler					
Bicycle					
Auto-Rickshaw					
Cycle Rickshaw					
iii. Mode Wise Information					
Mode		Modal Share (%)	Distribution of Trips (in Number)	Average Trip Length (km)	Average Travel Time (min)
Car					
2 Wheeler					
Bus					
Auto-Rickshaw					
Shared Auto					
Walk					
Bicycle					
Cycle Rickshaw					
Company Bus					
Taxis					
Any Other					
iv. Purpose Wise Information					
Mode		Distribution of Trips (in Number)	Average Trip Length (km)	Average Travel Time (min)	
Home					
Work					
Education					
Recreation					
Others					
6. Review of Energy and Environment					
i. Energy Balance					
Energy Consumption in (million tonnes oil equivalent)					
Road based Transport					
Rail based Transport					
Water based Transport					



ii. Fuel Type				
Type of Fuel used by Different Modes (%)				
Vehicle Type	Petrol	Diesel	CNG	Others
Two Wheelers				
Three Wheelers				
Four Wheelers				
Taxis				
Buses				
Trucks (LCV)(Up to 7.5 tonnes)				
Trucks (HCV)				
7. Transport Demand Model (Base Year)				
i. Trip Generation Method Used (Tick)	Linear Regression Analysis		Category Analysis	Others (mention)
a. Trip Production Equation				
b. Trip Attraction Equation				
ii. Trip Distribution Method Used (Tick)	Linear Regression Analysis		Synthetic Methods	Others (mention)
a. If Growth Factor Methods, then (Tick)				
- Uniform Factor Method				
- Average Factor Method				
- Fratar Method				
- Furness Method				
b. If Synthetic Models, then (Tick)				
- Gravity Model				
- Tanner Model				
- Intervening Opportunities Model				
- Competing Opportunities Model				
c. Trip Distribution Equation				
iii. Traffic Assignment Technique Used (Tick)				
- All-or-Nothing Assignment				
- Multiple Route Assignment				
- Capacity Restraint Assignment				
- Diversion Curves				



iv. Modal Split Analysis Used (Tick)											
- Probit Analysis											
- Logit Analysis											
- Discriminant Analysis											
a. Modal Split Equation											
III. TASK 3 – BAU SCENARIO AND SUSTAINABLE URBAN TRANSPORT SCENARIO (PROPOSALS)											
1. Mobility and Accessibility											
i. Modal Share											
a. Modal Share (%) by Trip Purpose											
	Mode	Home		Work		Education		Recreation		Others	
		BAU Scenario	Sustainable Scenario	BAU Scenario	Sustainable Scenario	BAU Scenario	Sustainable Scenario	BAU Scenario	Sustainable Scenario	BAU Scenario	Sustainable Scenario
	Car										
	2 Wheeler										
	Bus										
	Auto-Rickshaw										
	Shared Auto										
	Walk										
	Bicycle										
	Cycle Rickshaw										
	Company Bus										
	Taxis										
	Any Other										



b. Modal Shares by Social Groups								
Mode	Modal Share (%)							
	HIG		MIG		LIG		Slums	
	BAU Scenario	Sustainable Scenario	BAU Scenario	Sustainable Scenario	BAU Scenario	Sustainable Scenario	BAU Scenario	Sustainable Scenario
Car								
2 Wheeler								
Bus								
Auto-Rickshaw								
Shared Auto								
Walk								
Bicycle								
Cycle Rickshaw								
Company Bus								
Taxis								
Any Other								
ii. Travel Time								
a. Average Travel Time by Mode								
Mode	Average Travel Time (in min)							
	BAU Scenario				Sustainable Scenario			
Car								
2 Wheeler								
Bus								
Auto-Rickshaw								
Shared Auto								
Walk								
Bicycle								
Cycle Rickshaw								
Company Bus								
Taxis								
Any Other								



b. Trip Purpose Wise Average Travel Time Disaggregated by Social Groups								
Purpose		Average Travel Time (in min)						
		HIG		MIG		LIG		Slums
		BAU Scenario	Sustainable Scenario	BAU Scenario	Sustainable Scenario	BAU Scenario	Sustainable Scenario	BAU Scenario Sustainable Scenario
Home								
Work								
Education								
Recreation								
Others								
iii. Trip Length								
a. Average Trip Length								
Mode		Average Trip Length (km)						
		BAU Scenario				Sustainable Scenario		
Car								
2 Wheeler								
Bus								
Auto-Rickshaw								
Shared Auto								
Walk								
Bicycle								
Cycle Rickshaw								
Company Bus								
Taxis								
Any Other								



b. Mode wise ATL disaggregated by social groups								
Mode	Average Trip Length (km)							
	HIG		MIG		LIG		Slums	
	BAU Scenario	Sustainable Scenario	BAU Scenario	Sustainable Scenario	BAU Scenario	Sustainable Scenario	BAU Scenario	Sustainable Scenario
Car								
2 Wheeler								
Bus								
Auto-Rickshaw								
Shared Auto								
Walk								
Bicycle								
Cycle Rickshaw								
Company Bus								
Taxis								
Any Other								
c. Trip Purpose wise ATL disaggregated by social groups								
Purpose	Average Travel Time (in min)							
	HIG		MIG		LIG		Slums	
	BAU Scenario	Sustainable Scenario	BAU Scenario	Sustainable Scenario	BAU Scenario	Sustainable Scenario	BAU Scenario	Sustainable Scenario
Home								
Work								
Education								
Recreation								
Others								



iv. Passenger Kilometre and Vehicle Kilometre				
a. Mode wise PKM and VKM				
Mode	Passenger Kilometre		Vehicle Kilometre	
	BAU Scenario	Sustainable Scenario	BAU Scenario	Sustainable Scenario
Car				
2 Wheeler				
Bus				
Auto-Rickshaw				
Shared Auto				
Walk				
Bicycle				
Cycle Rickshaw				
Company Bus				
Taxis				
Any Other				
b. Trip Purpose wise PKM and VKM				
Mode	Passenger Kilometre		Vehicle Kilometre	
	BAU Scenario	Sustainable Scenario	BAU Scenario	Sustainable Scenario
Home				
Work				
Education				
Access to Public Transport				
Access to Auto Rickshaw				
Shopping				
Recreation				
Social Trip				
Religious Trip				
Personal Business				
Others				



2. Infrastructure		
a. Average Speed on Roads of Different Modes³		
Average Speed of Private Mode Vehicles (in %)	BAU Scenario	Sustainable Scenario
>=30 km/hr		
25 - 30 km/hr		
15 - 25 km/hr		
<15 km/hr		
Average Speed of Buses on PT Corridor (in %)	BAU Scenario	Sustainable Scenario
>=20 km/hr		
15 - 20 km/hr		
10 - 15 km/hr		
<10 km/hr		
b. Percentage of HH within 10 min walking distance of PT/ Para Transit	BAU Scenario	Sustainable Scenario
c. Average Number of Interchanges per PT trip	BAU Scenario	Sustainable Scenario
3. Safety and Security		
i. Safety		
a. Percentage of Roads having Speed Limit >=50 kmph¹	BAU Scenario	Sustainable Scenario
b. Percentage of Roads having Footpath Width >=2 m¹		
ii. Security		
a. Percentage of Road Lighted	BAU Scenario	Sustainable Scenario
b. Percentage of Footpaths Lighted	BAU Scenario	Sustainable Scenario
4. Environmental Aspects		
i. Emissions		
GHG Emissions	BAU Scenario	Sustainable Scenario



ii. Depletion of Land Resource				
a.	Per Capita Consumption of Land for Transport Activity		BAU Scenario	Sustainable Scenario
b.	Land Consumed for Different Transport Activities			
	Transport Activities		BAU Scenario	Sustainable Scenario
5. Economic				
i. Fare Policy				
a.	Percentage of Subsidies Granted		BAU Scenario	Sustainable Scenario
b.	Percentage of Population Owning Passes		BAU Scenario	Sustainable Scenario
IV. TASK 4 – DEVELOPMENT OF URBAN MOBILITY PLAN AND PREPARATION OF IMPLEMENTATION PROGRAMME				
1. Phasing of Projects				
	Strategies - Projects		Phasing	
		Immediate	Short Term	Medium Term
				Long Term
i. Integrated Land Use and Urban Mobility Plan				
a.				
b.				
c.				
ii. Formulation of the Public Transport Improvement Plan				
a.				
b.				
c.				
iii. Preparation of Road Network Development Plan				
a.				
b.				
c.				
iv. Preparation of NMT Facility Improvement Plan				
a.				
b.				
c.				



v. Freight Movement Plan							
a.							
b.							
c.							
vi. Mobility Management Measures							
a.							
b.							
c.							
vii. Development of Fiscal Measures							
a.							
b.							
c.							
viii. Mobility Improvement Measures and NUTP Objectives							
a.							
b.							
c.							
2. Cost of Implementation							
Projects	Phase - Immediate/ Short / Medium / Long	Project Priority High/ Medium/ Low	Projects	Quantity	Unit	Unit Rate (Rs)	Cost (Rs.)
i.							
ii.							
iii.							
V. SOCIAL BENEFITS							
1. Increase In -							
i. Modal Share (%)							
Bus							
Walk							
Cycle							
ii. Modal Shift from Various Modes to Bus, Walk and Cycle (%) namely-							
Modes					Bus	Walk	Cycle
Car							
Two Wheeler							
IPT							



iii.	Total Route Coverage (%) for Bus
iv.	Total Network Coverage (in km) -
	Footpath
	NMT
v.	Average Daily Ridership (PHPDT) for Bus
vi.	Number of
	Pedestrians
	Cyclists
vii.	Accessibility to Bus Stops - % of population within 500 m of Bus Stops
2.	Reduction/Decrease In -
i.	Average Number of Private Cars and Two Wheelers on Road per day
ii.	Peak Hour Motorised Traffic per day (in PCU)
iii.	Motorised Vehicle km per Day
iv.	Freight Vehicles during Day Time (%)
v.	Freight Vehicles during Night Time (%)
vi.	Accident due to Freight Vehicles
3.	Increase in Level of Service (LOS) Of -
i.	Presence of Organized Public Transport System in Urban Area
ii.	Extent of Supply / Availability of Public Transport
iii.	Service Coverage of Public Transport in the city (Bus route network density)
iv.	Level of Comfort in Public Transport (Crowding)
v.	Percentage Fleet as per Urban Bus Specifications
vi.	Fatality per lakh Population
vii.	Availability of Traffic Surveillance
viii.	Passenger Information System
ix.	Global Positioning System
x.	Integrated Ticketing System
xi.	Street Lighting (Lux)
xii.	Percentage of City Covered with Footpaths (wider than 1.5 m)
xiii.	NMT Coverage (% of Network Covered)
xiv.	NMT Parking Facilities at Interchanges
xv.	Fatality Rate for Pedestrian and NMT
xvi.	Encroachment on NMT roads by Vehicle Parking (%) (for parking)
xvii.	Availability of Paid Parking Spaces (%)
xviii.	Difference in maximum and minimum parking fee in the city
xix.	Fatality Rate per lakh population
xx.	Fatality Rate for Pedestrian and NMT (%)



VI. ECONOMIC AND FINANCIAL BENEFITS

1. Increase In -

i. Earning per km (for Bus)

2. Reduction/Decrease In -

i. Travel Time for Vehicles

ii. Per Capita Expenditure on Transport (roads, parking and transit)

iii. Waiting Time for Vehicles at Intersections (for improved junctions)

iv. Waiting Time for Pedestrian at Signalised Intersection (for improved junctions)

3. Increase in Level of Service (LOS) Of -

i. Average Waiting Time for Public Transport Users

ii. Average Speed of Buses in PT Route

iii. Extent of Non Fare Revenue for PT

iv. Staff per Bus Ratio

v. Operating Ratio for PT

vi. Signalized Intersection Delay

vii. Average Travel Speed of Personal Vehicles

viii. Average Travel Speed of Public Transport

VII. ENVIRONMENTAL BENEFITS

1. Increase In -

i. Percentage Share of Bus on Clean Fuels

ii. Percentage Share of Goods Vehicles on Clean Fuel

2. Reduction/Decrease In -

i. GHG Emissions per Capita

ii. Noise Pollution

iii. Energy Consumption (in million tonnes oil equivalent)

3. Increase in Level of Service (LOS) Of -

i. Annual Mean Concentration Range (in $\mu\text{g}/\text{m}^3$)

Nitrogen Dioxide (NO_2)

Sulphur Dioxide (SO_2)

Respirable Suspended Particulate Matter (RSPM)(Size less than 10 microns)





Category 2:

Public Transport

City Bus System & Bus Rapid Transit System







Category 2:

