Training Needs Assessment

in Sustainable Urban Transport

Madhya Pradesh

Urban Management Centre

Prepared and published by Urban Management Centre (UMC)

ISBN 978-81-909120-3-7

URBAN MANAGEMENT CENTRE
in collaboration with ICMA

The Urban Management Centre is a not-for-profit organization based in Ahmedabad, Gujarat, working towards professionalizing urban management in India and South Asia. UMC provides technical assistance and support to Indian State and Urban Local Governments and implements programs that work towards improvement in city management. UMC builds and enhances the capacity of city governments by providing much-needed expertise and ready access to innovations on good governance and facilitating workshops and exposure visits. UMC is a legacy organization of International City/County Management Association (ICMA) and hence is also known as ICMA-South Asia.

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An initiative supported by

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Training Needs Assessment of City Managers in Urban Transport in Madhya Pradesh

June 2013

prepared for

Urban Administration & Development Department,
Government of Madhya Pradesh

prepared by

Urban Management Centre (UMC)

with financial support from

Shakti Foundation
&
Climate Works Foundation

ACKNOWLEDGEMENTS

Rapidly growing cities and increasing economic activities in urban areas has exacerbated the issues in urban transportation. Majority of cities in India face challenges of providing integrated urban transportation. These problems could be mostly attributed to prevailing imbalance in modal split; inadequate transport infrastructure and its sub-optimal use; no integration of land use and transport planning; few improvements in city bus service. Most of these problems arise due to complex institutional arrangements, lack of finances for creating the infrastructure and capacity of ULBs.

In view of these issues, the Government of India approved the National Urban Transport Policy (NUTP) in April 2006. The JNNURM has also been supporting transportation sector linked investments in the areas of bus, rail and related infrastructure.
There has been a felt need to assess the capacity of city governments to undertake the responsibility of providing appropriate sustainable urban transportation. With this objective in mind, UMC with financial support from ClimateWorks Foundation and Shakti Sustainable Energy Foundation, assessed the capacity of city governments in Gujarat and Madhya Pradesh to understand, plan, operate and manage sustainable urban transportation systems. This study period has been 2012-2013.

I am thankful for the support received from Urban Administration & Development Department (UADD), Government of Madhya Pradesh (GoMP). Special thanks to the Principal Secretary UADD, Dr. S. P. S. Parihar, IAS; Commissioner UADD, Mr. Sanjay Shukla, IAS; OSD Transport UADD, Mr. Kamal Nagar. The Municipal Commissioners of Bhopal, Indore, Gwalior, Jabalpur, Dewas and Ujjain were helpful in discussions and provided valuable insights.

I also would like to extend my gratitude to officials and staff members of the following organisations from the six cities of MP- Bhopal Municipal Corporation; Indore Municipal Corporation; Gwalior Municipal Corporation; Jabalpur Municipal Corporation; Ujjain Municipal Corporation; Dewas Municipal Corporation, Collector offices of respective districts; Bhopal City Links Limited (BCLL), Atal Indore City Transport Services Limited (AICTSL), Jabalpur City Transport Service Limited (JCT SL), Gwalior City Transport Service Limited (GCTSL), Ujjain City Transport Service Limited (UCTSL), Development Authorities of Bhopal, Indore, Gwalior, Jabalpur, Ujjain and Dewas, Directorate of Town & Country Planning, GoMP and City Bus Operators of Bhopal, Indore, Gwalior, Jabalpur and Ujjain.

This study would not have been possible without the dedicated team effort from UMC staff including Meghna Malhotra, Vanishree Herlekar, Anurag Anthony, Bhavesh Patel and Vimal Sharma.

We would like to acknowledge the sourcing of some of the maps presented in this study by the Directorate of Town and Country Planning, GoMP.

Manvita Baradi
Director, Urban Management Centre

CONTENTS

ABBREVIATIONS

AICTSL	Atal Indore City Transport Services Limited
BCLL	Bhopal City Link Limited
BDA	Bhopal Development Authority
BMC	Bhopal Municipal Corporation
BPMC	Bombay Provincial Municipal Corporations Act
BRTS	Bus Rapid Transit System
CAA	Constitutional Amendment Act
CAGR	Compounded Annual Growth Rate
CDP	City Development Plan
CEO	Chief Executive Officer
CMP	Comprehensive Mobility Plan
CPA	Capital Project Administration
CSP	City Sanitation Plan
DDA	Dewas Development Authority
DMC	Dewas Municipal Corporation
DPR	Detailed Project Report
DUTF	Dedicated Urban Transport Fund
GCTSL	Gwalior City Transport Services Limited
GDA	Gwalior Development Authority
GMC	Gwalior Municipal Corporation
IDA	Indore Development Authority
IDFL	Indore Development Fund Limited
IMC	Indore Municipal Corporation
IPT	Intermediate Public Transport
JCTSL	Jabalpur City Transport Services Limited
JDA	Jabalpur Development Authority
JMC	Jabalpur Municipal Corporation
JNNURM	Jawaharlal National Urban Renewal Mission
MoUD	Ministry of Urban Development
MPSRTC	Madhya Pradesh Regional Transport Corporation
NMT	Non-Motorized Transport
NUTP	National Urban Transport Policy
PPP	Public Private Partnership
PWD	Public Work Department
RTO	Regional Transport Office
SADA	Special Area Development Area
SPV	Special Purpose Vehicles
TOD	Transit Oriented Development
TCPO	Town and Country Planning Office
UADD	Urban Administration & Development Department
UCTSL	Ujjain City Transport Services Limited
UDA	Ujjain Development Authority
UIDSSMT	Urban Infrastructure Development scheme for Small & Medium Towns
ULB	Urban Local Body
UMC	Ujjain Municipal Corporation
UMTA	Urban Metropolitan Transport Authority

CONTEXT

Urban India with a population of over 377 million people residing in 7935 cities and towns constitute the world's second largest urban system (Census , 2011). Cities in India are growing, in terms population, area as well as economic activity. Ensuring smooth and efficient movement of people and goods through efficient urban transport systems is amongst the basic needs of a well functioning city.

With land uses and activities becoming increasingly dispersed, the spatial footprint of cities has expanded resulting in an increasing need for mobility. Unfortunately the urban transport infrastructure in our cities has not kept pace with this increasing demand for movement of people and goods. Because of lack of investment in high quality pedestrian and cycling infrastructure and reliable and efficient public transport, urban dwellers are increasingly turning to personalized motor vehicles. Organized Public transport mode share in most Indian cities is less than 20 per cent whereas share of personalized motor vehicles has grown significantly over the last two decades.

The state of Madhya Pradesh (MP) also exhibits similar trends with respect to increasing urbanization-- little investment in public transport and the resulting over dependency on personalized motor vehicles. According to the census 2011, the urban population of MP is 20.05 million recording a decadal growth rate of 25.6% between 2001 and 2011.

There are four cities (Indore, Bhopal, Jabalpur and Gwalior) in Madhya Pradesh with a population of 10 lakh and above. Ujjain and Dewas are two other cities also experiencing rapid urban growth. Increase in urban population in MP is accompanied with the increase in number of registered motorized vehicles. The number of registered vehicles per thousand population of MP is 80, higher than the national average of 68 indicating reliance on privately owned vehicles in the absence of adequate, reliable and efficient public transport.

In line with projected trends in India, urbanization in Madhya Pradesh is expected to increase over the coming decades. Hence there is an immediate need for improving transport infrastructure and putting in place policy and planning reforms in cities to allow for sustainable development and transport planning. The state government has already initiated several programs to foster sustainable urban development in MP cities. MP has availed JNNURM funds and has initiated bus services in Jabalpur and BRT service in Indore and Bhopal. The state has also formulated a transport policy that focuses on improving the condition of public transport in the state.

With these policy reforms in place and financial assistance directed towards the development of infrastructure for sustainable transport, it will be advantageous for the State to also put in place appropriate institutional arrangements for handling urban transport and invest in building technical capacities in the ULBs across the state.

Indore BRT, recent investment in sustainable transport in MP

Objectives of TNA Study

The objective of the study is to assess the gap in capacities of senior and middle management staff in Municipal Corporations and Development Authorities to plan, operate and manage sustainable urban transport systems.

Strengthening urban local governments through capacity building and better financial management is identified as a key strategy for urban development in the Government of India's 11th five-year plan. The plan identifies lack of skilled manpower as one of the key concerns in urban development and recommends capacity building programs to address capacity gaps in urban local bodies. The phase I of JNNURM launched in 65 cities in India has also clearly highlighted the need for long-term capacity building support to the cities in successful implementation of projects. Training Needs Assessment is the first step in the establishment of a comprehensive training and capacity development program for cities in Madhya Pradesh in the area of sustainable urban transport.

> *"While the JNNURM has had some success in building physical capacity, it needs to invest more in financial and human capacity. Many states and cities have been unable to leverage available funds or implement reforms because of a lack of local capacity and technical expertise"*
>
> -- India's urban awakening: Building inclusive cities, sustaining economic growth, McKinsey Global Institute, 2010

Scope and Limitation of study

The scope of the study was to assess the capacities of technical staff in select ULBs in Madhya Pradesh. This is extended to include the staff of development authorities and transport SPVs. There are several agencies (Traffic Police, RTO, District Collector's office etc.) other than the ULBs and development authorities that are involved in implementation and management of transport in MP. While these authorities were identified as key stakeholders in this study to understand the institutional framework for transport, the staff of these agencies is not included in the capacity assessment.

There is no urban transport department within ULBs in MP with dedicated staff (other than the staff employed by the BUS SPVs). Shortage of technical staff was also identified in all cities with staff holding multiple positions across sectors. Due to these limitations the assessment is conducted with select staff from allied departments such as PWD and Town Planning which are somewhat involved in urban transport.

Study Methodology

The Training Needs Assessment study was carried out across 6 cities in Madhya Pradesh (Indore, Bhopal, Dewas, Ujjain, Gwalior and Jabalpur).The following methodology was adopted for the study:

- Review of Institutional Framework
- Site visits and interviews with technical staff to understand existing transport situation
- Consultations with administrative heads
- Capacity assessment survey of technical staff
- 'What works ' workshop to share best practices and share findings of TNA
- Target group specific training needs

Field visit to Bhopal BRT with technical staff

Review of Institutional Framework

UMC understands that having efficient institutional structures is critical to the efficient functioning of the urban transport system. UMC conducted a comprehensive review of existing governance including roles and responsibilities of various state and city level stakeholders involved in the planning and implementation of urban transport. The aim of this exercise was to understand the existing city administration structure, flow of decisions, flow of funds and finances, flow of information, current monitoring regime and key linkages between various departments involved in transport.

Understanding of existing Urban Transport Situation

To understand the current situation of urban transport in MP cities existing documents including CDPs, DPRs and other visioning and policy documents were reviewed. Site visits were conducted to observe the existing transport situation and the status of planned sustainable transport projects. These field visits allowed focused interaction with technical staff and helped identify key areas of improvement. Preliminary meetings with relevant municipal officials were also conducted to validate the existing data.

The Strengths Weaknesses Opportunities and Threats (SWOT) tool was used to facilitate discussions on urban transport and development aspects of the city including land use and spatial growth, existing and planned transport infrastructure, condition of streets, traffic management, perception of public transport etc.

Consultations with Administrative and Technical heads

Key informant interviews were conducted with key stakeholders and decision makers including City Commissioners, Dy. Commissioners, Chief Engineers, SP-Traffic Police, and CEOs of Development Authorities to understand key institutional and capacity barriers to successful implementation of sustainable transport in respective cities. Interviews with elected officials including Mayor and Councilors were also conducted where possible to assess the understanding of sustainable transport among elected officials.

Capacity Assessment Survey of Technical Staff

The individual capacity assessment identified specific gaps in terms of skills and knowledge of sustainable transport within an organization or a department. For conducting the capacity assessment staff from the ULBs, BUS SPVs and development authorities involved in various aspects of urban transport such as road construction, bus operations, town planning etc. were identified.