Public Transport

City Bus System & Bus Rapid Transit System

A. CITY BUS SYSTEM

S.No	Item
I.	Name of State
II.	Single City or Cluster of cities (Name)
III.	State Level Nodal Agency (SLNA)
IV.	DPR approved by SLSC (Yes/No) Date, Letter
V.	Notified Planning area for a cluster (Yes/No)
VI.	Provision made in State Budget (Yes/No)
VII.	CMP/CTCS (Yes/No), If yes then year of preparation
VIII.	Master Plan (Yes/No), If yes then year of preparation
IX.	CDP (Yes/No), If yes then year of preparation
X.	Resolution by Municipal Corporation supporting DPR Proposal
Part A - Introduction	
I.	CITY PROFILE
1.	Introduction
i.	Area (in Sq.km)
ii.	Population (2011 census)
2.	Socio-Economic Characteristics
i.	Per capita income
ii.	Average Expenditure on transport
II.	TRAFFIC & TRANSPORTATION SYSTEM CHARACTERISTICS
1.	Transport Network Characteristics
i.	Transportation Modes Registered (Latest data Year data)
	Bus (including Mini Bus)
	IPT



Car			
Two Wheeler			
NMV			
ii. Average Annual Growth of Vehicles			
2. Road Network Characteristics			
i.	Road Network	Length (in km)	Average RoW
	National / State Highways		
	Arterial		
	Sub-arterial		
	Collector		
	Total		
Part B - City Bus System (Existing/Proposal)			
III. SURVEYS CONDUCTED (YES/ NO)			
i.	Classified Traffic Volume Survey		
ii.	Origin and Destination Survey		
iii.	Occupancy Survey		
iv.	Bus Route Survey		
v.	Bus Stop Survey		
vi.	Willingness to Pay Survey		
vii.	PT Opinion Survey		
viii.	Boarding and Alighting		
ix.	Feeder/Secondary Modes Survey		
IV. PUBLIC TRANSPORT CHARACTERISTICS (EXISTING)			
1.	Public Transport Modes Present	Yes/No	KM
			Avg. Daily Ridership
	Mass Rapid Transit System (Metro/Mono/Light Rail)		
	Bus Rapid Transit System		
	City Bus System (Numbers)		
	Intermediate Public Transport System (Numbers)		



2. City or Cluster Bus System, if any-with Buses as per UBS only (including Buses already in Operation)						
i. Route Details						
Route No.	Route Description	Existing Buses			New Buses	
		Route Length (in Km)	Existing Headway (in Min)	No. of Buses	Route Length (in Km)	Planned Headway (in Min)
ii. Types of Existing Buses in the City (All Types)						
	Type of Buses		Floor Height	AC	Non-AC	Avg. Age of Fleet
						Fleet Size (in m)
iii. Physical Performance						
	Parameters		Year 1	Year 2	Year 3	Year 4
	Year 5					
a.	Physical Performance					
	Total No. of buses held					
	Avg. No. of buses on road					
	Fleet Utilization (%)					
	Avg. Age of buses (in years)					
b.	Daily Bus Performance					
	Avg. Km/bus/day					
	Avg. % load factor					
c.	Fuel Performance					
	Avg. km/lts of HSD (KMPL)					
d.	Staff Positioning					
	Total Staff					
	Staff / Bus					



iv. Financial Performance					
Parameters	Year 1	Year 2	Year 3	Year 4	Year 5
a. Revenue (in Rs. Lakh)					
Traffic Revenue					
Other Revenue					
Total Revenue					
Earning per Km					
Earning per bus per day					
b. Operational Cost (Rs. In Lakh)					
Personnel (Salary)					
Personnel (Over time)					
Fuel Cost					
Tyres & Tubes					
Spare parts & Others					
Interest					
Depreciation					
MV Tax					
Passenger Tax					
Other Tax					
Total Cost					
Cost per Km					
c. Operating Ratio					
v. Existing Fare Structure					
a. Fare Stages (in km)*					
	Fare for AC services (in Rs.)	Fare for Non-AC (Deluxe) services (in Rs.)	Fare for Ordinary services (in Rs.)	Express service (in Rs.)	
0 – 5					
5 – 10					
10 – 15					
15 – 20					
Above 20					
b. Fare Revision mechanism, if any					
* If different fare stages, please provide the same					



V. PROPOSED OPERATION PLAN (CITY OR CLUSTER)								
1. Assessment of Fleet								
i. Method 1 - Based on 'Travel Demand Characteristics'								
a. Population in 2011								
b. Expected decadal population growth in % (2021)								
c. Per Capita Trip Rate (PCTR)								
d. Average Trip Length (in kms)								
e. Total Trips (excluding walk trips)								
f. Desirable PT share in %								
g. Public Transport Trips								
h. Passenger Km								
i. Supply Km								
j. Fleet Required								
k. Existing Fleet								
l. Net additional fleet required = Fleet required (j) - Existing Fleet (k)								
ii. Method 2 - Based on 'Increased frequency on existing routes'								
S.No.	Route No.	Route Description	Length	Existing Headway	Existing Buses	Revised Headway	Reqd. Buses	
Total Buses Required								
Net additional fleet required (Total Buses Required - Existing Fleet)								
iii. Method 3 - Based on 'New Proposed Routes'								
S.No.	Route No.	Route Description	Length	Headway	Required buses			
Total Buses Required								
2. Strategy for Route Rationalization of existing IPT / Para-Transit System				Strategy		Time line		



3. Category wise distribution of buses									
Type of bus	% of Total Buses						Proposed no. of Buses		
i.									
ii.									
iii.									
iv.									
Total Buses Required									
VI. BUS INFRASTRUCTURE									
1. Existing Bus Depots / Workshop, if any									
Location		Area (acres)	Capacity (No. of Buses)	No. of Routes	Control Room	Inspection Pit (Yes/No)	Painting Facility (Yes/No)	Washing facility (Yes/No)	Main & Admin Staff (Yes/No)
2. Existing Bus Terminals, if any									
Location		Area in acres	Capacity (No. of buses)	No. of Routes	Control Room	Main & Admin Staff	No. of Platform		
3. Proposed Bus Depots									
Location		Area (acres)	Capacity (No. of buses)	No. of Routes	Control Room	Inspection Pit (Yes/No)	Painting Facility (Yes/No)	Washing Facility (Yes/No)	Main & Admin Staff (no)



4. Proposed Bus Terminals, if any						
Location	Area in acres	Capacity (No. of buses)	No. of Routes	Control Room	Main & Admin Staff	No. of Platform
VII. ITS IN CITY BUS						
1. ITS Facilities Available for City Bus System						
i. Area under Control Centre (sq. m/ sq. ft.)						
ii. Location of Control Centre						
iii. Facilities						
a. Computers (Numbers)						
b. Server Details (Storage Capacity in TB)						
c. Software Details						
				Existing (Y/N)	Proposed (Y/N)	
Average Speed Monitoring System						
Automatic Vehicle Location System						
Automatic Fare Collection System						
Fleet Management System						
Passenger Information System						
Financial Management System						
Incidence Management System						
Performance Management System						
Any Other						
iv. Central Control Centre – Components				Existing (Y/N)	Proposed (Y/N)	
Firewall						
Core/ Distribution Switch						
Storage						
Application Server						
GBIC Switch						
Database Server						
Network Printer						
Web Portal						
SMS Facility						



2. On Bus ITS		Existing (Y/N)	Proposed (Y/N)
i.	Number of Buses		
ii.	Passenger Information System		
	Display Board Details (Nos.)		
	Graphics (Display Size)		
	In- Bus Announcement System (Yes/No)		
iii.	Automatic Vehicle Location System or GPS		
	GPS based Driver Console Units		
iv.	Security Camera Network System		
	Cameras - Numbers/Bus		
	Recording Capacity		
v.	Vehicle Health Monitoring & Diagnostics		
vi.	Automated Fare Collection (Electronic Ticketing Machine (ETM) and On-Board Smart Card Ticketing System)		
	On-Board Pole Mounted Ticketing Machines (Numbers/Bus)		
	On Board Hand Held Ticketing Machines with Smart Card Reader (If yes, Numbers/Bus)		
vii.	Automated Door (Yes/ No)		
viii.	Panic Button		
ix.	Any Other Details		
3. ITS Services for the People		Existing (Y/N)	Proposed (Y/N)
i.	Real Time Information Dissemination through: (Yes/No)		
	Websites		
	Helpline Number		
	SMS System		
	Smart Phone Application		
	Any Other		
ii.	Multi-Modal Tickets or Smart Cards/ RFID Coins		
iii.	Online/ through Phone/ at Ticket Counter Smart Card Recharging		
iv.	Any Other Details		
VIII. ITS IN TERMINALS/ STOPS			
1. Terminals/ Depots – ITS		Existing (Y/N)	Proposed (Y/N)
i.	Number of Terminals / Depots		
ii.	Area under Terminals/ Depots		
iii.	Location with Map		



iv.	Capacity (Number of Bays + Number of Parking Spaces for Buses)							
v.	Passenger Information System							
	Real Time Information Boards (No.s/ Bus Bays)							
vi.	Security Camera Network System							
	CCTVs (Nos.)							
	Recording Capacity							
vii.	Ticket Terminal							
	Station Ticket Terminal (No.s)							
viii.	Any Other Details							
2.	Bus Shelters/ Stops – ITS				Existing (Y/N)	Proposed (Y/N)		
i.	Number of Bus Shelters/ Stops							
ii.	Location with Map							
iii.	Facilities Available							
iv.	Passenger Information System							
	Real Time Information Display Boards (Numbers)							
v.	Security Camera Network System							
	CCTVs (Nos.)							
vi.	Ticket Terminal							
	Station Ticket Terminal (If Off-Board Ticketing)(Nos.)							
	Flap Gates (Yes/No)							
vii.	Any Other Details							
Part C - Funding								
IX. COST								
1. For Buses								
	Particulars		Bus Type - I			Bus Type - II		Total Cost (in Lakhs)
			1	2	3	4	5	
			Cost per Bus	Number	Sub Total (1*2)	Cost per Bus	Number	Sub Total (4*5)
i.	A	Basic Cost including Cost of ITS						
ii.	B	Taxes & Duties (State & City Taxes)						



iii.	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> Total Cost (A+B) </div>		
2. Funding Pattern for Bus			
i.	% of the Project Cost covered under the grant		
ii.	Resource Mobilization		
	Source	% Share	Amount (in Rs. Lakh)
	GOI		
	State Government		
	SRTC / SPV / ULB		
	Total		
iii.	Financial Intermediary for timely payment to manufacturers		
iv.	Mechanism adopted for Fund Transfer (MoUD & State Share) to cities		
3. Outcome of Financial Analysis for Bus			
i.	Total Cost (Rs. In lakhs)		
ii.	ULB Share		
iii.	FIRR		
4. Contracting Mechanism for Operation & Maintenance			
i.	O & M of Buses - In-House / PPP (Provide details)		
	If PPP, Operation Mode		
5. For Bus Infrastructure Cost			
i.	Cost of Depots, Terminals		
	Item	No.	Cost (in Rs. Lakh)
	Depot Up-gradation		
	New Depot Development		
	Terminal Up-gradation		
	New Terminal Development		
	Total Cost		
6. Funding Pattern for Bus Infrastructure			
i.	% of the Project Cost covered under the grant		
ii.	Resource Mobilization		
	Source	% Share	Amount (in Rs. Lakh)
	GOI		
	State Government		
	SRTC / SPV / ULB		
	Total		



iii. Mechanism adopted for Fund Transfer (MoUD & State Share) to cities		
7. Outcome of Financial Analysis for Bus Infrastructure		
i. Total Cost (Rs. In lakhs)		
ii. ULB Share		
iii. FIRR		
8. Contracting Mechanism for Operation & Maintenance		
i. O & M of Bus Infrastructure - In-House / PPP (Provide details)		
If PPP, Operation Mode		
9. ITS Facilities Cost		
	Item	Cost (Rs.in Lakhs)
i. Central Control Room		
ii. Installation of ITS facilities at Infrastructure		
	• Terminals	
	• Depots	
	• Bus Stops	
Total Cost		
10. Funding Pattern for ITS Facilities		
i. % of the Project Cost covered under the grant		
ii. Resource Mobilization		
Source	% Share	Amount (in Rs. Lakh)
GOI		
State Government		
SRTC / SPV / ULB		
Total		
iii. Mechanism adopted for Fund Transfer (MoUD & State Share) to cities		
11. Outcome of Financial Analysis		
i. Total Cost (Rs. In lakhs)		
ii. ULB Share		
iii. FIRR		
12. Contracting Mechanism for Operation & Maintenance		
i. O & M of ITS - In-House / PPP (Provide details)		
If PPP, Operation Mode		