A selection of such transport managers including senior and mid level officers were chosen for in-person interviews. The capacity assessment interviews were conducted using a questionnaire based tool which covered aspects such as educational qualifications, understanding of sustainable urban transport as well as management and behavioral needs. The questionnaire covered the following key areas:

- Educational background and technical qualifications
- Designation and Job profile
- Awareness about sustainable urban transport principles
- Ability to plan and implement transport projects
- Areas of training that will help the staff meet their goals and successfully fulfil responsibilities.
- Preferred duration and mode of training

Interviews with key decision makers in Madhya Pradesh

"What works" hands on workshop and exposure visit to Ahmedabad

A workshop was organized in Ahmedabad to share the findings of the Training Needs Assessment with state government representatives as well as key administrative and technical staff from the six cities and share urban transport best practices from Ahmedabad and other cities. The workshop saw focused discussions on key training areas which emerged out of the study. The workshop also included planning and implementation of BRT, bus operations and contracts management with Janmarg BRT officials

Capacity Building Strategy for MP and target group specific training needs

The first hand data from visits, interactions with administrators and senior staff and questionnaire survey was analyzed and key training needs for officers were arrived upon. The report also presents key strategies for training including a list of resources training calendar identifying short, medium and long-term needs for key officials.

Participants at "What Works?" workshop

INSTITUTIONAL FRAMEWORK FOR URBAN TRANSPORT

National Agenda for Sustainable Urban Transport

The Jawaharlal Nehru National Urban Renewal Mission (JNNURM) launched in December 2005 by the national government is one of the leading reform based programs in the country. The mission was launched across 65 cities in India with the purpose of financing development of urban infrastructure and the central financial assistance was linked to urban sector reforms to strengthen municipal governance in accordance with the 74th constitutional amendment. Urban transport was identified as a key component of the program.

To guide the funding for Urban Transport component of the mission, National Urban Transport Policy (NUTP) was launched in 2006 by the Ministry of Urban Development (MoUD). The objective of NUTP is to promote reliable, affordable and sustainable access of city residents to jobs, education, and recreation by encouraging investments in public transport and walking and cycling infrastructure, fostering equitable allocation of road space and integrating urban transport and urban planning. In order to put the NUTP into practice, MOUD's focus is on the following areas:

- To promote investments in NMT and public transport(buses, BRT and Metro) using JNNURM funds
- Streamlining institutional framework for Urban Transport by formation of Urban Metropolitan Transport Authority (UMTA) in cities with a population of 10 lakh and above.
- Putting in place reforms (setting up of Special Purpose Vehicles (SPV) for transport and Dedicated Urban Transport Fund (DUTF) etc.) to improve transport planning and management
- Promote comprehensive transport planning by making Comprehensive Mobility Plans (CMPs) for cities
- Capacity building of cities by sharing best practices, trainings and preparation of toolkits. The MOUD has set up four centres of excellence across India to promote capacity building initiatives.

Though the NUTP was successful in bringing focus to the worsening transport situation in the country and recommend a more sustainable approach to dealing with transport, more than 6 years of the launch of JNNURM and NUTP, many states and cities have not been able to leverage available funds or implement reforms. One key reason cited by the High Powered Expert Committee (HPEC) Report on Indian Urban Infrastructure and Services for slow progress of JNNURM reforms is the lack of capacity at local government level to prepare and implement projects in urban infrastructure (HPEC, 2011).

One of the key recommendations of the HPEC for the next round of JNNURM is to focus on capacity building and support urban reforms within a program approach and strengthen and secure the financial base of ULBs.

In order to put NUTP into practice, one of MOUDs focus area is capacity building of cities by sharing best practices, trainings and preparation of toolkits

Institutional Framework for Urban Transport in MP

Transport is a state subject in the Constitution of India which means that the primary major responsibility for Urban Transport policy and infrastructure rests with State Governments and respective urban local bodies. The existing institutional arrangements for managing urban transport in India were developed at a time when urban transport was not a major issue and hence the urban transport sector is extremely fragmented with multiple agencies under different legal enactments are involved in the planning, implementation and management of urban transport. Each of the agencies is in charge of a single component of urban transport and there is no authority that is in charge of coordination between these different bodies.

At the central level, Ministry of Urban Development is the nodal ministry for urban transport and is responsible for providing policy guidance as well as some financial assistance to states and ULBs to plan and execute urban transport projects.

In Madhya Pradesh, the state wields considerable authority over different aspects of Urban Transport. There are three state level departments involved in urban transport and urban development planning. The Urban Administration and Development Department (UADD) is the parent organization for Municipal Corporations at state level responsible for urban sector reforms and basic infrastructure in Urban Local Bodies. The Transport Department is responsible for enforcing the Motor Vehicles Act and ensure road and traffic safety in cities. The transport department also plays a more hands on role in traffic management through the Regional Transport Office (RTOs) setup at district level. The third department involved in urban transport planning is the Housing and Environment department. The Town and Country Planning Office (TCPO) under this department is responsible for preparing the master plans for MP cities. The Master Plan is a statutory Document in the state which charts the long term growth plan for the city and also provides for major roads and thoroughfares in the cities.

Once the state TCPO office prepares a master plan for a city, the development authorities formed under the MP Town and Country Planning Act of 1973 are responsible for implementing the master plan on ground by developing colonies or schemes using land pooling mechanism. While not responsible for formulating the Development Control Regulations (DCRs), the development authorities in MP play a major role in urban transport by planning a well connected, street grid in new colonies that enhances accessibility of pedestrians and also disperse motorized traffic on multiple routes.

The District Collectors office also plays a major role in urban transport in the state. The collector belonging to the IAS cadre is higher in rank than municipal commissioners who generally belong to the state cadre. All important decisions regarding urban transport management and new infrastructure projects are approved by the collector. The collector is also the chair of Traffic Advisory Committees that are present in all major cities in the state. Traffic police is another state level department which plays a key role in traffic management and enforcement.

The ULBs in MP are primarily responsible for providing and maintaining road infrastructure in the city and managing organized public transport such as buses and BRT. The following chart presents the institutional framework for urban transport in the state of MP. Roles and responsibilities in urban transport of these state level departments and ULBs are presented in the next section.

State and Parastatal Agencies in Urban Transport

This section presents an overview of the state level departments in MP involved in urban transport along with their specific responsibilities in the sector.

Urban Administration & Development Department (UADD)

UADD is parent organization for municipal corporations at the state level. UADD monitors the functioning of all municipal corporations in the state and is responsible for introducing urban sector reforms and guide the investment in urban infrastructure in MP. Some of the recent initiatives by the UADD include E-governance initiatives, transitioning towards double entry accounting system and creation of specialized municipal cadres. UADD is also the nodal department at state level for urban public transport and traffic related activities in Madhya Pradesh. Currently the UADD has one officer on Special Duty (OSD) for urban transport who works on various transport initiatives in cities in MP in close coordination with the respective municipal commissioners. He also monitors the progress and success of JNNURM funded transport projects in four cities (Indore, Bhopal, Jabalpur and Ujjain) in MP. Some recent initiatives by UADD in the urban transport sector in the state include:

- Management of urban transport through the formation of Special Purpose Vehicles.
- Draft Policy for constitution of Urban Metropolitan Transport Council (UMTC) and Dedicated Urban Transport Fund (DUTF)
- Formulation of CDPs and CMPs for MP cities
- UADD has floated a RFP for consultancy services to prepare DPRs for Parking, Advertisement, ToD and Public Transport in five cities in MP.

With only one technical staff in charge of the urban transport sector in the state, there are evident capacity gaps in UADD. There is a need to significantly strengthen the transport cell/department within UADD by means of new recruitment as well as regular trainings for existing permanent staff and consultants.

Transport Department

The Transport Department of Madhya Pradesh functions under the provisions of section 213 of Motor Vehicles Act, 1988 and is primarily responsible for the enforcement of the provisions and rules framed under the Motor Vehicles Act,1988 and the Madhya Pradesh Motor Vehicles Taxation Act,1924 (Amended 1993).

The Transport Department is headed by the Transport Commissioner. He is assisted by Deputy Transport Commissioners specializing in enforcement, administration and finance in the head office. Regional Transport Offices (RTOs) are established under the transport department at the regional/ district level and are responsible for licensing of motorized vehicles and regulating Intermediate Public Transport(IPT) including giving route licenses and monitoring their quality of services.

Traffic Advisory Committees formed at the district level in MP under the provisions of sections 215 of Motor Vehicles Act, 1988 are also under the aegis of the transport department. The Traffic Advisory Committees at the district level in MP include representation from the RTO, Traffic Police, ULB, BUS SPV (if present) and the Development Authority and are chaired by the respective District Collectors. The Traffic Advisory Committee meets once a month to discuss pressing issues related to traffic management and road safety such as traffic diversions, Right of Way (ROW)enforcement, and operations of public transport services. Once the issues are resolved and a decision is arrived upon, they are forwarded to the concerned agency for implementation via a circular.

The Madhya Pradesh Transport Department has formulated a Transport Policy for the state with recommendations for urban as well as rural areas. They key highlights of the policy regarding urban transport include:

- Implementation of BRT systems in bigger cities of the state.
- Encouraging public transport in cities
- Installation of functional and well maintained bus stops in cities
- Replacing existing IPT vehicles with cleaner vehicles that run on CNG and LPG
- Traffic and transport benchmarking survey to be carried out every five years
- Encouraging modern technology and ITS in transport
- The existing traffic advisory committee in MP functioning under the chairmanship of the collector will be replaced by a district transport authority and will include also include zillaa panchayat representatives as members.

Town and Country Planning Department (T&CPD): State level Planning Body

Town & Country Planning Department is the state level planning body for Madhya Pradesh which works under the aegis of the Department of Housing and Environment. The primary role of the T&CP Office is the preparation of statutory master plans for all cities in the state. The main functions of the department are related to land development, preparation of town development Plan, review evaluation and modification of existing Development Plan, preparation of Regional Development Plan, Monitoring and Enforcement of various schemes such as Integrated Development Plan of Small and Medium Towns (IDSMT) and Urban Infrastructure Development scheme for Small & Medium Towns (UIDSSMT).

The Constitution (74th Amendment) Act, 1992 provides a basis for the State Legislatures to transfer various responsibilities to ULBs and to strengthen municipal-level governance. The Twelfth Schedule of the CAA74 has listed 18 functions and responsibilities to local bodies which include urban planning including town planning.

While in most other states the municipal corporations prepare their own master plan, often in coordination with the development authorities, in Madhya Pradesh the responsibility of preparing master plans and the allied development control regulations rests with the State.

The development authorities are then responsible to implement it on ground. In this regard there is very little role for the municipal corporations in the visioning and master planning of cities.

Also the state level nodal agencies for land use planning (H&E D) and transport planning (UADD) are different in MP. With this being the case, it is very difficult to integrate land use and transport planning in cities in MP. There is a need for T&CP to devolve urban planning function to ULBs and implementing agencies and amend legal acts and amendments in the state to ensure integrated transport planning in Madhya Pradesh.

Urban Development Authorities

Urban Development Authorities are autonomous bodies setup under the Madhya Pradesh Town and Country Planning Act of 1973 entrusted with the authority to implement the master plans prepared by the T&CP office and catalyze the development of infrastructure in cities in MP. Development authorities are responsible for regulating development in cities and hence also approve institutional, residential and commercial projects proposed by private developers.

Besides laying the basic transport infrastructure in a city as per the master plan, development authorities also take up large scale housing projects on their own as well as are involved in planning, designing and construction of other development projects in the cities. The development authorities are required to be self sufficient without any state support. They raise their own money by sale of plots as well as by construction of commercial buildings and leasing these out to private retailers and corporations. Hence the focus of development authorities in the state is more on development rather than planning. Ensuring livable, healthier and sustainable urban environments in cities through integrated transport and development planning is not currently the prime agenda of the development authorities in MP.