Part D - Governance	
X. GOVERNANCE	
1. Existing Institutions and their Role	
i.	
ii.	
iii.	
2. Urban Transport Reforms	
i.	Formation of UMTA
ii.	Formation of SPV
iii.	Urban Transport Fund
iv.	Advertisement Policy
v.	Parking Policy
vi.	Fare Revision Policy
Part E - Benefits	
XI. SOCIAL BENEFITS	
1. Increase In -	
i.	Modal Share (%) of Bus
ii.	Modal Shift from Various Modes to Bus (%) namely-
	Car
	Two Wheeler
	IPT
iii.	Average Daily Ridership (PHPDT)
iv.	Total Route Coverage (in %)
v.	Accessibility to Bus Stops - % of population within 500 m of Bus Stops
2. Reduction/Decrease In -	
i.	Average Number of Private Cars and Two Wheelers on Road per day
ii.	Peak Hour Traffic per day (in PCU)
3. Increase In Level Of Service(LOS) Of -	
i.	Presence of Organized Public Transport System in Urban Area
ii.	Extent of Supply / Availability of Public Transport
iii.	Service Coverage of Public Transport in the city (Bus route network density)
iv.	Level of Comfort in Public Transport (Crowding)
v.	Percentage Fleet as per Urban Bus Specifications
vi.	Fatality per lakh Population
vii.	Availability of Traffic Surveillance
viii.	Passenger Information System
ix.	Global Positioning System
x.	Integrated Ticketing System



XII. ECONOMIC AND FINANCIAL BENEFITS
1. Increase In -
i. Earning per km
2. Reduction/Decrease In -
i. Travel Time
ii. Per Capita Expenditure on Transport (roads, parking and transit)
3. Increase In Level Of Service(LOS) Of -
i. Average Waiting Time for Public Transport Users
ii. Average Speed of Buses in PT Route
iii. Extent of Non Fare Revenue
iv. Staff per Bus Ratio
v. Operating Ratio
XIII. ENVIRONMENTAL BENEFITS
1. Increase In -
i. Percentage Share of Bus on Clean Fuels
2. Reduction/Decrease In -
i. GHG Emissions per Capita
ii. Noise Pollution
iii. Energy Consumption (in million tonnes oil equivalent)
3. Increase In Level Of Service(LOS) Of -
i. Annual Mean Concentration Range (In $\mu\text{g}/\text{M}^3$)
Nitrogen Dioxide (NO_2)
Sulphur Dioxide (SO_2)
Suspended Particulate Matter (SPM)
Respirable Suspended Particulate Matter (RSPM)(Size less than 10 microns)



B. BUS RAPID TRANSIT SYSTEM

S.No	Item
I.	Name of State
II.	Single City or Cluster of cities (Name)
III.	State Level Nodal Agency (SLNA)
IV.	DPR approved by SLSC (Yes/No) Date, Letter
V.	Notified Planning area for a cluster (Yes/No)
VI.	Provision made in State Budget (Yes/No)
VII.	CMP/CTCS (Yes/No), If yes then year of preparation
VIII.	Master Plan (Yes/No), If yes then year of preparation
IX.	CDP (Yes/No), If yes then year of preparation
X.	Resolution by Municipal Corporation supporting DPR Proposal
Part A – Introduction	
I. CITY PROFILE	
1. Area	
i.	Area (in Sq.km)
2. Socio Economic	
i.	Current Population (in No)
ii.	Population Growth Rate (Decadal)
iii.	Population Density (in persons per sq. km)
iv.	Projected Population (Horizon Year)
v.	Per Capita Income (in Rs.)
vii.	Average Household Income (in Rs.)
viii.	Expenditure on Transport (in Rs.)
ix.	Workforce Participation Rate
3. Landuse	
i.	Land Use (in %) Existing Proposed (as per Master Plan)
	Residential
	Commercial
	Public and Semi-Public
	Recreation
	Industrial
	Transportation
ii.	Zoning Regulations



II. TRAFFIC & TRANSPORTATION SYSTEM CHARACTERISTICS		
1. Transport Network Characteristics		
i. Transportation Modes Registered (Latest data Year data)		
Bus (including Mini Bus)		
IPT		
Car		
Two Wheeler		
NMV		
ii. Average Annual Growth of Vehicles		
2. Road Network Characteristics		
i. Road Network	Length (in km)	Average RoW
National / State Highways		
Arterial		
Sub-arterial		
Collector		
Total		
Part B - Transport Infrastructure, Traffic and Travel Characteristics & BRTS		
III. SURVEYS CONDUCTED (YES/ NO)		
i. Road Network Inventory		
ii. Speed and Delay		
iii. Classified Traffic Volume Survey		
iv. Origin and Destination Survey		
v. Occupancy Survey		
vi. Bus Route Survey		
vii. Bus Stop Survey		
viii. Willingness to Pay Survey		
x. PT Opinion Survey		
xii. Boarding and Alighting		
xiii. Feeder/Secondary Modes Survey		
IV. TRANSPORT INFRASTRUCTURE		
1. Distribution of Road Network by Carriageway (in %)	Length (in km)	Average RoW
Single Lane		
Double Lane		
Four Lane Undivided		
Four Lane Divided		
Six Lane Divided		



Six Lane Undivided		
Eight Lane or More		
2. Number of Flyovers, Underpasses, ROBs and RUBs		
Flyovers		
Underpasses		
Rail over Bridge		
Rail under Bridge		
Number of Railway Level Crossings		
Number of Bridges		
3. Road Network Pattern (Yes/No)		
Radial		
Linear		
Grid Iron		
Ring Radial		
Any Other		
4. Road Network Issues		
5. Major Transportation Nodes		
i. Railway Station		
Name of Railway Station	Area	Average Traffic Handled
ii. Inter-State Bus Terminal		
Name of ISBT	Area	Capacity
iii. Airport		
Name of Airport	Area	
6. Pedestrian Facilities		
i. Length of Road by Availability of Footpath (km)		
No Footpath		
Footpath on One Side		
Footpath on Both Sides		
ii. Availability of Footpath by Width (km)		
Upto 1.8 m		
More than 1.8 m		
iii. Number of Pedestrian Facilities		
Zebra Crossings		



Foot over Bridge
Subways
iv. Length of Road by Availability of Cycle Track (km)
No Cycle Track
Cycle Track on One Side
Cycle Track on Both Sides
v. Number of Cycle Stands
vi. Number of Pelican Signals
7. Traffic Management
i. Intersections
Total Number of Intersections
Total Number of Signalised Intersections
ii. Parking Management
Length of Road having On Street Parking (km)
Length of Road having On Street Paid Parking (km)
V. TRAFFIC CHARACTERISTICS
1. Traffic Composition (%)
Walk
2-Wheeler
Car
Auto
Bus
Cycle
Other Modes
2. Speed and Delay
Average Travel Speed of Private Mode Vehicle
Average Speed of Buses on PT Corridor
3. Traffic Volume
Peak Hour Traffic per day (in PCU)
Off Peak Hour Traffic per day (in PCU)
4. Average Trip Length
Average Trip Length Public Transport Modes (in km)
Average Trip Length Private Vehicle Trips (in km)



5. Traffic Safety					
i. Number of Accidents (mention year)					
Fatal Accidents					
Injurious Accidents					
6. Public Transport					
i. Fleet Usage Detail					
a. Type of Mode					
b. Fleet Size					
c. Fleet Utilisation Rate (in %)					
d. Average Km per Bus/Vehicle per Day					
e. Average Ridership per Day per Bus					
f. Occupancy Ratio					
g. Fuel Used					
- Type					
- Quantity (in litres per day)					
ii. Route Detail					
a. Route Coverage (km)					
b. Total Number of Routes					
c. Total Number of Stops					
d. Average Headway					
e. Average Route Speed					
f. Average Waiting Time					
iii. Cost and Fare					
a. Operation Cost per km (in Rs)					
b. Fare Structure (in Rs)					
c. Revenue per km (in Rs)					
d. Profit/Loss per year (in Rs)					
7. Intermediate Public Transport					
i. Fleet Usage Detail					
a. Type of Mode					
	Number	Average Daily Ridership	Number of Routes	Route Length	Shared/ Personal
VI. TRAVEL CHARACTERISTICS					
1. Mode Share					
Modal Share (in %)					
Walk					
2-Wheeler					



Car			
Auto			
Bus			
Cycle			
Other Modes			
2. Per Capita Trip Rate			
3. Average Trip Length			
Walk			
2-Wheeler			
Car			
Auto			
Bus			
Cycle			
Other Modes			
4. Trips by Purpose			
	Purpose	Number of Trips	Percentage of Trips
Home			
Work			
Education			
Recreation			
Others			
5. Travel Demand Analysis			
Model Framework			
Model Calibration			
Travel Demand Patterns			
Future Travel Demand			
VII. SYSTEM DESIGN - NETWORK AND ROADWAY			
1. Route Details			
i.	Total Route Length of Proposed BRTS Corridor		
ii.	Existing Right of Way along Proposed Corridor		
iii.	Number of Routes		



iv. BRTS Route Detail							
Route No.		Route Description		Existing		Post BRTS	
		Route Length	Existing Headway	Number of Buses	Route Length	Existing Headway	Number of Buses
v. Number of Lanes in Proposed BRTS Corridor							
vi. Number of Junctions along BRTS corridor							
2. Bus Stops							
i. Number of Bus Stops				Eisting		Proposed	
ii. Average Distance of Bus Stops from Junctions							
iii. Average Distance between two Bus Stops							
3. Fleet							
i. Fleet Size				Eisting		Proposed	
ii. Vehicle Utilization per Day				Eisting		Proposed	
4. Average Speed (Existing & Proposed)							
5. Land Ownership of the Corridor							
6. Roadway Design							
i. Roadway and Service Design Concept							
ii. Median vs. Side Lanes (Yes/ No)							
iii. Open vs. Closed (Yes/No)							
iv. System Exclusive vs. Mixed System (Yes/No)							
7. NMV and Pedestrian							
i. Average Number of Pedestrian and NMV Trips per day along proposed corridor							
ii. NMV and Pedestrian Facilities							
8. Street Light							



VIII. SYSTEM DESIGN – VEHICLES								
1. Bus Types and Detailed Specifications for BRTS								
Type of Buses	Floor Height	AC /Non AC	Avg. Age of Fleet	Fleet Size (in m)	Other Specifications			
2. System Procurement								
3. Integration of BRTS with Other Transit Services								
Physical Integration								
Ticket Integration								
4. Fare Collection Mechanism								
IX. SYSTEM DESIGN - FEEDER NETWORK AND INFRASTRUCTURE								
1. Feeder Network								
Type of Feeder Mode								
Number of Feeder Mode Units								
2. Parking for Para Transit Facilities								
Type of IPT Mode			Number of Location		Area			
3. Provisions for Hawkers and Vendors								
Number of Locations								
Number of Vending Units per Location								
Area under Vending								
X. BUS INFRASTRUCTURE								
1. Existing Bus Depots / Workshop, if any								
Location	Area (acres)	Capacity (No. of Buses)	No. of Routes	Control Room	Inspection Pit (Yes/No)	Painting Facility (Yes/No)	Washing facility (Yes/No)	Main & Admin Staff (Yes/No)



2. Existing Bus Terminals, if any									
Location			Area in acres	Capacity (No. of buses)	No. of Routes	Control Room	Main & Admin Staff	No. of Platform	
3. Proposed Bus Depots									
Location	Area (acres)	Capacity (No. of buses)	No. of Routes	Control Room	Inspection Pit (Yes/No)	Painting Facility (Yes/No)	Washing facility (Yes/No)	Main & Admin staff (no)	
4. Proposed Bus Terminals, if any									
Location			Area in acres	Capacity (No. of buses)	No. of Routes	Control Room	Main & Admin Staff	No. of Platform	
XI. ITS IN CITY BUS									
1. ITS Facilities Available for City Bus System									
i. Area under Control Centre (sq. m/ sq. ft.)									
ii. Location of Control Centre									
iii. Facilities									
a. Computers (Numbers)									
b. Server Details (Storage Capacity in TB)									
c. Software Details					Existing (Y/N)		Proposed (Y/N)		
Average Speed Monitoring System									
Automatic Vehicle Location System									
Automatic Fare Collection System									
Fleet Management System									
Passenger Information System									
Financial Management System									
Incidence Management System									