Specific details about the development authorities functioning in the six cities included in this study are presented in chapter 4.

Office of District Collector

District Collector is the chief administrative and revenue officer of a district. The District Collector's office comes under the aegis of the State Revenue Department. District Collectors are appointed by the State Government, from among the pool of Indian Administrative Service (IAS) officers and is a higher ranked officer than the city commissioner in Madhya Pradesh. Other than his/her primary duties dealing with land revenue collection and maintenance of law and order in the district, the district collector is also involved in ensuring road safety and efficient transport in the rural as well as urban areas in the district. In Madhya Pradesh, the district collector is the chairman of the Traffic Advisory Committee constituted under the Motor Vehicles Act and is the decision making authority regarding transport infrastructure and management.

As per the mandate of the 74th Amendment, gradually the current roles and responsibilities of the Collector in the urban transport sector should be devolved to the respective City Commissioners.

State Traffic Police, Home Department

Traffic Police is also a state function in MP and is outside the authority of the Municipal Commissioner. Under the state home department, the police department in MP operates in a district level setup and hence works more in close coordination with the District Collector. The Traffic Police come under the police department of each district which is further assigned urban and rural areas.

In urban areas, the traffic police is primarily responsible for traffic management including the monitoring of traffic signals at intersections and ROW enforcement to ensure road safety and promoting organized movement of vehicles. Hence by default the towing away of illegally parked vehicles in the ROW becomes a traffic police function in MP. Discussions with police department staff in MP revealed that there is a shortage of qualified and trained Traffic Police to bolster enforcement actions in cities.

Role of Municipal Corporations in Urban Transport

The Urban Local Bodies must play a key role in urban transport management in cities because they are the closest to the communities and have a mandate to ensure that their cities are healthy and sustainable.

The NUTP and JNNURM advocates for a stronger role of the urban local bodies in the planning and management of urban transport infrastructure in cities. In view of the existing situation where most ULBs exhibit limited financial and institutional capacities to deal with urban transport, JNNURM proposes to build financial, managerial and technical competencies in the ULBs through institutional restructuring, capacity building, monetary and non-monetary incentives, and managerial support.

Key Roles and Responsibilities of ULBs in Transport Sector

The enactment of the Constitution (74th Amendment) Act (CAA) in 1992 was an important milestone towards strengthening municipal governance. The CAAs focus is to improve the performance ability of ULBs, so that they are able to discharge their duties efficiently.

The National Institute of Urban Affairs (NIUA) conducted a study in 2007 to review the implementation status of selected mandatory discretionary provision of the CAA. The findings revealed that in most states there is full compliance in respect to some provisions such as constitution of three types of ULBs, reservation of seats, and constitution of SFCs. However only a few states confirm to other provisions such as constitution of Wards Committees and District Planning Committees. The twelfth schedule of the 74th constitutional amendment delineates eighteen essential functions including urban planning, roads and bridges, provision of urban amenities and facilities such as parks, parking lots and streetlights. It is clear that the ULB has the mandate to manage certain aspects of urban transport but as a comprehensive sector, urban transport is not the responsibility of the ULBs as per the current legal framework of India.

The Ministry of Urban Development (MoUD) released the Model Municipal Law (MML) of India in October 2003 with an objective of helping state governments implement in totality the provisions of the 74th amendment. The Model Municipal Law identifies the following two areas in the realm of urban transport as part of the obligatory duties of ULBs:

- Construction and maintenance of roads, footpaths, pedestrian pathways, transportation terminals, both for passengers and goods, bridges, over-bridges, subways, ferries, and inland water transport system.

- Transport system accessories including traffic engineering schemes, street furniture, street lighting, parking areas, and bus stops.

The provision of public transport in a city is listed as a discretionary function of the ULBs. The MML also delineates provisions for formation of a Municipal Streets Technical Committee within the corporation with the purpose of ensuring the expeditious, convenient and safe movement of traffic, including pedestrian traffic, and suitable and adequate parking facilities on and off the public streets.

It is the responsibility of the ULB to ensure provision on footpaths on all roads (within a reasonable time, and subject to the availability of resources). The ULBs also and also holds the power to prohibit or regulate vehicular traffic in any public street. (Ministry of Urban Development, Government of India, 2003)

Some states in India have revised their municipal acts based on the Model Municipal Law. The Madhya Pradesh Municipal Corporation Act was established in 1956 and later amended in 1997. The matrix on the following page compares obligatory and discretionary functions related to urban transport in MP and Gujarat which were the two states in which this study was undertaken.

Obligatory and Discretionary functions of ULB in Urban Transport

	Bombay Provincial Municipal Corporations Act 1949		Madhya Pradesh Municipal Corporation Act, 1956	
	Obligatory Functions	Discretionary Functions	Obligatory Functions	Discretionary Functions
Urban Planning and Development				
Urban planning including town planning		●		●
Regulation of land use and construction of buildings;		●		●
Street Infrastructure				
Laying out whether in areas previously built upon or not, new public streets, and acquiring land for that purpose		●	●	
Construction, maintenance, alteration and improvement of public streets, bridges, sub-ways, culverts, cause-ways and the like;	●		●	
Removal of obstructions and projections in or upon streets, bridges and other public places;	●		●	
Planting and maintenance of trees on road sides and elsewhere		●		●
Lighting of Public Streets	●		●	
Public Transport				
Construction, purchase, organization, maintenance or management of light railways, tramways, trackless trams, or motor transport facilities for the conveyance of the public or goods within or without the City;		●		●
Traffic Management				
Provision of traffic signs		●		●

The above table indicates that urban transport and planning as a comprehensive sector is not included as a mandatory subject in either in Madhya Pradesh or Gujarat. Both these acts have not yet been amended to include the provisions of the 74th Amendment. In Gujarat the urban planning responsibility is provided to the development authorities under the Town Planning Act.

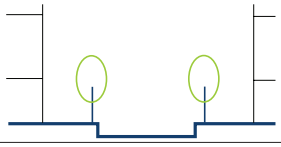
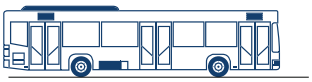
The BPMC act does indicate public transport as a discretionary function of the ULBs. The Madhya Pradesh Municipal Corporation Act, 1956 however does not include public transport or provision of facilities such as footpaths even as discretionary functions of the ULBs.

Implementing Sustainable Transport Gap Analysis

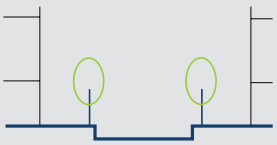
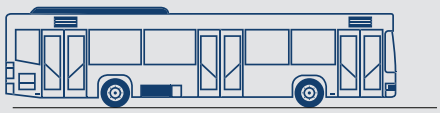
Once various departments involved in the planning and implementation of urban transport in MP were identified a gap analysis was conducted to assess how successful a particular authority/ department has been in implementing sustainable transport projects and policy reforms that are within its domain.

The gap analysis was primarily conducted based on review of existing documents, field visits, interviews with administrative and technical staff and UMC's understanding of sustainable transport. The following six broad principles of sustainable urban transport that are relevant for medium sized cities in India were used for the assessment.

Sustainable Transport Principles

1		Design and construction of "Complete Streets" that are walking and cycling friendly
2		Create dense, inter-connected street networks that enhance accessibility
3		Ensure efficient use of ROW through traffic management and organized and paid parking
4		Support High Quality Public Transport which is reliable, comfortable and frequent
5		Maintain compact city footprint by facilitating public transport oriented development
6		Strengthen and improve intermediate public transport for last mile connectivity

The following table compares sustainable transport actions against their successful implementation by concerned agencies.

Principle	Actions
 **Design and construction of "Complete Streets"**	Establishing Design Guidelines and Standards Design and construction of streets with quality pedestrian and cycling infrastructure Upkeep, maintenance and upgradation of city streets
 **Connected street grid that enhances accessibility**	Planning Macro level street grid and major transport corridors Micro level Planning and delineation of a dense and connected street network Implementing the master plan and street grid
 **Efficient use of ROW through parking management**	Managing Traffic flow and ensuring road safety Traffic Advisory & Coordination Formulate Parking Policy with a focus on parking management Removing street encroachments and implementing paid parking
 **High quality, reliable and frequent public transport**	Procurement and regular renewal of Bus Fleet to meet demand Management of Bus Operations to ensure frequent and reliable service Construction and maintenance of bus stops, depots and terminals Route Planning
 **Compact city and Transit Oriented Development(TOD)**	Delineate Mass transport corridors Formulate TOD Policy MP and DCRs to align densities and parking requirements to public transport
 **Strengthen and improve intermediate public transport**	Formulate PT and IPT Policy Encourage use of safer and greener vehicles Regularization of routing and stops Regularize Cycle Rickshaws

Green Indicates: Realized Yellow indicates: Partially Realized Red indicates: Not Realized

Responsible Authority	Analysis
State Urban Administration and Development Department (UADD)	
Municipal Corporation	
Development Authorities	
Municipal Corporation	
TCPO, Department of Housing & Environment	
Urban Development Authorities	
Urban Development Authorities	
Traffic Police, City Police Commissionerate, State Police	
District Collector's Office, Revenue Department	
State Urban Administration and Development Department (UADD)	
Municipal Corporation	
Municipal Corporation	
Bus Company, SPV	
Municipal Corporation	
Bus Company, SPV	
Municipal Corporation	
Development Authorities)	
State Urban Administration and Development Department (UADD)	
TCPO, Department of Housing & Environment	
State Urban Administration and Development Department (UADD)	
Regional Transport Office	
District Collector's Office, Revenue Department	
Municipal Corporation	

IMPROVING GOVERNANCE STRUCTURES

Proposed Institutional Structure by MOUD

The multiplicity of institutions involved in urban transport at the ULB, State and National level is now well understood. To coordinate and integrate the planning, delivery and management of urban transport, the National Urban Transport Policy calls for setting-up of a Unified Metropolitan Transport Authority (UMTA) in all metropolitan cities with a population of 10 lakh and above. NUTP also encourages the setting up of professional bodies (SPV) that have representation from all major operators and stakeholders with capacity to make scientific assessment of all operational aspect for comprehensive public transport. Various cities such as Mumbai, Bangalore, Delhi and Chennai have initiated the process of establishment of a transport planning and coordinating authority on the guidelines of UMTA.

Since there is no clear directive on the organizational structure and powers and authorities of UMTA, cities are taking different approaches that suit their context and needs. While some cities like Chennai have drafted new legislations to support the formation of a legal body, others are envisioning UMTA as a transport committee which meets once in a while to make decisions on pressing transport issues in the city and the region.

In cities with population between 5 to 10 lakh, MOUD recommends the formation of Urban Transport Cells under the urban local body. The transport cell will be responsible for urban transport functions, as defined by the Urban Local Body.

Some states like Karnataka have also formed state level bodies to provide policy guidance on urban transport. The Directorate of Urban Land Transport (DULT) has been set up by the Government of Karnataka under the Urban Development Department with objective to coordinate planning and implementation of Urban Transport projects and programs.

UMTA in Madhya Pradesh

The UADD department has formulated a draft policy for the establishment of Urban Metropolitan Transport Council (UMTC) and Dedicated Urban Transport Fund(DUTF) at the state and the city level. The policy suggests that the UMTC be formed in the state through an executive order. The State UMTC will comprise of a governing and executive council. The city level UMTC will be an empowered council with the power and authority to take transport related decisions. The suggested members of the city level UMTC include Divisional Commissioner, Mayor, Commissioner, CEO of Development Authority, Collector, representatives from Traffic Police, State representative and representatives from NHAI, civil society and resident welfare organizations among others.

In addition to the UMTC the policy suggests the formation of a State Urban Transport Technical Planning, Monitoring and Evaluation Cell (Technical Cell) to provide technical advice to the state and city level UMTC. The technical cell staff should comprise of urban transport planner, transport expert, traffic advisor cum expert, advisor finance, advisor rolling stock, Manager Administration & Personnel, IT expert etc.

Strengthening role of Urban Local Bodies in Transport

ULBs have a mandate to ensure health and safety of their residents and it is imperative that they take responsibility for planning and managing urban transport integrated with land development. MP state government should empower the ULBs to address urban transport functions such as street design public transport and parking enforcement. We suggest the following strategies to gradually build the technical and financial capacity of ULBs to more efficiently handle urban transport functions in the future:

Transport Cell in ULBs

The Urban Transport cell should be an independent unit within the ULBs with dedicated transport staff. Gwalior Municipal Corporation has constituted a traffic cell within its Public Works Department (PWD) department but its responsibilities are largely related to construction and maintenance of road infrastructure such as medians, footpaths and dividers.

The urban transport cell should have a larger role in comprehensive transport planning and implementation. Following is a representative sample of the roles and responsibilities of the transport cell:

- Creating and maintaining an updated transport database for the city which includes inventory of road infrastructure including ROW, pavement and footpath condition, parking spaces, mode share, traffic and pedestrian volumes on various streets and intersections etc.
- Coordinate with the Bus SPV (if present) for bus procurement, route planning etc. Provide technical support to bus SPV to carry out various surveys for demand analysis.
- Coordinate with other stakeholders in urban transport including RTO officer, Traffic Police etc. to ensure proper traffic management in the city.
- Coordinate the preparation of CMP and other urban transport related reports and publications.
- Provide technical guidance to PWD engineers on design and construction of pedestrian and cyclist friendly streets.
- Plan for sustainable transport projects such as pedestrianization; inter modal integration and parking management.
- Manage the contracting and monitoring of consultants for urban transport projects.
- Manage the urban transport component of JNNURM funding
- Run IEC campaigns to promote use of public transport and enforcement drives to remove permanent and temporary encroachments from pavements and footpaths.

Augmenting Staff

The working group on Urban Transport for the 12th five year plan recommends the following number of staff in the urban transport sector:

Suggested Staff Norms for Urban Transport Sector

S. No.	Population Range (in million)	No. of cities (2017)	Assumed no. of staff per city	Estimated cost per city for 5 year (Rs. in crore)	Total no. of staff	Total cost for 5 year (Rs. in crore)
1	> 10	4	20	15	80	60
2	4 to 10	10	16	13	160	130
3	1 to 4	42	12	10	500	420
4	0.5 to 1.0	125	5	3.5	625	435
5	< 0.5	425	3	2.0	1275	850
	Total	606			2640	1895

The technical staff in the urban transport cell shall comprise of one senior transport planner/engineer and two junior planners with knowledge and training in carrying out transport surveys, drafting transport plans and preparing basic reports.

It is understood that there is a shortage of staff in the cities in Madhya Pradesh and it will take a while before the transport cell is established and new staff is hired as part of that. This study is an exercise in assessing the capacity of existing staff in the urban transport sector and identifying training needs for the existing staff. Chapter three provides the result of the capacity assessment carried out across six cities in Madhya Pradesh. Chapter four identifies key training needs for the existing staff to equip them with better knowledge and skills to perform their duties and plan and implement urban transport projects that are in compliance with NUTP.

TRAINING NEEDS ASSESSMENT

The capacity assessment of urban transport staff was carried out in six cities of Madhya Pradesh. The results of the assessment of summarized in this chapter. Detailed city wise assessments are presented in later sections of this chapter.

Summary of Madhya Pradesh

Educational Qualifications

The following table presents a summary of educational qualifications of staff employed in the urban transport sector in ULBs:

Educational Qualifications of Urban Transport Staff in Madhya Pradesh

Number of Staff Interviewed	77
Number of staff with Master Degree	26
Number of staff with Bachelors Degree	26
Number of staff with Diploma	25
Number of staff with education in Transport Planning	1
Number of staff who have received training in Urban Transport	26

Following are the key observations related to staffing and educational qualifications in cities in MP:

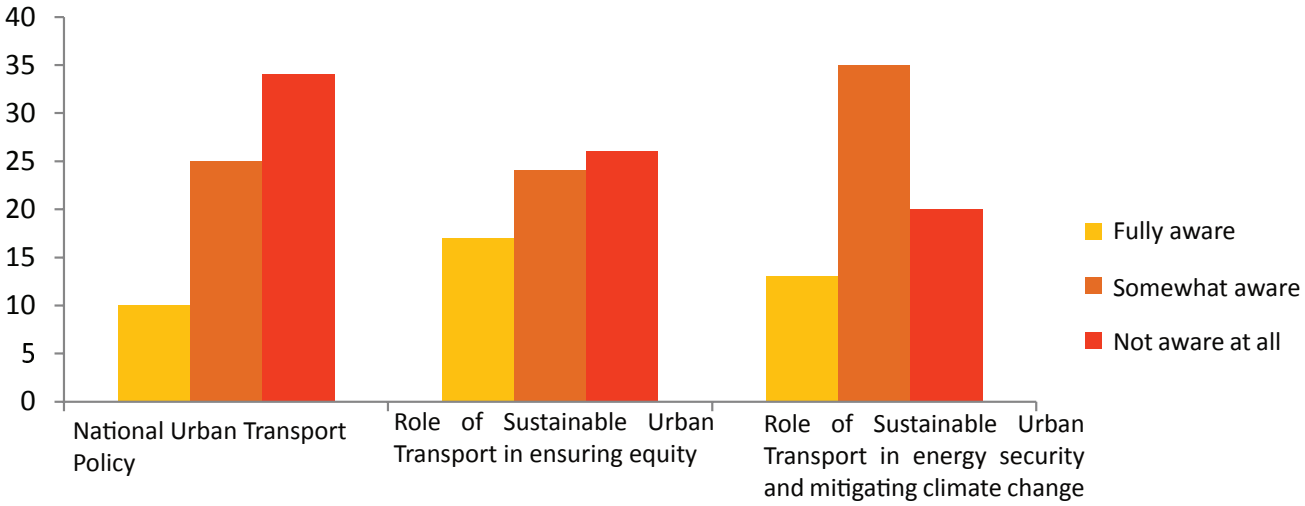
- There is a shortage of staff in all municipal corporations with current staff holding multiple positions across sectors. Except Gwalior, no other city has a dedicated urban transport cell/ department.
- Only one staff member has had formal education in transport planning/ engineering.
- Most staff working in the urban transport sector has received education in the field of civil engineering and lacks the skills and aptitude to solve complex urban transport problems.
- There is little interaction between the municipal corporation and development authority staff. There are few inter departmental meetings and cross trainings.
- There is a lack of exposure among middle management and junior cities in smaller cities regarding current trends, policies and new ideas in urban transport. Few have received any training in sustainable urban transport.

Awareness about Sustainable Transport

The following table and chart presents awareness on sustainable transport concepts and principles among administrative and technical staff in cities in MP

Awareness about Sustainable Transport in MP

	Number of Staff			
	Fully aware	**Somewhat aware**	**Not aware at all**	**No Answer**
National Urban Transport Policy	10	25	34	8
Role of Sustainable Urban Transport in ensuring equity	17	24	26	10
Role of Sustainable Urban Transport in energy security and mitigating climate change	13	35	20	9
Concept of "Complete Streets"	9	33	30	5
Managing urban bus services	14	14	29	20
Parking Management and Pricing	15	35	15	12

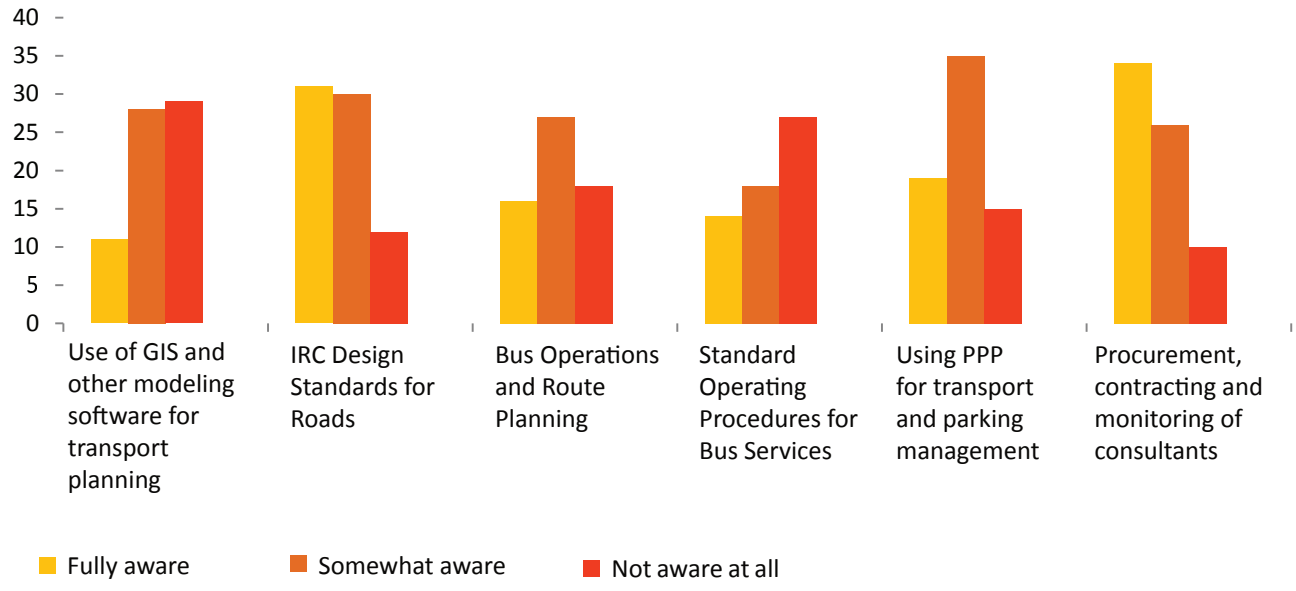


Capacity in planning and implementing urban Transport

The following table presents the capacities among staff in MP to successfully implement urban transport projects.

Capacity in planning and implementing urban transport

	Number of Staff			
	Fully aware	Somewhat aware	Not aware at all	Not relevant
Use of GIS and other modeling software for transport planning	11	28	29	9
IRC Design Standards for Roads	31	30	12	4
Bus Operations and Route Planning	16	27	18	16
Standard Operating Procedures for Bus Services	14	18	27	18
Using PPP for transport and parking management	19	35	15	8
Procurement, contracting and monitoring of consultants	34	26	10	7



Key Findings from MP:

Following are the key findings from the TNA interviews:

- Understanding about NUTP is limited.
- Senior administration staff in all cities is aware and interested in implementing sustainable transport. There is a need for well qualified and trained technical staff to help implement the right projects on ground.
- Public transport has caught interest in the state because of buses made available through JNNURM funds.
- Lack of awareness and political will in improving streets to make them pedestrian and cycling friendly.
- Comprehensive Transport planning is close to nonexistent. Transport infrastructure development and improvement is conceived and implemented on a project by project basis.
- PWD department in all cities, responsible for street design and construction has little interest and capacity in designing complete streets. There is a need to revamp and reorient the department and bring it up to speed with the current thinking and policies on urban streets and transport.
-
- Smaller cities lack advisory and technical support in urban transport. The state UADD should focus on building capacities in these cities through more frequent workshops and exposure visits.

Training Needs

Based on the questionnaire survey and interviews with ULB and Development Authority staff in MP, following are the key observations regarding training needs in the state. Detailed training needs for the cities as well as a comprehensive list of knowledge areas for the whole state are presented in the following chapters of this report.

- Four cities in MP have received JNNURM funding for procuring buses. Buses have been procured and most cities have formed a SPV to manage the bus operations. Yet the cities are struggling to manage urban bus services and facing common challenges of retaining private contractor for operations, fleet maintenance and management and competition from the informal IPT systems. Managing urban bus services has emerged as the most pressing training need in the state.