Performance Management System			
Any Other			
iv.	Central Control Centre – Components	Existing (Y/N)	Proposed (Y/N)
	Firewall		
	Core/ Distribution Switch		
	Storage		
	Application Server		
	GBIC Switch		
	Database Server		
	Network Printer		
	Web Portal		
	SMS Facility		
2.	On Bus ITS		
i.	Number of Buses		
ii.	Passenger Information System		
	Display Board Details (Nos.)		
	Graphics (Display Size)		
	In- Bus Announcement System		
iii.	Automatic Vehicle Location System or GPS		
	GPS based Driver Console Units		
iv.	Security Camera Network System		
	Cameras - Numbers/Bus		
	Recording Capacity		
v.	Vehicle Health Monitoring & Diagnostics		
vi.	Automated Fare Collection (Electronic Ticketing Machine (ETM) and On-Board Smart Card Ticketing System)		
	On-Board Pole Mounted Ticketing Machines (Numbers/Bus)		
	On Board Hand Held Ticketing Machines with Smart Card Reader (If yes, Numbers/Bus)		
vii.	Automated Door (Yes/ No)		
viii.	Panic Button		
ix.	Any Other Details		
3.	ITS Services for the People	Existing (Y/N)	Proposed (Y/N)
i.	Real Time Information Dissemination through: (Yes/No)		
	Websites		
	Helpline Number		



SMS System		
Smart Phone Application		
Any Other		
ii. Multi-Modal Tickets or Smart Cards/ RFID Coins		
iii. Online/ through Phone/ at Ticket Counter Smart Card Recharging		
iv. Any Other Details		
XII. ITS IN TERMINALS/ STOPS		
1. Terminals/ Depots – ITS	Existing (Y/N)	Proposed (Y/N)
i. Number of Terminals / Depots		
ii. Area under Terminals/ Depots		
iii. Location with Map		
iv. Capacity (Number of Bays + Number of Parking Spaces for Buses)		
v. Passenger Information System		
Real Time Information Boards (No.s/ Bus Bays)		
vi. Security Camera Network System		
CCTVs (Nos.)		
Recording Capacity		
vii. Ticket Terminal		
Station Ticket Terminal (No.s)		
viii. Any Other Details		
2. Bus Shelters/ Stops – ITS	Existing (Y/N)	Proposed (Y/N)
i. Number of Bus Shelters/ Stops		
ii. Location with Map		
iii. Facilities Available		
iv. Passenger Information System		
Real Time Information Display Boards (Numbers)		
v. Security Camera Network System		
CCTVs (Nos.)		
vi. Ticket Terminal		
Station Ticket Terminal (If Off-Board Ticketing)(No.s)		
Flap Gates (Yes/No)		
vii. Any Other Details		



Part C - Funding

XIII. COST							
1. For Buses							
Particulars	Bus Type - I			Bus Type - II			Total Cost (in Lakhs)
	1	2	3	4	5	6	
	Cost per Bus	Number	Sub Total (1*2)	Cost per Bus	Number	Sub Total (4*5)	
i. A Basic Cost including Cost of ITS							
ii. B Taxes & Duties (State & City Taxes)							
iii. Total Cost (A+B)							
2. Funding Pattern for Bus							
i. % of the Project Cost covered under the grant							
ii. Resource Mobilization							
Source				% Share	Amount (in Rs. Lakh)		
GOI							
State Government							
SRTC / SPV / ULB							
Total							
iii. Financial Intermediary for timely payment to manufacturers							
iv. Mechanism adopted for Fund Transfer (MoUD & State Share) to cities							
3. Outcome of Financial Analysis for Bus							
i. Total Cost (Rs. In lakhs)							
ii. ULB Share							
iii. FIRR							
4. Contracting Mechanism for Operation & Maintenance							
i. O & M of Buses - In-House / PPP (Provide details)							
If PPP, Operation Mode							



5. For Bus Infrastructure Cost		
i. Cost of Depots, Terminals		
Item	No.	Cost (Rs. in Lakh)
Depot Up-gradation		
New Depot Development		
Terminal Up-gradation		
New Terminal Development		
Total Cost		
6. Funding Pattern for Bus Infrastructure		
i. % of the Project Cost covered under the grant		
ii. Resource Mobilization		
Source	% Share	Amount (in Rs. Lakh)
GOI		
State Government		
SRTC / SPV / ULB		
Total		
iii. Mechanism adopted for Fund Transfer (MoUD & State Share) to cities		
7. Outcome of Financial Analysis for Bus Infrastructure		
i. Total Cost (Rs. In lakhs)		
ii. ULB Share		
iii. FIRR		
8. Contracting Mechanism for Operation & Maintenance		
i. O & M of Bus Infrastructure - In-House / PPP (Provide details)		
If PPP, Operation Mode		
9. ITS Facilities Cost		
Item	Cost (Rs.in Lakhs)	
i. Central Control Room		
ii. Installation of ITS facilities at Infrastructure		
	<ul style="list-style-type: none"> • Terminals • Depots • Bus Stops 	
Total Cost		
10. Funding Pattern for ITS Facilities		
i. % of the Project Cost covered under the grant		



ii.	Resource Mobilization		
	Source	% Share	Amount (in Rs. Lakh)
	GOI		
	State Government		
	SRTC / SPV / ULB		
	Total		
iii.	Mechanism adopted for Fund Transfer (MoUD & State Share) to cities		
11. Outcome of Financial Analysis			
i.	Total Cost (Rs. In lakhs)		
ii.	ULB Share		
iii.	FIRR		
12. Contracting Mechanism for Operation & Maintenance			
i.	O & M of ITS - In-House / PPP (Provide details)		
	If PPP, Operation Mode		
Part D - Governance			
XIV. GOVERNANCE			
1. Existing Institutions and their Role			
	i.		
	ii.		
	iii.		
2. Urban Transport Reforms			
i.	Formation of UMTA		
ii.	Formation of SPV		
iii.	Urban Transport Fund		
iv.	Advertisement Policy		
v.	Parking Policy		
vi.	Fare Revision Policy		
Part E - Benefits			
XV. SOCIAL BENEFITS			
1. Increase In -			
i.	Modal Share (%) of Bus		
ii.	Modal Shift from Various Modes to Bus (%) namely-		
	Car		
	Two Wheeler		
	IPT		



iii.	Average Daily Ridership (PHPDT)
iv.	Total Route Coverage (in %)
v.	Accessibility to Bus Stops - % of population within 500 m of Bus Stops
2. Reduction/Decrease In -	
i.	Average Number of Private Cars and Two Wheelers on Road per day
ii.	Peak Hour Traffic per day (in PCU)
3. Increase In Level Of Service(LOS) Of -	
i.	Presence of Organized Public Transport System in Urban Area
ii.	Extent of Supply / Availability of Public Transport
iii.	Service Coverage of Public Transport in the city (Bus route network density)
iv.	Level of Comfort in Public Transport (Crowding)
v.	Percentage Fleet as per Urban Bus Specifications
vi.	Fatality per lakh Population
vii.	Availability of Traffic Surveillance
viii.	Passenger Information System
ix.	Global Positioning System
x.	Integrated Ticketing System
XVI. ECONOMIC AND FINANCIAL BENEFITS	
1. Increase In -	
i.	Earning per km
2. Reduction/Decrease In -	
i.	Travel Time
ii.	Per Capita Expenditure on Transport (roads, parking and transit)
3. Increase In Level Of Service(LOS) Of -	
i.	Average Waiting Time for Public Transport Users
ii.	Average Speed of Buses in PT Route
iii.	Extent of Non-Fare Revenue
iv.	Staff per Bus Ratio
v.	Operating Ratio
XVII. ENVIRONMENTAL BENEFITS	
1. Increase In -	
i.	Percentage Share of Bus on Clean Fuels



2. Reduction/Decrease In -
i. GHG Emissions per Capita
ii. Noise Pollution
iii. Energy Consumption (in million tonnes oil equivalent)
3. Increase In Level Of Service(LOS) Of -
i. Annual Mean Concentration Range (in $\mu\text{g}/\text{m}^3$)
Nitrogen Dioxide (NO_2)
Sulphur Dioxide (SO_2)
Suspended Particulate Matter (SPM)
Respirable Suspended Particulate Matter (RSPM)(Size less than 10 microns)





Category 3:

Non-Motorized –

Walk, Cycle, FOB/Subway & Footpath







Category 3:

Non-Motorized Transport – Walk, Cycle, FOB/Subway & Footpath

Item	
I.	Name of State
II.	Single City or Cluster of cities (Name)
III.	State Level Nodal Agency (SLNA)
IV.	DPR approved by SLSC (Yes/No) Date, Letter
V.	Notified Planning area for a cluster (Yes/No)
VI.	Provision made in State Budget (Yes/No)
VII.	CMP/CTCS (Yes/No), If yes then year of preparation
VIII.	Master Plan (Yes/No), If yes then year of preparation
IX.	CDP (Yes/No), If yes then year of preparation
X.	Resolution by Municipal Corporation supporting DPR Proposal
Part A - Introduction	
I. CITY PROFILE	
1. Introduction	
i.	Area (in Sq.km)
ii.	Population (2011 census)
2. Socio-Economic Characteristics	
i.	Per capita income
ii.	Average Expenditure on transport
II. TRAFFIC & TRANSPORTATION SYSTEM CHARACTERISTICS	
1. Transport Network Characteristics	
i.	Transportation Modes Registered (Latest data Year data)
	Bus (including Mini Bus)
	IPT
	Car



Two Wheeler			
NMV			
Cycles			
Rickshaws			
Others			
ii. Average Annual Growth of Vehicles			
2. Road Network Characteristics			
i. Road Network	Length (in km)	Average RoW	
National / State Highways			
Arterial			
Sub-arterial			
Collector			
Total			
3. Travel Characteristics			
i. Per Capita Trip Rate (PCTR)			
ii. Modes	Modal Share (%)	Average Trip Length (km)	Average Trip Time (min)
Walk			
2-Wheeler			
Car			
Auto			
Bus			
Cycle			
Cycle Rickshaw			
Other Modes			
Part B - Non Motorised Transport (Existing/Proposal)			
III. SURVEYS CONDUCTED (YES/ NO)			
i. Reconnaissance Survey			
ii. Road Inventory Survey			
iii. Pedestrian Count Survey			
iv. O D Survey			
v. Classified Turning Volume Count at Junctions			
vi. Cyclist Count Survey			
vii. Opinion Survey			
viii. Willingness to Shift Survey			



IV. NON-MOTORISED TRANSPORT - WALK (EXISTING)						
1. Footpath (km)						
i.	Type of Roads	No Footpath	Footpath on Left Side	Footpath on Right Side	Footpath on Both Sides	
	Arterial					
	Sub-Arterial					
	Collector					
ii.	Percentage of City Covered by Footpath ³	<25	25-50	50-75	>75	
iii.	Availability of Footpath by Width (km) ³	Up to 1.8 m		> 1.8 m		
iv.	Availability of Footpath by Kerb Height (mm) ⁴	<100mm	100mm-300mm		>300mm	
v.	Availability of Footpath by Pavement Type (km) ⁴	Concrete/Interlocking Blocks/Pavers Blocks/Tar/Asphalt		Tiles	Unpaved Surface	
vi.	Clear Height above Footpath ⁵	>= 2.2 m		<2.2 m		
vii.	Percentage of Footpath under Encroachment due to-					
	Vehicle Parking					
	Utilities					
	Trees					
	Street Vendors					
	Garbage Disposal					
	Others					
viii.	Pedestrian Flow (in persons per hour)					
ix.	Existing LOS of Footpath (Tick) ⁵	A	B	C	D	E F
x.	If Footpath Independent of Cycle Track (Yes/ No)					
xi.	Pedestrian Zones(Yes/No)					
xii.	Availability of Footpath by Street Lighting (km)	No Street Light	Street Light on Left Side	Street Light on Right Side	Street Light on Both Sides	
xiii.	Percentage of Street Light by Different Lux Levels ⁴	<10 lux	10-20 lux		>20 lux	

⁴ MoUD Toolkit on Public Transport Accessibility

⁵IRC Code: 103-2012



xiv.	Spacing of Street Light Poles ⁴	0-20 m	20-40m	>40 m	
xv.	Height of Pedestrian Lighting ⁵	>= 4 m	<4m		
xvi.	Disability Friendly Infrastructure (Yes/No)				
	Tactile Flooring				
	Audible Signal				
	Railing				
	Ramps				
2. Crossing Facilities					
i.	Total Number of Existing Crossing Facilities				
	Zebra Crossing				
	Pelican Crossing				
	Puffin Crossing				
	Toucan Crossing				
	Subways				
	Foot over Bridges				
ii.	Average Distance between two Consecutive Crossing Facilities (Number of Crossings) ⁴	(500 - 700) m	(700 - 1000) m	>1000 m	
iii.	Percentage of Signalised Intersection Delay ³	<25	25-50	50-75	>=75
iv.	Are the crosswalks wider than 2 m? (Yes / No)				
v.	Average Persons per hour Crossing the Road				
vi.	Clear Markings for Pedestrians (Yes/ No)				
vii.	Signages for Pedestrian (Yes/No)				
viii.	Lux Level of Street Lighting at Crosswalks				
3. Safety					
i.	Percentage of Pedestrian in Road Injuries	<=20	20-40	40-60	>60
ii.	Percentage of Pedestrian in Road Fatalities ³	<=20	20-40	40-60	>60
V. NON-MOTORISED TRANSPORT - WALK (PROPOSED)					
1. Footpath (km)					
i.	Length of Footpath (km)				
	Type of Roads	No Footpath	Footpath on Left Side	Footpath on Right Side	Footpath on Both Sides
	Arterial				