- Redesign and redevelopment of urban streets to make them safer and comfortable for pedestrians and cyclists does not seem to be a current priority among the management and technical staff.

- There is a lack of a vision and need for comprehensive planning for urban transport in MP cities.

- Administrative and senior management staff in most cities is interested in implementing sustainable transport needs in the cities. Yet realization of these projects is rare and slow which highlights the need for handholding support to build technical capacity in urban transport in cities.

- Several sustainable transport initiatives have been thwarted or delayed because of lack of political support. There is a need to educate the elected officials on the need for sustainable urban transport in their cities. Simultaneously the administrators and senior management staff should be trained in working with elected officials and building public support for urban transport projects.

- Training strategies for city managers in MP include classroom trainings, interactive workshops, exposure visits, peer to peer learning across cities in MP and hand holding support in key areas of transport planning and management.

- Since there are multiple agencies involved in the delivery and management of urban transport services in the state, there is a need for frequent cross trainings and multi-stakeholder workshops focussing on city issues.

- Staffs in small cities have several questions and issues in the management of urban transport in their cities causing unnecessary hindrances and delays in the projects. Many of these issues could be easily resolved through timely advisory and technical support. The state UADD could help setup an Urban Transport Resource Centre headed by the OSD transport and supported by a transport engineer/planner to address such issues in smaller cities.

BHOPAL

Context

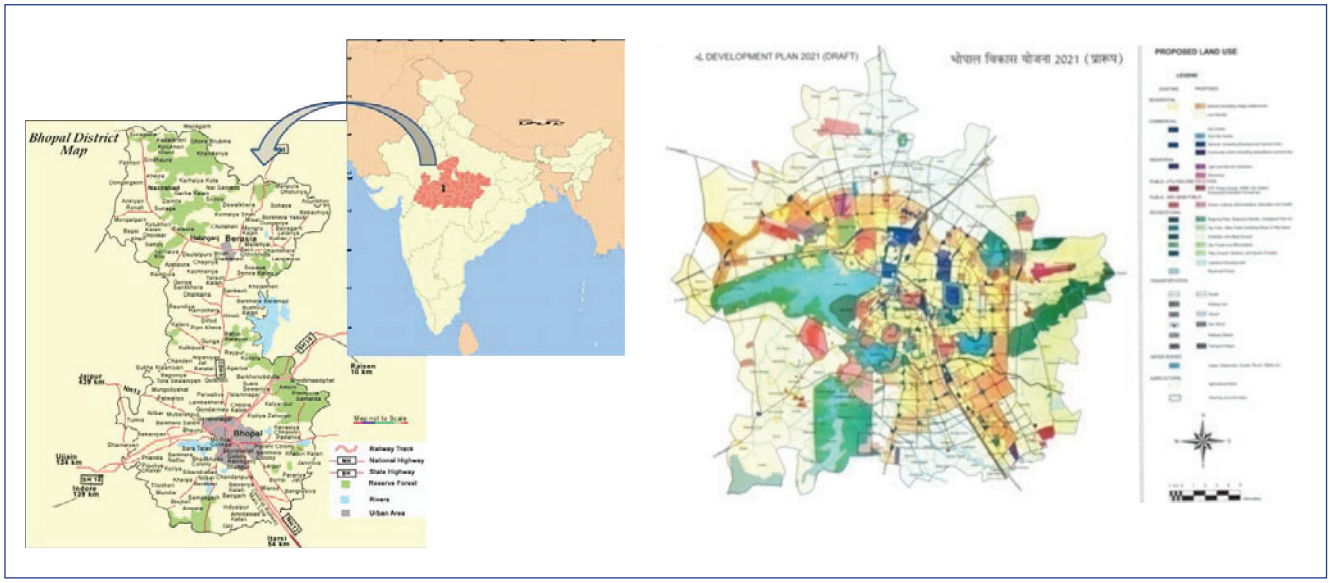
Bhopal is the capital city of Madhya Pradesh. The city was initially founded in the 11th century by Raja Bhoj and was established again and fortified in the 18th century by Dost Mohammed Khan, a chieftain of Aurangazeb. The city remained a capital of a feudal state till it was merged in the Indian union in 1948. Post independence, Bhopal was declared the capital of newly reorganized State of Madhya Pradesh in 1956. During the same time, the Industrial Township of Bharat Heavy Electricals Limited (BHEL) was also established 3 km east of the then city boundary which contributed substantially to the population and economic growth of the city over the next few decades.

Today the city has a population of over 17 lakh and is the sixteenth largest city in India. It serves as the principal city in the Bhopal district which is more than 80% urbanized. With a number of educational institutes and other large organizations, Bhopal is a major institutional hub in the region.

The area within the corporation boundary is 285 sq km. The planning area for Bhopal metropolitan region extends beyond the municipal boundary and includes nearby towns and villages. The Bhopal Development Plan (prepared in 2005) which is the statutory master plan for the region charts the growth of the city till year 2015. The expected population in the region by this time is 25 lakh.

Because of the various natural features in the city including hills and lakes, the city is organized into different enclaves including BHEL, old city, Capital city and Bairagarh with sparse growth in between and connected by a limited arterial network. In recent times the city has grown more towards the southeast direction along Hoshangabad Road. The new areas being developed in the periphery lack infrastructure such as water supply, sewerage and roads.

Bhopal, Location and Future Growth



Local Governance

"Majlis-e-intezamia" was the name of first municipal body, which came into being in 1907 in the erstwhile Bhopal estate. A Municipal Board was constituted in the city for the first time in 1952 which was later upgraded to a Municipal Council & an IAS officer was appointed as Chief Administrator. In 1983 the Bhopal Municipal Council got the status of a Municipal Corporation. The functioning of the Bhopal Municipal Corporation (BMC) is governed by the Madhya Pradesh Municipal Corporation Act, 1956.

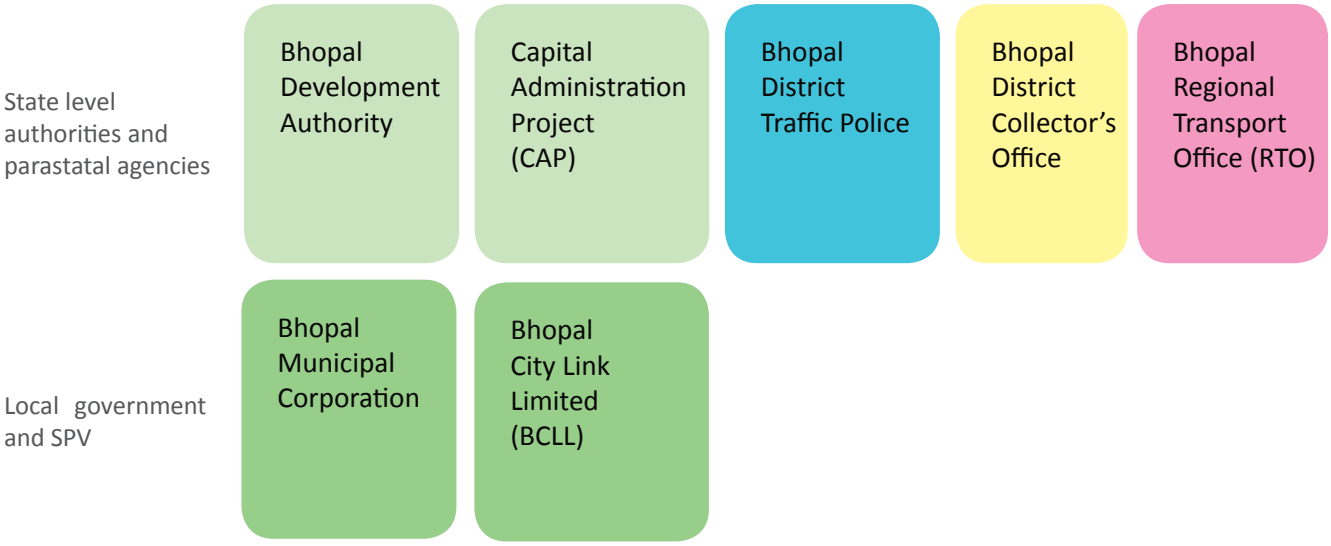
Currently BMC has 66 wards each represented by a democratically elected ward councilor. The Mayor is also elected directly by the citizens of Bhopal and is the head of the political wing. The Corporation is governed by the Mayor-in-Council. There are also advisory other committees in BMC to advice in the affairs of various departments such as housing, health, planning etc. There is no advisory committee on urban transport. Each advisory committee comprises a chairman and 8-9 councilors.

The Executive Wing of BMC is headed by the Commissioner and is responsible for the day to-day functioning of the Corporation. To ensure efficiency and effectiveness in municipal governance, the whole of city area is organized in fourteen zones each managed by a zonal commissioner. There is a wards committee constituted in each zone comprising of councilors of wards that fall in the zone. The wards committee is entrusted the responsibility of development and maintenance functions within their territorial area.

City level Departments and parastatal agencies in Urban Transport

While there is no single agency or department in charge of all urban transport functions in the city, the following departments in BMC and other city level bodies are responsible for managing one or more aspects of urban transport in the city. The roles and responsibilities of the Traffic Police, RTO and Collectors office have been explained in the institutional structures section.

City level Departments and Parastatal Agencies in urban transport, Bhopal



Bhopal City Link Limited (BCLL)

Bhopal City Link limitd (BCLL) is the Special Purpose Vehicle (SPV) established for managing public transport in the city in 2006 with Bhopal Municipal Corporation and Bhopal Development Authority as stakeholders. The management of the company was entrusted to the Board of Directors headed by the district collector. In 2008, the BMC was handed over the management control of BCLL with the Mayor as the chairman and the city commissioner as the managing director.

BCLL manages the bus operations in Bhopal on a PPP basis with the following stakeholders playing key roles:

- Engineering Project Cell, BMC: responsible for development and monitoring of the public transport infrastructure
- Prasanna Purple Mobility Solutions - Private Operator responsible for bus operations
- Urban Mass Transit Company (UMTC)- Private consultant providing advisory and planning support to BCLL.

There are major staffing gaps in BCLL with only one technical staff appointed on a contractual basis. BCLL relies on private consultants for technical support in route planning and rationalization. BMC as well as state officials also currently hold additional positions in BCLL.

Currently there are 150 low floor buses on 8 routes in the city. Three of these routes are proposed as trunk routes with proposed BRT system on these routes.

Organizational Structure of BCLL

PWD Department, Bhopal Municipal Corporation

The Public Works Department (PWD) of BMC is responsible for the construction and maintenance of roads, bridges and other public infrastructure within the ULB limits. There are two chief engineers in PWD each in charge of projects cell and civil cell. The project cell is responsible for new large-scale infrastructure projects which may or may not externally funded. The civil cell is in charge of regular upkeep and maintenance of civil infrastructure in the city and also supports wards offices to discharge their functions effectively. The project cell of PWD is also the responsible authority for the development and monitoring BRT infrastructure in the city.

Other than construction and maintenance of BMC owned roads and provision of street lights, PWD functions include building works maintenance, removal of encroachments and planning and regularization of illegal colonies. The planning and development cell which is responsible for giving building permissions also is part of the PWD department in Bhopal. The total staff of Public Works Department in BMC is close to 500 including technical, administrative and support staff (Bhopal Municipal Corporation, Mehta & Associates, 2005).

Bhopal Development Authority (BDA)

The Bhopal Development Authority was established in 1973 under the Madhya Pradesh Town and Country Planning Act, 1973 by converting the existing City Improvement Trust. BDA is the apex body for planning and co-ordination of development activities in the Bhopal urban area and is primarily responsible for implementing the statutory master plan of Bhopal prepared by the state T&CP office.

The BDA develops new residential areas with the associated infrastructure such as roads in line with the master plan. Once the plots within the residential area are sold, the infrastructure is transferred to the BMC for maintenance. In addition to constructing roads and developing residential colonies, the BDA also develops affordable housing and other residential and commercial projects for sale. BDA has developed some major roads and traffic squares in the city and also is currently a stakeholder in BCLL.

The agenda for BDA is primarily development focused with more importance given to infrastructure development than integrated planning of the city.

BDA is an important stakeholder in furthering the agenda of sustainable transport in Bhopal. BDA through proper planning of residential areas can ensure a continuous, well connected street grid in the city which facilitates easy accessibility. It is also up to the BDA to facilitate the design and construction of complete streets with high quality pedestrian and cycling infrastructure in new areas.

Capital Project Administration (CPA)

In 1956, Bhopal was established as the Capital of newly organized State of Madhya Pradesh. In order to facilitate planned development, beautification and conservation of environment of the State Capital, the Capital Project Administration (CPA) was established under the Housing & Environment Department on the approval of Planning Commission, Government of India. The principal secretary is the chief administrator of the CPA. The key projects and activities undertaken by the CPA include safeguarding the development of land under its jurisdiction, development of parks, preservation of natural features, construction of institutional buildings and development and maintenance of roads.

Transport Profile

The use of personal motor vehicles, especially two wheelers, is expanding rapidly in Bhopal, leading to congestion and rise in pollution. Most streets are ill managed with a high volume of motorized traffic as well, pedestrians as well as haphazardly parked vehicles sharing the limited road space.

Road Infrastructure

Due to its central location in Madhya Pradesh, Bhopal is well connected to other cities in the state and country. National Highway 12 passes through Bhopal which connects it to Jabalpur in the East and Jaipur in the West. National Highway 86 connects Bhopal to Sagar in the East to Dewas in the West. State Highway 17 connects the city with Indore. These national highways also act as the key arterials within the city. The total road length in Bhopal is about 1500 km of which 66% is managed by BMC. CPA, BHEL and BDA are also involved in road construction and maintenance. The road network in old city is dense and heavily used by pedestrians and vehicular traffic alike. The average ROW in city is 21m with a carriageway width of 9m (Bhopal Municipal Corporation, Mehta & Associates, 2005)

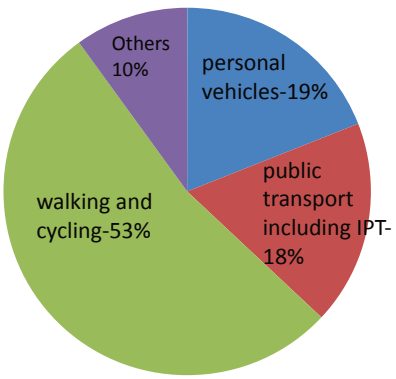
Walking is the preferred mode for short trips in Bhopal, yet most roads in the city have no defined footpaths. Where present, they are not maintained well or are encroached by parked vehicles. Cycling is not as popular in Bhopal because of the undulating topography in the city.

Public Transportation

Public transport demand in Bhopal is largely met by Intermediate Public Transport (IPT) vehicles such as auto rickshaws, minibuses and Tata magic vans. The mini buses and vans are currently being operated by private operators as shuttle services on fixed routes in the city. As per a recent review of public transport system in the city, there are 3000 auto rickshaws, 450 mini buses and 300 tempos plying in the city with a combined ridership of over 3.25 lakh passengers per day. Bhopal has recently initiated an organized bus service with funding assistance from JNNURM. A special Purpose Vehicle (SPV) called Bhopal City Link Limited (BCLL) has been incorporated under the chairmanship of the Mayor to operate and manage the bus system in Bhopal on a PPP mode. BCLL is currently operating 150 modern low floor buses on 8 routes in the city with an average headway of 4 to 8 minutes. All buses are incorporated with a GPS based tracking system and a control centre is currently under construction. BCLL plans to operate 225 buses on 12 more routes in the city.

A BRT is currently under construction in the city which will also be managed by BCLL. Once the bus and BRT routes are integrated, the entire public transport system will comprise BRT on trunk routes connecting major city centers , BCLL buses on standard routes replacing the existing mini buses and complimentary/ feeder routes to the organized public transport served by minibuses and auto rickshaws. BCLL is also planning on providing intercity bus services between Bhopal and Indore.

Modal Share in Bhopal



BRT under construction in Bhopal

An organized bus service has recently been introduced in Bhopal

Parking Management and Pricing

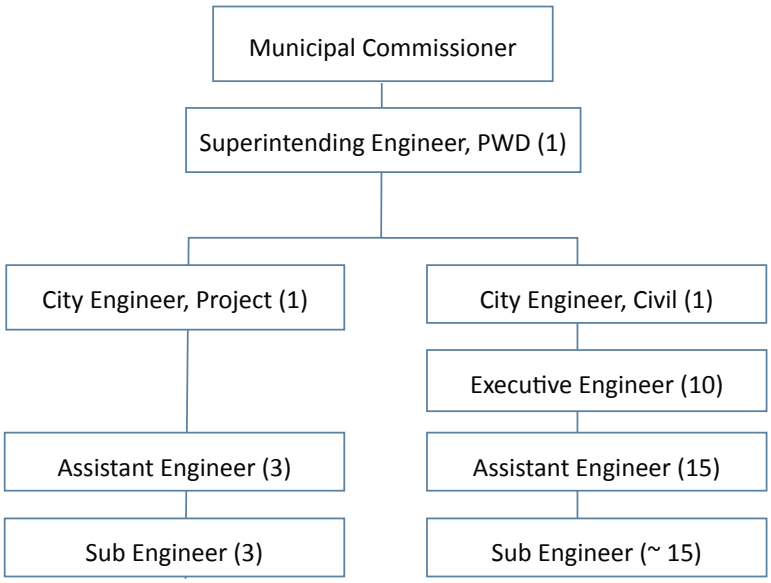
Unorganized and haphazard on street parking along major corridors is a cause of conflict and inefficiencies on the roads in Bhopal. On street parking in the city is not organized or priced. Most vehicles park illegally for free along road sides and encroach upon pedestrian space and footpaths. With limited resources for parking enforcement, traffic police is Bhopal is not able to efficiently manage on street parking. BMC is investigating the possibility of building multi level parking structures in the city property on a PPP mode. Multi level car parks are expensive to build. Unless on street parking is managed and charged appropriately (equal to or more than parking fee in the parking structures), multi level structures fail in attracting on street users to park in the car park. The Parking study currently commissioned by UADD for four cities in MP including Bhopal should investigate on street parking management and pricing in the city.

Capacity Assessment of Technical Staff in Urban Transport

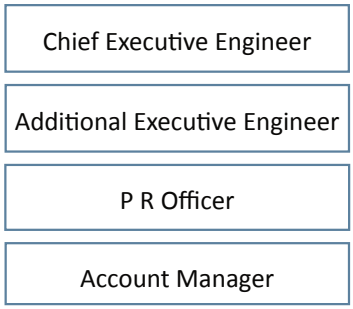
For the purpose of this training need assessment, all existing staff (dedicated and shared) in urban transport within BMC and BDA was identified as below of which select people were interviewed.

Haphazardly parked vehicles

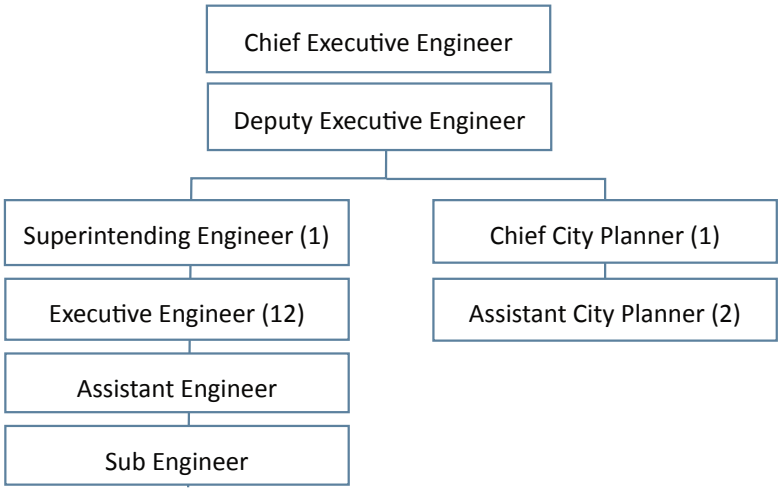
Urban Transport Staff in BMC



Urban Transport Staff in BCLL



Urban Transport Staff in BDA



The following table indicates the educational qualifications of urban transport staff in Bhopal. None of the staff interviewed has had a formal education in transport planning/ engineering or has received any training in urban transport. Most staff has been educated in the field of civil engineering and construction and not equipped with the knowledge or skills to deal with complex urban transport problems. The technical staff was also asked to share their vision for urban transport in Bhopal. Select ideas that were shared are presented in the box below.

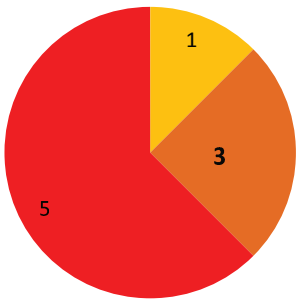
Educational Qualifications of Staff in Bhopal

Number of staff interviewed	8
Number of staff with Master Degree	3
Number of staff with Bachelors Degree	5
Number of staff with Diploma	0
Number of staff with education in Transport Planning	0
Number of staff who have received training in Urban Transport	0

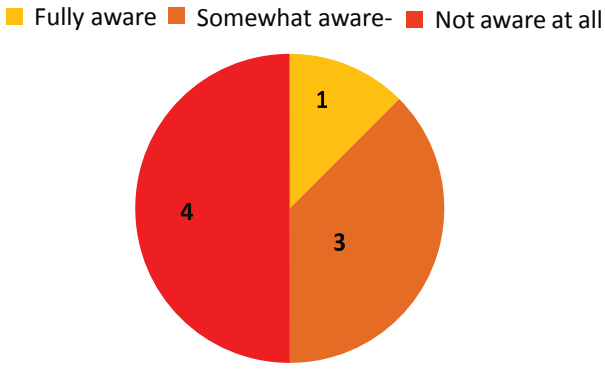
Awareness about Sustainable Transport in Bhopal

	Fully aware	Somewhat aware	Not aware at all	No Answer
National Urban Transport Policy	2	3	3	0
Role of Sustainable Urban Transport in ensuring equity	3	1	4	0
Role of Sustainable Urban Transport in energy security and mitigating climate change	1	2	5	0
Street Design Guidelines on design of "Complete Streets"	1	4	3	0
Guidelines by MoUD and other organizations on managing urban bus services	3	1	4	0
Parking management and pricing	1	6	1	0

Awareness about Sustainable Transport among Bhopal Staff



Aware about the role of sustainable urban transport in energy security and mitigating climate change



Awareness about any manuals or literature on managing urban services in a city

Urban Transport should be passenger and pedestrian friendly and self sustainable. All modes of urban transport in Bhopal should be organized under one umbrella"

There is a need for wider roads to meet the transport requirement for next 50 years. Bypass roads should be planned at the periphery of planning area

Need for wide roads and ring roads in the outer periphery to solve congestion problems in the city

Road based public transport such as BRT should be operated on roads with six or more lanes. Flyovers and overbridges should be constructed in old city area

Public transport system should be given more priority

There should be adequate foot over bridges in the city to ensure safety of pedestrians

These views expressed by the technical staff bring to light the following concerns regarding understanding of sustainable transport in Bhopal*:

- There is an overall understanding and agreement among staff regarding the need to augment and improve public transport systems in the city.
- There is a fair understanding regarding the need for traffic planning and management and formation of a consolidated authority to manage all public transport systems in the city.
- Understanding of sustainable transport concepts is limited to one or two administrators and senior engineers in the city. Most other staff primarily views urban transport as augmenting road infrastructure
- Little understanding and acceptance on regulating private vehicle use. Increasing motor vehicles perceived as a sign of growth and prosperity and not a problem.
- Traditional engineering approaches to solving congestion such as road widening and construction of flyovers are more popular. Public transport such as BRT is perceived more as an infrastructure project and not an alternative, more sustainable approach to transport.
- Solutions such as foot over bridges and subways do not reflect a people friendly approach to ensuring pedestrian safety.
- Need for complete streets with equitable allocation of right of way and safe and comfortable spaces for walking and cycling not on the radar. Very little focus on street design.