Sub-Arterial			
Collector			
ii. Pedestrian Flow (in persons per hour)			
iii. Availability of Footpath by Pavement Type (km)	Concrete/Interlocking Blocks/Pavers Asphalt	Tiles	Unpaved Surface
iv. Availability of Footpath by Width (km) ³	Up to 1.8 m	> 1.8 m	
v. Availability of Footpath by Height (mm) ⁴	<100mm	100mm-300mm	>300mm
vi. If Footpath Independent of Cycle Track (Yes/No)			
vii. Pedestrian Zones (Yes/No)			
viii. Clear Height above Footpath ⁵	>= 2.2 m		<2.2 m
ix. Availability of Footpath by Street Lighting (km)	Street Light on Left Side	Street Light on Right Side	Street Light on Both Sides
x. Percentage of Street Light by Different Lux Levels ²	<10 lux	10-20 lux	>20 lux
Spacing of Street Light Poles ⁴	0-20 m	20-40m	>40 m
Height of Pedestrian Lighting ⁵	>= 4 m		<4m
xi. Disability Friendly Infrastructure (Yes/No)			
Tactile Flooring			
Audible Signal			
Railing			
Ramps			
2. Crossing Facilities			
i. Total Number of Existing Crossing Facilities			
Zebra Crossing			
Pelican Crossing			
Puffin Crossing			
Toucan Crossing			
Subways			
Foot over Bridges			



ii.	Average Distance between two Consecutive Crossing Facilities (Number of Crossings) ⁴	(500 - 700) m	(700 - 1000) m	>1000 m
iii.	Width of Crosswalks			
iv.	Average Persons per hour Crossing the Road			
v.	Clear Markings for Pedestrians (Yes/No)			
vi.	Signages for Pedestrian (Yes/No)			
vii.	Lux Level Street Lighting at Crosswalks			
VI. NON-MOTORISED TRANSPORT - CYCLE (EXISTING)				
1. Cycle Track (km)				
i.	Length of Cycle Track (km)			
	Type of Roads	No Cycle Track	Cycle Track on Left Side	Cycle Track on Right Side
	Arterial			Cycle Track on Both Sides
	Sub-Arterial			
	Collector			
ii.	Percentage of City Covered by Cycle Track ³	<15	15-25	25-50
iii.	Availability of Cycle Track by Width (km) ⁴	<1.5 m	1.5-1.7 m	1.7-5.0 m
iv.	Availability of Cycle Track by Height (mm) ⁴	<100mm	100mm-300mm	>300mm
v.	Availability of Cycle Track by Pavement Type (km)	Concrete/Tar/Asphalt		Tiles Unpaved Surface
vi.	Percentage of Cycle Track under Encroachment due to-			
	Vehicle Parking			
	Utilities			
	Trees			
	Street Vendors			
	Garbage Disposal			
	Others			
vii.	Traffic Flow (in cycles per hour)			
viii.	Nature of Cycle Track (Yes/No)			
	Elevated over the Carriageway			
	Continuous Cycle Track			
	Shaded with Trees			



ix.	Exclusive Bicycle Lane (Yes/No)				
x.	Availability of Cycle Track by Street Lighting (km)	No Street Light	Street Light on Left Side	Street Light on Right Side	Street Light on Both Sides
xi.	Percentage of Street Light by Different Lux Levels ⁴	<10 lux	10-20 lux	>20 lux	
xii.	Spacing of Street Light Poles (Number of Street Lights) ⁴	0-20 m	20-40m	>40 m	
2. Crossing Facilities					
i.	Total Number of Existing Crossing Facilities				
	Zebra Crossing				
	Pelican Crossing				
	Puffin Crossing				
	Toucan Crossing				
	Subways				
	Foot over Bridges				
ii.	Average Distance between two Consecutive Crossing Facilities (Number of Crossings) ⁴	(500 - 700) m	(700 - 1000) m	>1000 m	
iii.	Cycle Markings - Regulatory, Warning and Direction Signs (Yes/ No)				
iv.	Regulations to avoid Motor Vehicles from using Cycle Tracks (Yes/ No)				
3. Safety					
i.	Percentage of Cyclists in Road Injuries	<=20	20-40	40-60	>60
ii.	Percentage of Cyclists in Road Fatalities ³	<=20	20-40	40-60	>60
4. Parking					
i.	Parking Facilities at Interchanges and PT Stops (Yes/ No)				
ii.	Percentage of Availability of Parking Facility within ⁴	within 250 m of PT stops	between 250-500 m of the station	within 500 m of station	



iii.	Number of Cycle Stands				
iv.	Average Distance between Cycle Stands				
5. ITS - For Public Bicycle Sharing Scheme					
i.	Facilities (Yes/No) - For Public Bicycle Sharing Scheme				
	Control Centre				
	Customer Service				
ii.	ITS System (in numbers) - For Public Bicycle Sharing Scheme				
	Touch Screen Display				
	GPS Tracking				
	Card Reader(Debit/Credit Card)				
	Mobility Card Reader				
	RFID-Reader Printer				
VII. NON-MOTORISED TRANSPORT - CYCLE (PROPOSED)					
1. Cycle Track (km)					
i.	Length of Cycle Track (km)				
	Type of Roads	No Cycle Track	Cycle Track on Left Side	Cycle Track on Right Side	Cycle Track on Both Sides
	Arterial				
	Sub-Arterial				
	Collector				
ii.	Percentage of City Covered by Cycle Track ³	<15	15-25	25-50	>=50
iii.	Availability of Cycle Track by Width (km) ²	<1.5 m	1.5-1.7 m	1.7-5.0 m	
iv.	Availability of Cycle Track by Height (mm) ⁴	<100mm	100mm-300mm	>300mm	
v.	Availability of Cycle Track by Pavement Type (km) ⁴	Concrete/Tar/Asphalt		Tiles	Unpaved Surface
vi.	Traffic Flow (in cycles per hour)				
vii.	Exclusive Bicycle Lane (Yes/ No)				
viii.	Availability of Cycle Track by Street Lighting (km)	Street Light on Left Side	Street Light on Right Side	Street Light on Both Sides	
ix.	Percentage of Street Light by Different Lux Levels ⁴	<10 lux	10-20 lux	>20 lux	



2. Crossing Facilities			
i. Total Number of Existing Crossing Facilities			
Zebra Crossing			
Pelican Crossing			
Puffin Crossing			
Toucan Crossing			
Subways			
Foot over Bridges			
ii.	Average Distance between two Consecutive Crossing Facilities (Number of Crossings) ²	(500 - 700) m	(700 - 1000) m >1000 m
iii. Cycle Markings - Regulatory, Warning and Direction Signs (Yes/No)			
iv. Regulations to avoid Motor Vehicles from using Cycle Tracks (Yes/No)			
3. Parking			
i. Parking Facilities at Interchanges and PT Stops (Yes/No)			
ii.	Percentage of Availability of Parking Facility within ⁴	within 250 m of PT stops	between 250-500 m of the station within 500 m of station
iii. Number of Cycle Stands			
iv. Average Distance between Cycle Stands			
4. ITS - For Public Bicycle Sharing Scheme			
i. Facilities (Yes/No) - For Public Bicycle Sharing Scheme			
Control Centre			
Customer Service			
ii. ITS System (in numbers) - For Public Bicycle Sharing Scheme			
Touch Screen Display			
GPS Tracking			
Card Reader(Debit/Credit Card)			
Mobility Card Reader			
RFID-Reader Printer			
VIII. FOOT OVER BRIDGE			
1. Geometric Design			
i. Location			
ii. Length of FOB excluding Approach Stairs (in m)			



iii. Clear Width of Footway (in m)					
iv. Clear Height of Footway (in m)					
v. Vertical Clearance (in m)					
vi. Minimum Clear Width of Approach Stair (in m)					
vii. Tread of Step (in mm)					
viii. No. of Mid Landing					
ix. Minimum Landing Length (in m)					
x. Capacity of Foot over Bridge (persons per hour)					
2. Projections					
i. Design Period					
ii. Peak Hour Traffic Volume (PCU per hour)					
iii. Volume Capacity Ratio					
IX. PEDESTRIAN SUBWAY					
1. Geometric Design					
i. Location					
ii. Clear Width of Box (in m)					
iii. Clear Height of Box (in m)					
iv. Length of Pedestrian Subway (in m)					
v. Minimum Depth of Earth Cushion (in m from the Road Formation Level)(in m)					
vi. Number of Entry/Exit					
vii. Minimum Width of Stair (in m)					
viii. Rise of Step (in mm)					
ix. Tread of Step (in mm)					
x. No. of Mid Landing					
xi. Minimum Landing Length (in m)					
xii. Capacity of Footpath (persons per hour)					
2. Projections					
i. Design Period					
ii. Peak Hour Traffic Volume (PCU per hour)					
iii. Volume Capacity Ratio					
Part C - Funding					
X. COST					
1. Financial Planning and Cost Estimates - NMT Improvement					
i.	Items	Unit Cost(Rs)	Quantity (No/Km)	Total Cost (Rs)	% of Total Cost
Footpath/Cycle Track					
FOB					
Subways					



Signals/Crossings				
ii. Entire Project (Rs)				
iii. Revenue from Different Sources				
iv. FIRR				
v. EIRR				
vi. Assumptions Made				
vii. Financial Structuring of the Project				
viii. Proposed Phasing of Entire Project				
2. Financial Planning and Cost Estimates - Public Bicycle Sharing Scheme				
i. Capital Cost				
Items	Unit Cost (Rs)	Quantity	Total cost (Rs)	% of total cost
Docks				
Installation				
Cycles				
Cycle track				
Terminal				
Software				
Stations -Manned Kiosk				
Station Infrastructure				
Control Centre				
Redistribution vehicles				
User verification device				
spare parts				
Access cards				
Website				
ii. Entire Project (Rs)				
iii. Revenue from Different Sources				
iv. FIRR				
v. EIRR				
vi. Assumptions Made				
vii. Financial Structuring of the Project				
viii. Proposed Phasing of Entire Project				
Part D - Governance				
XI. GOVERNANCE				
1. Existing Institutions and their Role				
i.				
ii.				
iii.				



Part E - Benefits	
XII. SOCIAL BENEFITS	
1. Increase In -	
i.	Modal Share (%)
	Walk
	Cycle
ii.	Modal Shift from Various Modes to Walk (%) namely-
	Car
	2 -Wheeler
	IPT
iii.	Modal Shift from Various Modes to Cycle (%) namely-
	Car
	2 -Wheeler
	IPT
iv.	Total Network Coverage (km)
	Footpath
	Cycle Track
v.	Number of Pedestrians
vi.	Number of Cyclists
2. Reduction/Decrease In -	
i.	Vehicle km per day
3. Increase In Level Of Service(LOS) Of -	
i.	Street Lighting (Lux)
ii.	Percentage of City Covered with Footpaths (wider than 1.5 m)
iii.	NMT Coverage (% of Network Covered)
iv.	NMT Parking Facilities at Interchanges
v.	Fatality Rate for Pedestrian and NMT
XIII. ECONOMIC AND FINANCIAL BENEFITS	
1. Reduction/Decrease In -	
i.	Fuel Dependency
ii.	Waiting Time for Pedestrians at Intersections
2. Increase In Level Of Service(LOS) Of -	
i.	Signalized Intersection Delay



XIV. ENVIRONMENTAL BENEFITS	
1.	Reduction/Decrease In -
i.	GHG Emissions per Capita
ii.	Noise Pollution
iii.	Energy Consumption
2.	Increase In Level Of Service(LOS) Of -
i.	Annual Mean Concentration Range (in $\mu\text{g}/\text{m}^3$)
	Nitrogen Dioxide (NO_2)
	Sulphur Dioxide (SO_2)
	Suspended Particulate Matter (SPM)
	Respirable Suspended Particulate Matter (RSPM) (Size less than 10 microns)





Category 4:

Transport Infrastructure –

Network Improvement - ITS, Intersection, Mid Block, Roundabout, Interchange
Parking – Off Street & On Street







Category 4:

Transport Infrastructure –

Network Improvement - Its, Intersection, Mid Block, Roundabout, Interchange

Parking – Off Street & On Street

A. NETWORK IMPROVEMENT

S.No	Item
I.	Name of State
II.	Name of City
III.	State Level Nodal Agency (SLNA)
IV.	DPR approved by SLSC (Yes/No) Date, Letter
V.	Notified Planning area for a cluster (Yes/No)
VI.	Provision made in State Budget (Yes/No)
VII.	CMP/CTCS (Yes/No), If yes then year of preparation
VIII.	Master Plan (Yes/No), If yes then year of preparation
IX.	CDP (Yes/No), If yes then year of preparation
X.	Resolution by Municipal Corporation supporting DPR Proposal
Part A - Introduction	
I. CITY PROFILE	
1. Introduction	
i.	Area (in Sq.km)
ii.	Population (2011 census)
2. Socio-Economic Characteristics	
i.	Per capita income
ii.	Average Expenditure on transport
II. TRAFFIC & TRANSPORTATION SYSTEM CHARACTERISTICS	
1. Transport Network Characteristics	
i. Transportation Modes Registered (Latest data Year data)	
Bus (including Mini Bus)	
IPT	



Car		
Two Wheeler		
NMV		
Cycles		
Rickshaws		
Others		
ii. Average Annual Growth of Vehicles		
2. Road Network Characteristics		
i. Road Network	Length (in km)	Average RoW
National / State Highways		
Arterial		
Sub-arterial		
Collector		
Total		
Part B - Transport Infrastructure (Mid-Block, Intersection, Round About, Interchange)		
III. SURVEYS CONDUCTED (YES/ NO)		
i. Reconnaissance Survey		
ii. Road Inventory Survey		
iii. O D Survey		
iv. Classified Traffic Volume Count Survey at Major Intersections and Mid Blocks		
v. Turning Moment Count Survey		
vi. Speed and Delay Survey		
vii. Parking Survey		
viii. Activity Survey		
ix. Pedestrian Count Survey		
x. Topographic Survey		
IV. TYPE OF PROJECT		
1. Project Involves (Tick)		
Mid-Block Improvement		
Intersections Improvement		
Round About Construction		
Grade Separation Construction		
Others (Specify)		
2. Mid-Block Improvement	Existing	Proposed
i. Introduction		
a. Section: From ____ To ____		



b.	Type of Road (Tick below)
	Arterial
	Sub Arterial
	Collector
	Access Roads
c.	Length of the Stretch
d.	Right of Way
e.	Number of Lanes
f.	Width of Lanes
g.	Median (Yes/No; If Yes, then width)
ii.	Horizontal Alignment Details
a.	Super-Elevation at Horizontal Curve
b.	Radius of Horizontal Curve
c.	Length of Curve
iii.	Vertical Alignment Details
a.	Curve Type (Summit or Valley)
b.	Vertical Curve Length
c.	Grade % (In and Out)
iv.	Other Alignment Details
a.	Camber or Cross fall
b.	Gradient
v.	Safe Stopping Distance
vi.	Pedestrian and Cycle Facilities
a.	Footpath (Yes/No; If Yes, then width)
	On Right Side
	On Left Side
b.	Gradient of Footpath
c.	Capacity of Footpaths (persons per hour)
d.	Cycle Track (Yes/No; If Yes, then width)
	On Right Side
	On Left Side
e.	Gradient of Cycle Track
f.	Capacity of Cycle Track (cycles per hour)
vii.	Pedestrian Crossings in the Stretch (Yes/No; If Yes, then type)
	At Grade Crossing / Zebra Crossing
	Subway
	Foot over Bridge



viii. Kerbs (Tick)
Barrier Type
Semi-Barrier Type
Mountable Type
ix. On Street Parking (Yes/No; If Yes, then-)
a. Width of Parking
On Right Side
On Left Side
b. Parking Configuration to Kerb Line (Tick)
Parallel
Angular
Perpendicular
c. Legality of Parking (Tick)
Authorised
Unauthorised
x. Service Road (Yes/No; If Yes, then width)
On Right Side
On Left Side
xi. Street Lighting (Yes/No; If Yes, on which side -)
On Right Side
On Left Side
On Median
xii. Land use along the Stretch (in %)
Residential
Commercial/Retail
Public/Semi Public
Industrial
Others
xiii. Bus Bays (Yes/No; If Yes, then -)
Number of Bus Bays along the Stretch
Distance of Bus Bay from nearest Intersection
Length of Recess for Bus Stop
Depth of Recess for Bus Stop
Entry Taper (in ratio)
Exit Taper (in ratio)
xiv. Lay-Byes (Yes/No; If Yes, then -)
Presence of Lay-Byes (Yes/No; If Yes, then)
Width of Lay Bye (m)



Length of Lay Bye (m)
Entry Taper Length (m)
Exit Taper Length (m)
xv. Road Markings (Yes/No; If Yes, then the type -)
a. Carriageway Markings
Centre Line
Traffic Lane Lines
No Overtaking Lane Lines
Pavement Edge Lines
Carriageway Width Reduction Transition Markings
Obstruction Approach Markings
Stop Lines
Pedestrian Crossings
Cyclist Crossings
Route Direction Arrows
Word Messages
Markings at approaches to intersections
Parking Space Limits
Bus Stops
b. Object Markings
Objects within the Carriageway
Kerb Marking for Visibility
Kerb Marking for Parking Restrictions
Objects adjacent to the Carriageway
xvi. Signages (Yes/No; If Yes, then the type -)
Regulatory Signage
Cautionary/Warning Signs
Informative/Guide Signs
xvii. Existing Traffic Condition
a. Peak Hour Traffic Volume in PCU/hr.
b. Existing LOS
c. Travel Speed (km/hr.)
d. Peak Hour Traffic Composition (in %)
Car
Two Wheeler
Bus
Auto Rickshaw
Shared Auto



Bicycle		
Cycle Rickshaw		
Company Bus		
Taxis		
Any Other		
xviii. Proposed Traffic Condition		
a. Design Period		
b. Projected Peak Hour Traffic Volume in PCU/hr		
c. Designed for LOS		
d. Design Speed		
3. Intersection Improvement	Existing	Proposed
i. Introduction		
a. Name of Intersection		
b. Number of Intersecting Legs		
Three Legged		
Four Legged		
Multi Legged (If Yes, then how many?)		
c. Junction Type		
Arterial to Arterial		
Arterial to Collector		
Collector to Collector		
Others (Mention)		
d. Number of Lanes on each leg		
Leg 1		
Leg 2		
Leg 3		
Leg 4		
ii. Intersection Design		
a. Radius of Curves at Intersection		
b. Design Vehicle for the Intersection		
c. Width of Lanes at Intersections		
d. Width of Carriageway at Entry and Exit		
e. Minimum Visibility along Major Road (m)		



iii. Types of Auxiliary Lanes Proposed (Yes/No; If Yes then type)
Storage Lanes/Right Turning Lanes
Speed Change Lanes
a. Storage Lanes
Length of Right Turning Lane including 30 - 45 m taper (in m)
Design Speed for Storage Lanes
b. Speed Change Lanes
Traffic Volume in the Acceleration Lane
Acceleration Length (m) for entrance curve design speed (kmph)
Design Speed for Acceleration Lane
Traffic Volume in the Deceleration Lane
Deceleration Length (m) for design speed of exit curve
iv. Safe Stopping Sight Distance of Intersections (m)
v. Traffic Islands
a. Islands based on Location (Yes/No)
Corner/Directional Islands
Centre/Divisional Islands
b. Islands based on Type (Yes/No)
Raised Island outlined by kerbs
Island delineated by pavement marking, buttons or raised rumble strips placed on all paved areas
Non Paved Areas formed by the pavement edge supplemented by delineations or a mounded earth treatment beyond the pavement edge
vi. Kerbs (Yes/No)
Barrier Type
Semi-Barrier Type
Mountable Type
Intersection Capacity (PCUs per Hour)
vii. Pedestrian and Cycle Facilities at each Leg
a. Footpath (Yes/No; If Yes, then width)
On Right Side
On Left Side
b. Gradient of Footpath
c. Capacity of Footpaths (persons per hour)



d.	Cycle Track (Yes/No; If Yes, then width)
	On Right Side
	On Left Side
e.	Gradient of Cycle Track
f.	Capacity of Cycle Track (cycles per hour)
g.	Pedestrian Crossings in the Intersection (Yes/No)
h.	If Yes, then, Number of persons crossing the road per hour
viii.	Street Lighting Availability (Yes/No)
ix.	Road Markings (Yes/No; If Yes, then the type -)
a.	Carriageway Markings (Tick)
	Centre Line
	Traffic Lane Lines
	No Overtaking Lane Lines
	Pavement Edge Lines
	Carriageway Width Reduction Transition Markings
	Obstruction Approach Markings
	Stop Lines
	Pedestrian Crossings
	Cyclist Crossings
	Route Direction Arrows
	Word Messages
	Markings at approaches to intersections
	Parking Space Limits
b.	Object Markings (Tick)
	Objects within the Carriageway
	Kerb Marking for Visibility
	Kerb Marking for Parking Restrictions
	Objects adjacent to the Carriageway
x.	Signages (Yes/No; If Yes, then the type -)
	Regulatory Signage
	Cautionary/Warning Signs
	Informative/Guide Signs
xi.	Reflectors (Yes/No)
xii.	Railings at Intersections (Yes/No)
xiii.	Signalised Intersection (Yes/No)



xiv. Existing Traffic Condition
a. Intersection Capacity per Hour (PCU/hr.)
b. Peak Hour Traffic Volume on each leg in PCU/hr.
Leg 1
Leg 2
Leg 3
Leg 4
Leg 5
c. Observed Delay during peak hour
Leg 1
Leg 2
Leg 3
Leg 4
Leg 5
d. Travel Speed (km/hr.)
Leg 1
Leg 2
Leg 3
Leg 4
Leg 5
e. Existing LOS
f. Peak Hour Traffic Composition (in %)
Car
Two Wheeler
Bus
Auto Rickshaw
Bicycle
Cycle Rickshaw
Company Bus
Taxis
Any Other
g. Queue Length (m)
xv. Proposed Traffic Condition
a. Design Period
b. Design Turning Speed (kmph)
c. Minimum Radius for Turning Speed



d.	Design Speed (kmph)		
e.	Design Traffic Volume (in PCUs)		
f.	Proposed LOS		
4.	Round About	Existing	Proposed
i.	Introduction		
a.	Name of Round About		
b.	Number of Intersecting Legs		
	Three Legged		
	Four Legged		
	Multi Legged (If Yes, then how many?)		
c.	Junction Type		
	Arterial to Arterial		
	Arterial to Collector		
	Collector to Collector		
	Others (Mention)		
d.	Shape of Rotary Island		
	Circular		
	Squarish with rounded edges		
	Elliptical, Elongated, Oval or Rectangular		
	Complex intersection with many approaches		
ii.	Round About Design (For all Legs)		
	Radius of Curve at Entry (in m)		
	Weaving Length		
	Weaving Section Width		
	Non Weaving Section Width		
	Entry Angles		
	Exit Angles		
	Camber		
	Super- Elevation		
	Width of Carriageway at Entry and Exit		
	Minimum Visibility along all legs (m)		
iii.	Safe Stopping Sight Distance of Intersections (m) at all legs		
iv.	Traffic Islands		
a.	Are there channelizing islands at the entries and exits? (Yes/No)		
b.	Radius of Central Island (in m)		



c.	Curbs along Channelizing and Central Islands (Yes/No; If yes, then type of curb -
	Vertical
	Mountable
d.	Curb Height (mm)
v.	Pedestrian and Cycle Facilities at each Leg
a.	Footpath (Yes/No; If Yes, then width)
	On Right Side
	On Left Side
b.	Gradient of Footpath
c.	Capacity of Footpaths (persons per hour)
d.	Cycle Track (Yes/No; If Yes, then width)
	On Right Side
	On Left Side
e.	Gradient of Cycle Track
f.	Capacity of Cycle Track (cycles per hour)
g.	Pedestrian Crossings in the Intersection (Yes/No)
h.	If Yes, then, Number of persons crossing the road per hour
vi.	Street Lighting Availability (Yes/No)
vii.	Road Markings (Yes/No; If Yes, then the type -)
a.	Carriageway Markings (Tick)
	Centre Line
	Traffic Lane Lines
	No Overtaking Lane Lines
	Pavement Edge Lines
	Carriageway Width Reduction Transition Markings
	Obstruction Approach Markings
	Stop Lines
	Pedestrian Crossings
	Cyclist Crossings
	Route Direction Arrows
	Word Messages
	Markings at approaches to intersections
	Parking Space Limits
b.	Object Markings (Tick)
	Objects within the Carriageway