*(*Majority of the technical staff interviewed in Bhopal belongs to the BDA. Hence the views expressed here, more accurately reflect the understanding and opinion of the development authority)*

The following table presents the capacities among staff in Bhopal to successfully implement public transport projects.

Capacity in Planning and Implementing Sustainable Transport in Bhopal

	Fully aware	Somewhat aware	Not aware at all	Not relevant
	Fully aware	Somewhat aware	Not aware at all	Not relevant
Use of GIS and other modeling software for transport planning	1	3	4	0
IRC design standards for roads	3	3	2	0
Bus operations and route planning	4	2	2	0
Standard operating procedures for bus services	4	0	4	0
Using PPP for transport and parking management	3	4	1	0
Procurement, contracting and monitoring of consultants	5	1	1	1

Bhopal has received JNNURM funding to implement bus services and BRT in Bhopal. The BRT project in Bhopal is lagging behind its timeline because of several issues including lack of an integrated approach to transport planning, delays in land acquisition, improper corridor and station design and lack of proper parking enforcement along the corridors. All these issues highlight the gaps in capacity to handle such large scale infrastructure projects. A self assessment done by staff indicated in Table 9 also indicates lack of capacity especially in the areas of transport planning and managing bus operations.

Based on the questionnaire survey, interviews and UMCs assessment of staff capacities, the following training needs in sustainable urban transport are identified for Bhopal:

In addition to identifying knowledge and skill gaps in urban transport, the questionnaire based assessment also identified key organizational and management training needs. The top three short term needs requiring immediate training as identified by the Bhopal staff are as follows:

- **Proposal/project preparation**
- **Leadership & Team Building**
- **Information, education and communication**

Top Training Needs for Bhopal

Training Area	Target Audience	Training Methodology
Improving performance of BRT including future planning and design	Technical Staff, BCLL	Field visits and facilitated interactions with experts and consultants
Managing Bus Operations Contracts	Technical Staff, BCLL	Classroom training on writing contract documents and dissemination of sample contracts
Street Design with a focus on pedestrian comfort and safety	Technical Staff, BMC, BDA	Hands on design workshop accompanied with field visit. Dissemination of street design guidelines.
Improving Institutional arrangements for urban transport	Senior Administrators	High level meeting with senior officers to disseminate best practice and set the vision for Bhopal

INDORE

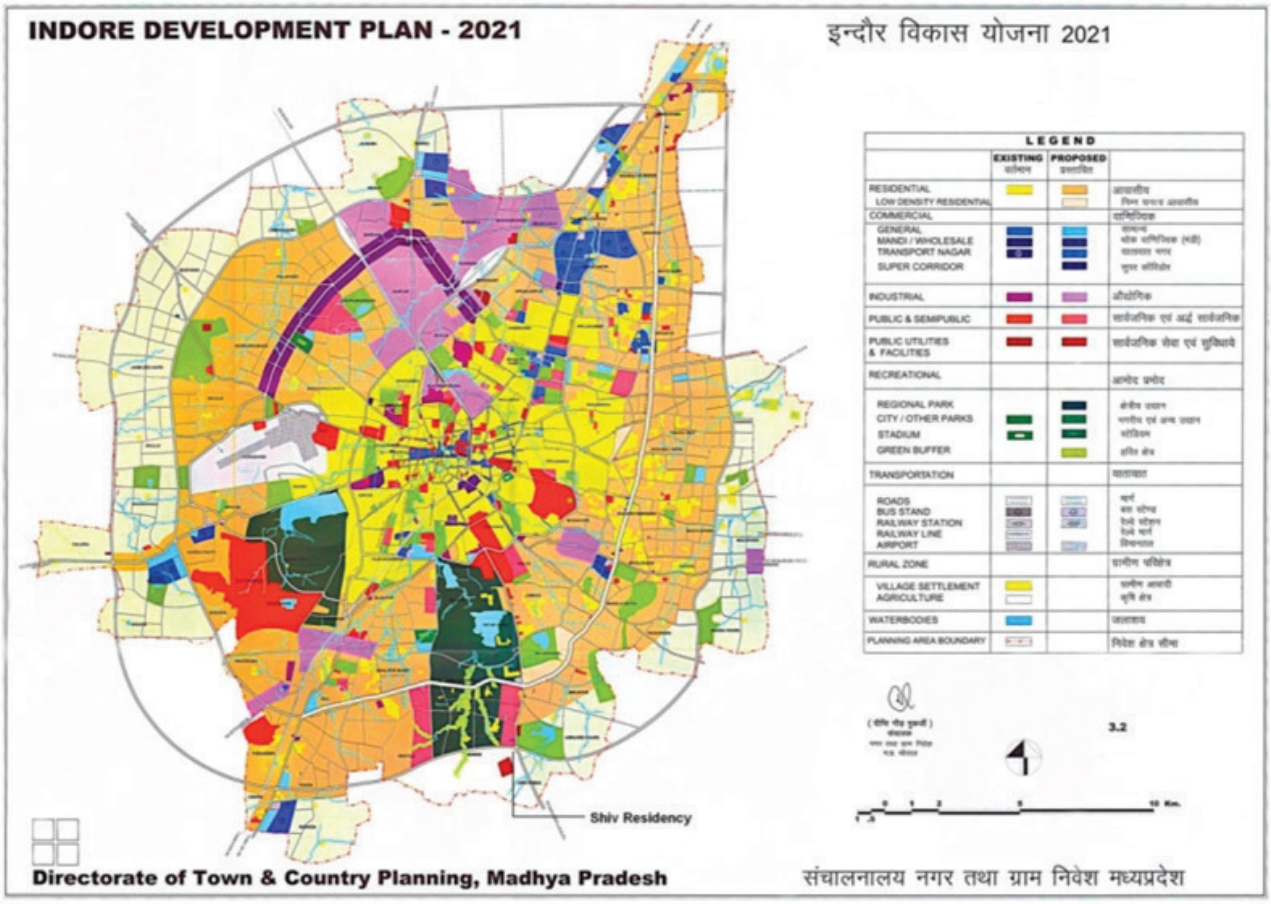
Context

Indore is a major commercial and industrial hub for Madhya Pradesh and is the largest city in the state. The city is situated in the fertile Malwa plateau on the banks of the Saraswati and Khan rivers. The Indore princely state was ruled by Holkar dynasty for over 220 years (1733-1818), under whose rule the city grew rapidly as a trade centre (IHCN-F). On 16 June 1948, the Holkar State was officially merged with the Indian republic. The district of Indore became one of the 15 districts into which the state was then administratively divided followed by the reorganization of and formation of a new state, Madhya Pradesh in 1956 (IHCN-F).

Today Indore is seen as a rapidly growing city and an important educational, medical, industrial and trade hub in the country. Indore is the most populated urban agglomeration in central India with a population of more than 21 lakh. The population within the city limits is close to 19 lakh and has shown a decadal growth rate of 32.93% from 2001 to 2011 (Census , 2011)

The total area of Indore metropolitan region is 504.87 sq km, out of which 130.10 sq. km lies within the Indore Municipal Corporation. The remaining area consists of 4 small towns and 90 villages in the periphery of the city.

Statutory Master Plan for Indore, 2021



Local Governance

Indore Municipal Corporation (IMC) was established in 1956 under the Madhya Pradesh Municipal Corporation Act, 1956. The administration of all urban matters including education, safety, water supply, sanitation and public infrastructure within the Municipal Corporation limits is under the jurisdiction of the IMC.

The Indore Municipal Corporation is divided into 69 wards each with democratically elected councilors. These councilors headed by the Mayor constitute the city council. The citizens of Indore directly elect the Mayor. The deliberative wing of IMC also comprises 2 Members of Parliament and 5 members of State Legislative Assembly. There are several advisory committees each comprising a chairman and 9 councilors related to various municipal functions such as housing, education, planning, health etc. There is currently no advisory committee constituted for urban transport in IMC.

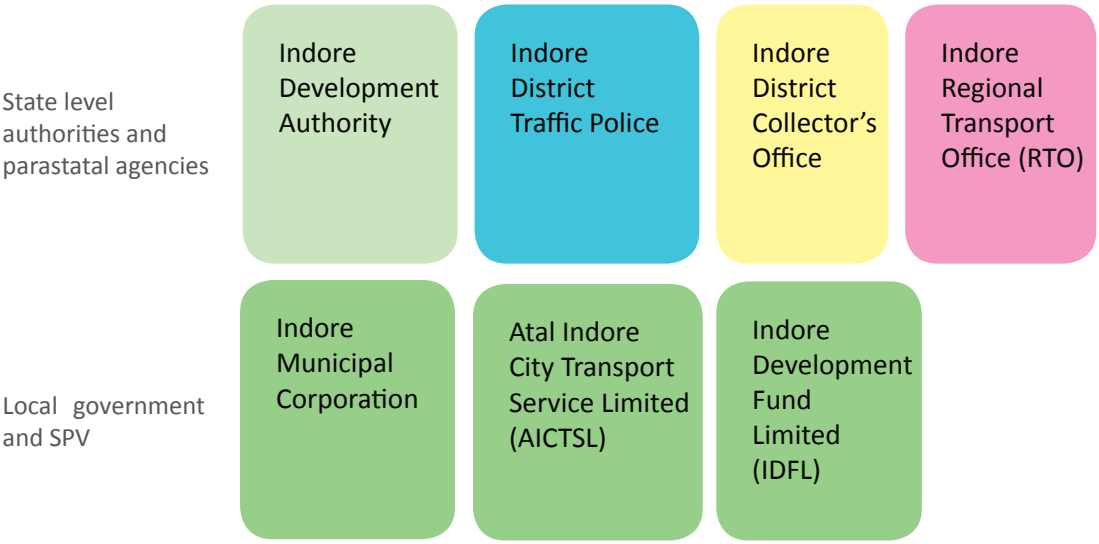
The Municipal commissioner is the head of the executive wing of the corporation. Administratively the city is divided into 12 zones each comprising of 5-7 wards. Each zone is headed by at least one zonal commissioner.

The decentralization of the municipal functions happens through the ward committees comprising the councilors elected from the respective wards. The ward committees are expected to prepare proposals for the financial year in consultation with important stakeholders in their wards and submit it to the commissioner for consideration.

City level Departments and Para Statal agencies in Urban Transport

While there is no single agency or department in charge of all urban transport functions in the city, the following departments in IMC and other city level bodies are responsible for managing one or more aspects of urban transport in the city. The roles and responsibilities of the Traffic Police, RTO and Collectors office have been explained in 1.7. While there is no single agency or department in charge of all urban transport functions in the city, the following departments in IMC and other city level bodies are responsible for managing one or more aspects of urban transport in the city. The roles and responsibilities of the Traffic Police, RTO and Collectors office have been explained in earlier sections of the report.

City level Departments and Parastatal Agencies in UT, Indore



Public Work Department (PWD), IMC

The Public Works Department (PWD) of BMC is responsible for the construction and maintenance of roads, bridges and other public infrastructure within the ULB limits. PWD department of IMC functions under two divisions - the Civil cell and Project cell. Civil Cell is responsible for the day to day maintenance and upkeep of roads and other infrastructure and also assists the zonal level offices in other functions as well. The Project cell is responsible for the implementation of new infrastructure projects approved by the Mayor in Council, JNNURM funded projects or projects that are externally funded by agencies such as ADB etc. Each cell is headed by a City Engineer who is a class I cadre officer.