Kerb Marking for Visibility			
Kerb Marking for Parking Restrictions			
Objects adjacent to the Carriageway			
viii. Signages (Yes/No; If Yes, then the type -)			
Regulatory Signage			
Cautionary/Warning Signs			
Informative/Guide Signs			
ix. Signalised Intersection (Yes/No)			
x. Existing Traffic Condition			
a.	Intersection Capacity per Hour (PCU/hr.)		
b.	Travel Speed in Round About (km/hr.)		
c.	Existing LOS		
d.	Peak Hour Traffic Composition (in %)		
	Car		
	Two Wheeler		
	Bus		
	Auto Rickshaw		
	Bicycle		
	Cycle Rickshaw		
	Company Bus		
	Taxis		
	Any Other		
xi. Proposed Traffic Condition			
a.	Design Period		
b.	Design Speed (kmph)		
c.	Design Traffic Volume (in PCUs)		
d.	Proposed LOS		
5.	Interchange	Existing	Proposed
i.	Introduction		
a.	Location		
b.	Number of Intersecting Legs		
	Three Legged		
	Four Legged		
	Multi Legged (If Yes, then how many?)		
c.	Junction Type		
	Arterial to Arterial		



Arterial to Collector
Collector to Collector
Others (Mention)
ii. Interchange Type (Tick)
Trumpet
Diamond
Full Cloverleaf
Partial Cloverleaf
Rotary
Directional
Others (Mention)
iii. Interchange Design
a. Design Speed of the major intersecting urban highway
b. Design Speed of the Ramp (km/hour)
c. Radius of Curvature (m)
d. Stopping Sight Distance (m)
e. For Loop Ramps if provided -
Design Speed of the Ramp (km/hour)
Radius of Curvature (m)
Stopping Sight Distance (m)
f. Length of Vertical Curve for safe stopping sight distance (m)
Summit Curve
Valley Curve
g. Absolute Minimum Length of Vertical Curve (m)
h. Median if provided (in m)
i. Length of Acceleration Lane (m)
j. Length of Deceleration Lane (m)
k. Length of Weaving Section (m)
l. Interchange Spacing (Crossroad to Crossroad)
m. Spacing between successive entrances and exits
iv. Safe Stopping Sight Distance
v. Pedestrian and Cycle Facilities at each Leg
a. Footpath (Yes/No; If Yes, then width)
On Right Side
On Left Side



b.	Gradient of Footpath
c.	Capacity of Footpaths (persons per hour)
d.	Cycle Track (Yes/No; If Yes, then width)
	On Right Side
	On Left Side
e.	Gradient of Cycle Track
f.	Capacity of Cycle Track (cycles per hour)
vi.	Street Lighting Availability (Yes/No)
vii.	Road Markings (Yes/No; If Yes, then the type -)
a.	Carriageway Markings (Tick)
	Centre Line
	Traffic Lane Lines
	No Overtaking Lane Lines
	Pavement Edge Lines
	Carriageway Width Reduction Transition Markings
	Obstruction Approach Markings
	Stop Lines
	Pedestrian Crossings
	Cyclist Crossings
	Route Direction Arrows
	Word Messages
	Markings at approaches to intersections
	Parking Space Limits
b.	Object Markings (Tick)
	Objects within the Carriageway
	Kerb Marking for Visibility
	Kerb Marking for Parking Restrictions
	Objects adjacent to the Carriageway
viii.	Signages (Yes/No; If Yes, then the type -)
	Regulatory Signage
	Cautionary/Warning Signs
	Informative/Guide Signs
ix.	Existing Traffic Condition
a.	Interchange Capacity (PCU/hr.)
b.	Travel Speed (km/hr.)
c.	Existing LOS
x.	Proposed Traffic Condition
a.	Design Period



b.	Design Speed (kmph)			
c.	Design Traffic Volume (in PCUs)			
d.	Proposed LOS			
V. ITS in Network				
i	ITS Centre			
ii	Automatic Traffic Classifier and Counter (ATCC)			
a.	Total Number of ATCC Installed			
b.	Total Number of ATCC Installed in different hierarchy of road			
	Sub-arterial			
	Collector			
	Others			
c.	Type of Traffic Counters (Yes/No) and Number			
	Ultra Sonic Type			
	Loop-Coil Type			
	Image Processing Type			
d.	Average Interval between two Traffic Counters			
iii.	CCTV Cameras			
a.	Number of CCTV Camera Installed at Junctions			
iv.	Variable Message Signboard (VMS)			
a.	Number of VMS Installed			
v.	Signal System			
a.	Number of Traffic Signals			
b.	Number of Pedestrian Signals			
c.	Average Interval between two Pedestrian Signals			
vi.	Electronic Road Pricing System			
a.	Number of Electronic Road Pricing Gantries			
vii.	Lane Control System (Yes/No)			
viii.	Parking System			
Part C - Funding				
VI. COST				
1. Financial Planning and Cost Estimates				
	Items	Unit Cost (Rs)	Quantity	Total Cost (Rs)
				% of Total Cost
i.	Mid-Block Improvement			
	Junction Improvement			



Round About
Interchanges
ii. Entire Project (Rs)
iii. Revenue from Different Sources
iv. EIRR
v. Assumptions Made
vi. Financial Structuring of the Project
vii. Proposed Phasing of Entire Project
Part D - Governance
VII. GOVERNANCE
1. Institution Role and Responsibilities
Government
Implementing Agency
Private Operator
Part E - Benefits
VIII. SOCIAL BENEFITS
1. Increase In Level Of Service(LOS) Of -
i. Fatality rate per lakh population
ii. Fatality rate for pedestrian and NMT (%)
IX. ECONOMIC BENEFITS
1. Reduction/Decrease In -
i. Waiting Time for Vehicles at Intersections (for improved junctions
ii. Travel Time
iii. Average Waiting Time for Pedestrian at Signalised Intersection (for improved junctions)
2. Increase In Level Of Service(LOS) Of -
i. Average travel speed of personal vehicles
ii. Average travel speed of public transport
X. ENVIRONMENTAL BENEFITS
1. Reduction/Decrease In -
i. GHG Emissions per Capita
ii. Noise Pollution
iii. Energy Consumption (in million tonnes oil equivalent)
2. Increase In Level Of Service(LOS) Of -
Annual Mean Concentration Range (in $\mu\text{g}/\text{m}^3$) of NO_2 , SO_2 , SPM, RSPM



B. PARKING

S.No	Item
I.	Name of State
II.	Name of City
III.	State Level Nodal Agency (SLNA)
IV.	DPR approved by SLSC (Yes/No) Date, Letter
V.	Notified Planning area for a cluster (Yes/No)
VI.	Provision made in State Budget (Yes/No)
VII.	CMP/CTCS (Yes/No), If yes then year of preparation
VIII.	Master Plan (Yes/No), If yes then year of preparation
IX.	CDP (Yes/No), If yes then year of preparation
X.	Resolution by Municipal Corporation supporting DPR Proposal
Part A - Introduction	
I. CITY PROFILE	
1. Introduction	
i.	Area (in Sq.km)
ii.	Population (2011 census)
2. Socio-Economic Characteristics	
i.	Per capita income
ii.	Average Expenditure on transport
II. TRAFFIC & TRANSPORTATION SYSTEM CHARACTERISTICS	
1. Transport Network Characteristics	
i.	Transportation Modes Registered (Latest data Year data)
	Bus (including Mini Bus)
	IPT
	Car
	Two Wheeler
	NMV
ii.	Average Annual Growth of Vehicles



2. Road Network Characteristics		
i. Road Network	Length (in km)	Average RoW
National / State Highways		
Arterial		
Sub-arterial		
Collector		
Total		
Part B - Parking (Existing/Proposal)		
III. SURVEYS CONDUCTED (YES/ NO)		
i. Reconnaissance Survey		
ii. Road Inventory Survey		
iii. O D Survey		
iv. Parking Survey		
IV. PARKING (EXISTING)		
1. Existing Parking Provision		
i. Use Zones having Parking Problems (Area in sq. m)		
CBD Area / Commercial Establishments		
Bus Terminals		
Railway Terminals		
Institutional Establishments		
ii. On street Parking		
a. On street Parking based on Ownership (km)		
Public		
Private		
Informal		
b. On street Parking based on Pricing (km)		
Paid		
Unpaid		
c. Parking Configuration to Kerb Line (Length in km)		
Parallel		
Angular		
Perpendicular		
Haphazard		
d. Loss of Road Capacity owing to parking (PCU/hr.)		
e. Availability of Signages/ Markings (Yes/No)		
f. Existence of Parking Restrictions (Yes/No)		



2. Existing Parking Characteristics	
a.	Parking Accumulation
	Total
	Peak
b.	Parking Volume (vehicles per day)
c.	Parking Load (vehicle hour)
d.	Parking Duration (number of vehicles parked for _ hours)
	Up to 2 hours
	Up to 4 hours
	Up to 8 hours
	More than 8 hours
e.	Parking Index
f.	Parking Turnover
g.	Composition of Parked Vehicles
	Car
	Two Wheeler
	Auto
	Cycle
	Rickshaw
	Tempo
	Truck
	Others
h.	Existing Parking Tariff
	For Off-street Parking
	For On street Parking
V. PROPOSED PARKING MANAGEMENT PLAN	
1. Delineation of Parking Zones in CBD Area/ Transport Hubson the basis of users (Yes/No)	
	Passenger Loading / Unloading
	Commercial Loading / Unloading
	Disabled Persons Parking Zone
2. Delineation of Parking Zones in the City (Yes/No)	
i.	On the Basis of Parking Restrictions (Yes/No; If Yes, provide details)
	No Parking Zone
	No Parking during certain hours of the day
	24 X 7 Parking
ii.	On the Basis of Parking Duration (Yes/No; If Yes, provide details)
	Pick and Drop



Short Term Parking
Mid Term Parking
Long Term Parking
iii. On the Basis of Parking Pricing (Yes/No; If Yes, provide details)
iv. On the Basis of Vehicle Size
3. Parking Provision near Transport Hubs/ Commercial Establishments/ Institutional Areas (Yes/No)
i. For Private Vehicles
Area
Capacity
ii. For Auto-Rickshaws
Area
Capacity
iii. For Cycle Rickshaws
Area
Capacity
iv. Proposed Off-street Parking
Numbers
Area
Capacity
v. Is Parking Prohibited near _ (Yes/No)
Intersections
Crosswalks
Footpaths
VI. PROPOSED OFF STREET PARKING
1. Type of Parking
i. Location
ii. Type of Proposed Off-street Parking
Surface Car Parks
Multi-storey Car Parks
Roof Parks
Mechanical Car Park
Underground Car Park
iii. Area under Parking
iv. Total Built up Area for multi-storeyed parking
v. Number of Stories
vi. Types of Vehicles to be parked



2. Parking Characteristics					
i. Capacity (ECS)					
ii. Parking Accumulation					
Total					
Peak					
iii. Parking Volume (vehicles per day)					
iv. Parking Load (vehicle hour)					
v. Parking Rates					
Up to 2 hours					
Up to 4 hours					
Up to 8 hours					
More than 8 hours					
vi. Parking Index					
vii. Parking Turnover					
viii. Number of Entries and Exits					
VII. ITS IN PARKING					
1. ITS Facilities (Systems and Devices)					
i. Parking Guidance and Information System for the city (Yes/No)					
a. Number of VMS Display Boards					
b. Type of Vehicle Detection Technology (Yes/No)					
c. Vehicle Detection Sensors					
d. Video Image Processing					
ii. Smart Payment System (Yes/No)					
a. Number of Parking Meters at designated parking sites					
b. Smart Card Usage (Yes/No)					
iii. Security and Security System					
a. Number of CCTVs					
b. Fire Alarm Provision					
Part C - Funding					
VIII. COST					
1. Financial Planning and Cost Estimates					
	Items	Unit Cost (Rs)	Quantity	Total Cost (Rs)	% of Total Cost
a.	Parking Infrastructure				
b.	Entire Project (Rs)				
c.	Revenue from Different Sources				
d.	FIRR				
e.	EIRR				



f.	Assumptions Made
g.	Financial Structuring of the Project
h.	Proposed Phasing of Entire Project
Part D - Governance	
IX. GOVERNANCE	
1. Institution	Role and Responsibilities
Government	
Implementing Agency	
Private Operator	
Part E - Benefits	
X. SOCIAL BENEFITS	
1. Increase In Level Of Service (LOS) -	
i.	Encroachment on NMT roads by Vehicle parking (%) (for parking)
ii.	Availability of Paid Parking Spaces (%)
iii.	Difference in maximum and minimum parking fee in the city
XI. ECONOMIC BENEFITS	
1. Increase in -	
	Revenue
	EIRR
	NPV
2. Reduction/Decrease in -	
	Reduction in Waiting Time for Vehicles
	Reduction in Travel Time



Category 5
Urban Freight







Category 5: Urban Freight

S.No	Item
I.	Name of State
II.	Name of City
III.	State Level Nodal Agency (SLNA)
IV.	DPR approved by SLSC (Yes/No) Date, Letter
V.	Notified Planning area for a cluster (Yes/No)
VI.	Provision made in State Budget (Yes/No)
VII.	CMP/CTCS (Yes/No), If yes then year of preparation
VIII.	Master Plan (Yes/No), If yes then year of preparation
IX.	CDP (Yes/No), If yes then year of preparation
X.	Resolution by Municipal Corporation supporting DPR Proposal
Part A - Introduction	
I. CITY PROFILE	
1. Introduction	
i.	Area (in Sq.km)
ii.	Population (2011 census)
2. Socio-Economic Characteristics	
i.	Per capita income
ii.	Average Expenditure on transport
II. TRAFFIC & TRANSPORTATION SYSTEM CHARACTERISTICS	
1. Transport Network Characteristics	
i.	Transportation Modes Registered (Latest data Year data)
	Bus (including Mini Bus)
	IPT
	Car



Two Wheeler		
NMV		
ii. Average Annual Growth of Vehicles		
2. Road Network Characteristics		
i. Road Network	Length (in km)	Average RoW
National / State Highways		
Arterial		
Sub-arterial		
Collector		
Total		
Part B - Urban Freight (Existing/Proposed)		
III. SURVEYS CONDUCTED (YES/ NO)		
i. Establishment Survey		
ii. Vehicle Observation Survey		
iii. Parking Survey		
iv. Driver Survey		
v. Commodity Flow Survey		
vi. Roadside Interview Survey		
vii. Vehicle Trip Diaries		
viii. GPS Survey		
ix. Freight Operator Survey		
x. Supplier Survey		
IV. URBAN FREIGHT (EXISTING)		
1. Daily Goods Flow in the city (in Vehicles and Tonnes)		
Intercity Inbound		
Intercity Outbound		
Intra-City Flows		
2. Mode Wise Average Trip Length -		
LCV/Tempo		
2 Axle Trucks		
3 Axle Trucks		
Multi Axle Vehicles (MAV)		
3. Trip Length Frequency (% of Trips)		
Below 50 km		
50 to 100 km		
100 to 150 km		



150 to 200 km				
200 to 300 km				
300 to 500 km				
More than 500 km				
4. Trip Frequency Distribution of Goods Traffic	More than once in a day	Daily	Weekly	Occasionally
LCV/Tempo				
2 Axle Trucks				
3 Axle Trucks				
Multi Axle Vehicles (MAV)				
5. Commodity Share of Goods Vehicle Traffic at Outer Cordon Locations (in %)				
Food grains				
Fruits and Vegetables				
Household Goods				
Chemical and Fertilizers				
Petroleum				
Building Materials				
Textiles				
Ores/Minerals				
Timber				
Manufacturing Goods				
Others				
6. Mode wise Pay Load (in T)				
LCV/Tempo				
2 Axle Trucks				
3 Axle Trucks				
Multi Axle Vehicles (MAV)				
7. Number of Goods Vehicle Trips Produced/Attracted in the city				
8. Amount of Goods carried across the city (in tonnes)				
Food grains				
Fruits and Vegetables				
Household Goods				
Chemical and Fertilizers				
Petroleum				
Building Materials				



Textiles
Ores/Minerals
Timber
Manufacturing Goods
Others
9. Types of Goods Terminal In the City like
Port
Railway Yards
Truck Terminals
Major Truck Parking Areas
Oil Depots
Container Depots
Container Warehousing Corporation
Food Corporation of India
Industrial Areas
10. Number of Truck Terminals in the City
11. Road Side Truck Bays
Road Stretch (km)
Number of trucks per day
12. Truck Terminal Details
i. Location
ii. Area
iii. Activities (Truck Parking Facility, Transit and Transshipment of goods of trucks)
iv. Amount of Goods Handled daily (in tons)
v. Inflow of Trucks per Day (Number)
vi. Outflow of Trucks per Day (Number)
vii. Components of Truck Terminal (Yes/No; If Yes, then Numbers/Capacity) -
Transport Agencies
Circulation
Parking Space (Area and Number of Trucks)
Open Space
Petrol Pump
Service Centre
Go downs
Weigh Bridge
Administrative Offices
Fire Stations, Post Office and Dispensary



Bank, Bus Station, Electric Sub-Station
Cold Storage
Spare Parts Shop
13. Total Commodity Handled by Terminal (can be done on the basis of type of commodities)
i. Inflow
ii. Outflow
iii. Overall
14. Truck Parking Areas
i. Location
ii. Area
iii. Capacity
15. Truck Parking in Commercial Areas like Mandis/Retail Markets
i. Location
ii. Type of Commodities
iii. Loading and Unloading Spaces
iv. Parking Provision for Hand Carts/ LCVs/Tempos/Other Goods Vehicles
16. Truck Parking in Industrial Areas
i. Location
ii. Type of Commodities
iii. Loading and Unloading Spaces
iv. Parking Provision for Hand Carts/ LCVs/Tempos/Other Goods Vehicles
v. Godowns
17. Railway Yards
Commodities Handled
Transit Sheds/Platforms used as Godowns/Storage Spaces (Area)
Approach Road Conditions
Office Space
Goods brought in (Mode and From)
Goods sent (Mode and From)
Number of Road based Vehicles using the yard per month
Activities Performed (Loading/Unloading)
18. Oil Depots
Storage Space
Collection/Distribution of liquid petroleum products



Terminal Areas				
Parking Space (area)				
Number of trucks per day				
19. FCI Godowns				
Storage Space				
Commodities Handled				
Monthly trucks - Loading and Unloading Goods				
Commodities Handled				
20. Inflow of Goods (tonnage)				
21. Growth Rate of Goods Traffic (%)				
22. Average Pay Load				
	Commodity	Tonnes	Vehicles	Pay Load
23. Distance				
	Distance	Tonnes	% of Tonnes	
Below 50 km				
50 to 100 km				
100 to 150 km				
150 to 200 km				
200 to 300 km				
300 to 500 km				
More than 500 km				
V. PROPOSED URBAN FREIGHT PLANNING AND MANAGEMENT				
1. Projections				
i. Estimated Daily Goods Vehicle Travel (in Vehicles and PCUs)				
Internal (I-I)				
External (I-E, E-I, and E-E)				
Total				
ii. External Travel Demand: Morning Peak Period (Vehicle Trips)				
2. Type of Urban Freight Model (Tick)				
Commodity based Model				
Truck Trip based Model				
Other Approaches				
Simple Growth Factor Model				
Regression Analysis Approach				



3. Freight Handling Facilities Proposed	
i. Freight Handling Facilities (Tick)	
Freight Centres (like Freight Villages, Distribution Business Centres, Logistic Centres)	
Urban Freight Consolidation Centres (UCC)	
Integrated Freight Complex	
ii. Freight Centre/ Logistic Park	
a. Distance of Logistic Park from (in km)	
Railway Station	
Airport	
National and State Highways	
City Centre	
b. Type of Park (Tick)	
Road Based only	
Road - Rail Based	
c. Provisions	
Warehouse (No. and Area)	
Cold Storage (No. and Area)	
Container Freight Station (Area)	
CFS Components (Yes/No)	
Office Block for Customs, Shipping Agents, Administrative Staff)(Area)	
Storage for Valuable Cargo	
Bank	
Computer and Server Room	
Other	
Container Yard	
Container Yard Capacity	
Paved Yard	
Open Yard	
d. Plant and Machinery (No.s)	
Forklift	
Weigh Bridge	
Reach Stackers	
Pallet Trolleys	
Conveyors	



iii. Integrated Freight Complex
a. Area
b. Land Use Break Up in %
Wholesale Market
Warehouses
Booking Agencies
Commercial & Public Semi Public
Utilities and Services
Service Industry
Parking
Circulation
Others
iv. Truck Terminal Details
a. Location
b. Area
c. Activities (Truck Parking Facility, Transit and Transshipment of goods of trucks)
d. Amount of Goods Handled daily (in tons)
e. Inflow of Trucks per Day (Number)
f. Outflow of Trucks per Day (Number)
g. Components of Truck Terminal (Yes/No; If Yes, then Numbers/Capacity)
h. Land Use Break Up in %
Transport Operations(Office, Godown, Loading/ Unloading)
Service Industry (Petrol Pump, Service Area, Weigh Bridge)
Public/Semi-Public (Post Office, Police Post etc)
Commercial
Parking
Open Spaces
Circulation
Others
4. Urban Freight Management
i. Designated Specific Route (Yes/No, If Yes, length)
ii. Length of the Route (km)
iii. Truck Traffic Lane Width (m)



iv.	Landuse Break Up along the Route (in %)
	Residential
	Commercial
	Industrial
	Others
v.	Traffic Signs
	STOP
	GIVE AWAY
vi.	Designated Hazardous Load Route (Yes/No, If Yes, then km))
vii.	Designated High Productivity Vehicle Route (Yes/No, If Yes, then km))
viii.	Ban on Trucks on certain routes at certain times (Yes/No), If Yes, then length of route and timings
ix.	Prohibition of Heavy Vehicles in certain areas
x.	Exclusive Lanes for Trucks/Trucks and Other High Occupancy Vehicles
xi.	One Way Streets
xii.	Reversible Traffic Lanes
xiii.	Intersection Channelization
xiv.	Improved Direction Signs and Variable Message Signs
xv.	Speed Limits
xvi.	Street Lighting
xv.	Median Barriers
xvi.	Designated Loading/Unloading Zones in Retail and Commercial areas
xvii.	Area Wide Loading and Unloading Restrictions on the kerbside
xviii.	Designated Parking for Trucks waiting for long hours

Part C - Funding

VI. Cost					
1. Financial Planning and Cost Estimates					
	Items	Unit Cost (Rs)	Quantity (Total)	Total cost (Rs)	% of Total cost
i.	Freight Infrastructure				
	Logistic Park				
	Integrated Freight Complex				
	Truck Terminals				



ii.	Entire Project (Rs)
iii.	Revenue from Different Sources
iv.	EIRR
v.	Assumptions Made
vi.	Financial Structuring of the Project
vii.	Proposed Phasing of Entire Project
Part D - Governance	
VII. GOVERNANCE	
1. Institution	Role and Responsibilities
Government	
Implementing Agency	
Private Operator	
Part E - Benefits	
VIII. SOCIAL BENEFITS	
1. Reduction/Decrease In -	
Freight Vehicles during Day Time (%)	
Freight Vehicles during Night Time (%)	
Accident due to Freight Vehicles	
IX. ENVIRONMENTAL BENEFITS	
1. Increase In -	
Percentage Share of Goods Vehicles on Clean Fuel	
GHG Emissions	
Noise Pollution	
Energy Consumption	



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Toolkit

Appraisal Checklist for Urban Transport Project's:

It aims at helping the State/ULBs/parastatal officials in appraising the urban transport projects as follows:

- 1. *Transport Planning:*** It involves mobility plans for cities and urban agglomerations like Comprehensive Mobility Plans, Comprehensive Traffic and Transportation Study, and Regional Transportation Plan.
- 2. *Public Transport:*** This category involves appreciating the role of existing public transport system and selection of system technologies and their planning, operations and management. IT would include City Bus System and Bus Rapid Transit System (BRTS) projects and allied infrastructure like Bus Stations, Bus Terminals, Transit Centres, Depots and Workshops, Control Centres, ITS for City Bus System and BRTS. Also, it would include planning for feeder services, multimodal integration and institutional reforms
- 3. *Non Motorized Transport:*** This category involves NMT facility improvement plan. The sub components of NMT Improvement Plan includes provision of clear walkable footpath throughout the city, cycle tracks, streetlights, cycle stands and NMT designed signals at all junctions. It also includes planning for pedestrian crossing facilities like at-grade crossings, foot over bridge and subways.
- 4. *Transport infrastructure:*** consists of road projects which are to be developed, strengthened, upgraded and interconnected. It includes network improvement and expansion projects. It would also include off-street parking projects and on street parking management.
- 5. *Urban Freight:*** It comprises of projection of freight traffic growth; assessing and planning for industrial and commercial activities distribution and storage facilities in the city, location of wholesale markets, direction of city growth etc. It also includes planning for non-motorised freight transport while addressing the issue of the last leg connectivity in freight movement.

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