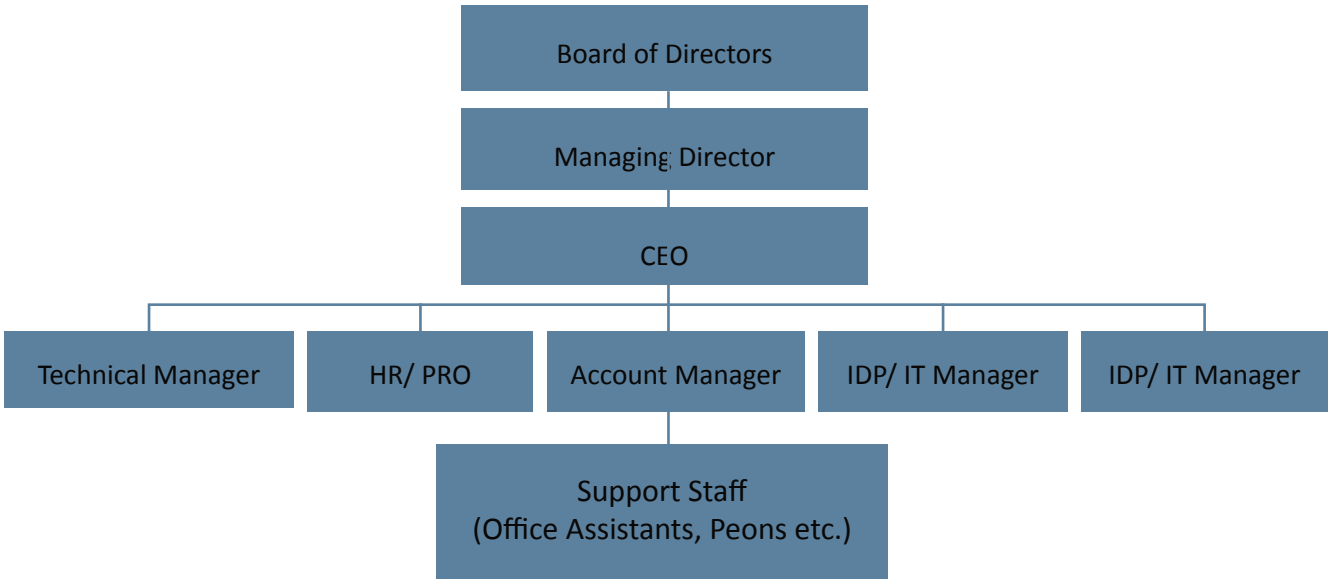
Atal Indore City Transport Services (AICTSL)

Atal Indore City Transport Services Co. Limited was incorporated on December 01, 2005 as SPV with an objective to operate and manage the public transport system of Indore. AICTSL is a joint venture of IMC (Indore Municipal Corporation) and IDA (Indore Development Authority) with a 52:48 stake. Municipal commissioner is acting as managing director for SPV.

Seven key people were identified to serve in the Board of Directors to promote local ownership of project. The AICTSL board includes:

- Chairman, Indore Development Authority
- CEO, Indore Development Authority
- District Collector, Indore
- Honorable Mayor, IMC
- Municipal Commissioner, IMC
- Traffic Commissioner, Indore
- RTO Officer, Indore
- Public Transport Expert (Currently vacant)

Organizations Structure of AICTSL



Indore Development Authority:

The Madhya Pradesh Nagar Tatha Gram Nivesh Niyam 1973 (the Act) provides the legal framework for the establishment of development authorities in the State. IDA was formed under this replacing the existing city improvement trust. The existing board members of IDA include:

- Chairman(political appointee)
- District collector of Indore
- CEO of IDA
- Commissioner, IMC
- Joint Director,TNCP
- Chief Engineer, PWD
- Conservator, Forest
- Sup. Engineer, PHE

The primary role of IDA is to implement the development plan prepared by the T&CPD by developing residential schemes and road networks. The Indore planning area includes the area under the jurisdiction of the Indore Municipal Corporation as well as surrounding villages. Provision of water supply, sewage lines and electricity in residential schemes is also undertaken by IDA. IDA is required to raise its own funds to support staff salaries and infrastructure which it accomplishes by selling residential plots in IDA developed schemes. In addition to developing residential schemes, IDA also approves master plans by private developers in accordance with the master plan.

The focus of IDA is geared towards large scale development projects that are largely auto oriented. One such project by the IDA is the development of super corridor-a 8 lane modern highway with development of 9 sq kilometers adjoining both sides of the corridor. IDA also proposes to develop an Inter-State Bus Terminal (ISBT) along the super corridor.

Super Corridor Project Proposed by IDA

Transport Profile

Indore is seeing an explosive growth in the use of personal motorized vehicles. The city today has on an average 0.98 vehicle per household and more than half of the daily trips are performed on private motorized vehicles (Taru, 2011). Owing to the rapid growth of vehicles, Indore faces major challenges in terms of congestion, worsening air quality as well as compromised safety and quality of life.

Road Infrastructure

Indore has a fairly established internal as well as regional road system. There are two national highways passing through the city- the Agra-Mumbai National Highway and Ahmedabad road. There are also several state highways connecting the city to Bhopal, Ujjain and other cities in the state. The total length of internal road network in Indore is nearly 1710 Km, most of which is maintained by IMC. There are close to 400 km of roads delineated on the development plan 2025 that are yet to be constructed. These are the missing links in the system leading to inefficiencies and delays. The average road width (excluding non-paved sections of the road) in the city is 9 meters (Bhopal Municipal Corporation, Mehta & Associates, 2005). IMC has shortlisted 68 roads for improvement which largely includes widening and repaving of the asphalt.

Indore has a high share of walking and cycling trips especially around commercial areas. Yet according to the Indore CDP, 94% of roads in Indore do not have any footpath facilities. Pedestrians are forced to walk on the carriageway threatening their safety and comfort. Footpaths and cycle tracks are currently being constructed in the city along with BRT infrastructure.

Public Transport

With the beginning of the city bus service in Indore under AICTSL in 2006, the city got its first organized public transport system which includes standard buses and metro taxis. In 2006, AICTSL started bus operations in the city with a fleet of 37 buses and has gradually expanded the fleet to 110 buses. The existing average headway between buses is 5-6 min. The buses ply on 16 routes in the city which are identified by AICTSL. The route permit is given by RTO. Some buses in the fleet are owned by private operators while others are procured through JNNURM grant. All buses are operated by two private operators under the monitoring and supervision of AICTSL. The AICTSL also monitors a fleet of 100 metro taxis.

Close to 94% of roads in Indore do not have functional footpaths. Pedestrians and Cyclists share the unorganized road space.

All buses are enabled with real time GPS tracking and computerized ticketing systems. Handheld electronic ticketing machines are used to issues paper tickets to commuters inside the buses. Data obtained from these ticketing machines is used to assess travel demand in the city and in the future planning of routes and bus operations.

The organized bus service in Indore has provided reliable and safe public transport alternatives to the citizens of Indore, yet majority of the public transport demand in the city is still being fulfilled by IPT vehicles which are often unsafe and overcrowded. The variety of IPT vehicles currently plying in the city includes Maruti Vans (550 nos.), Tata magic Vans and mini buses (500) and Auto Rickshaws (10,500). Polluting vehicles such Vikram rickshaws and mini buses have been phased out. The Tata magic vans and larger auto rickshaws operate as shuttle services between fixed points in the city while the three seater auto rickshaws operate as a taxi service operating in different areas in the city.

The high frequency, service flexibility and low-price make the IPTS system appealing to the commuters but is currently unorganized and unregulated. Several rickshaws are plying in the city illegally without proper licenses and route permits. There are no designated bus stops as well as infrastructure for the IPT vehicles in the city. There is a need to organize and regulate IPT in Indore by enforcing licensing and registration reforms.

Indore is also introducing a BRT system in the city. The construction of the 11.4 KM pilot corridor on AB Road is complete with centrally located dedicated bus lanes, specially designed bus stations as well as cycle tracks and pedestrian footpaths. The BRT in Indore is expected to be operational in April 2013 with 50 semi low floor AC buses procured under the JNNURM scheme.

Parking Management and Pricing

There are 4 Off Street Parking Facilities in the city near Kothari Market, Railway Station, Subhash Chowk and Mangal City (Indore Municipal Corporation, Mehta & Associates, 2006). On street parking in the city is free, haphazard and is not enforced. Illegally parked vehicles on roads are a major nuisance in the city encroaching on pedestrian space and reducing the efficiency of vehicular movement.

IPT vehicles in Indore

Haphazardly parked vehicles in Indore

Specially designed AC BRT buses and BRT station in Indore

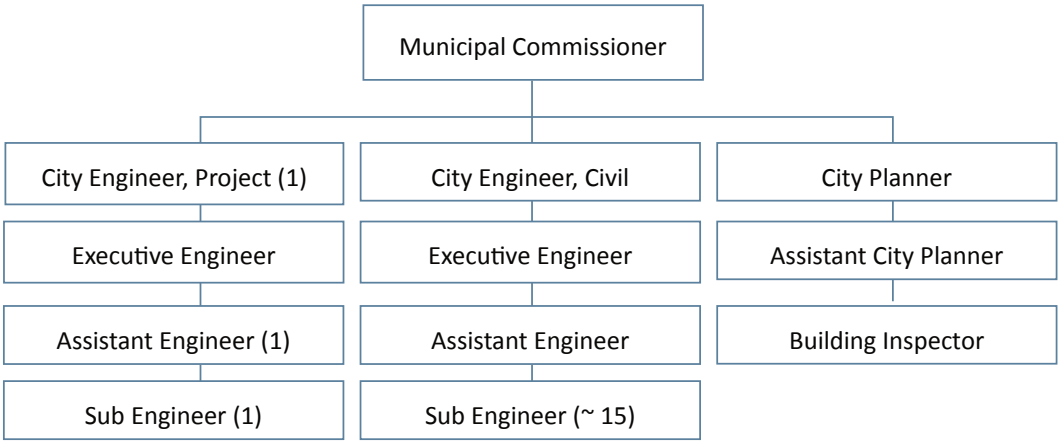
Photo Credit: Embarq India

Capacity Assessment of Technical Staff in Urban Transport

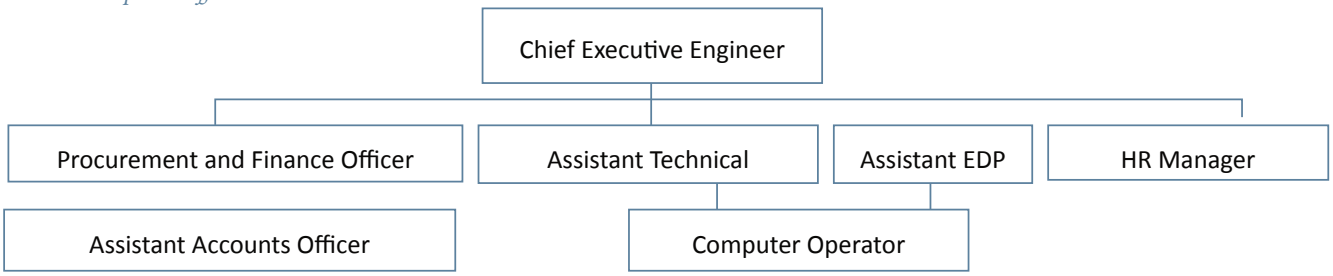
For the purpose of this training need assessment, all existing staff (dedicated and shared) in urban transport within IMC, ICTSL and IDA was identified as below of which select people were interviewed. The number of dedicated staff in urban transport in Indore is the largest in the state.

The ongoing transport infrastructure projects in the city such as the BRT are likely to have provided an impetus to improve technical capacity in the urban transport sector. The AICSTL employs 7-8 staff and the city's PWD and planning department has close to 30 engineers involved in various aspects of transport infrastructure including road construction, BRT stops etc. The following table indicates the educational qualifications of urban transport staff in Indore.

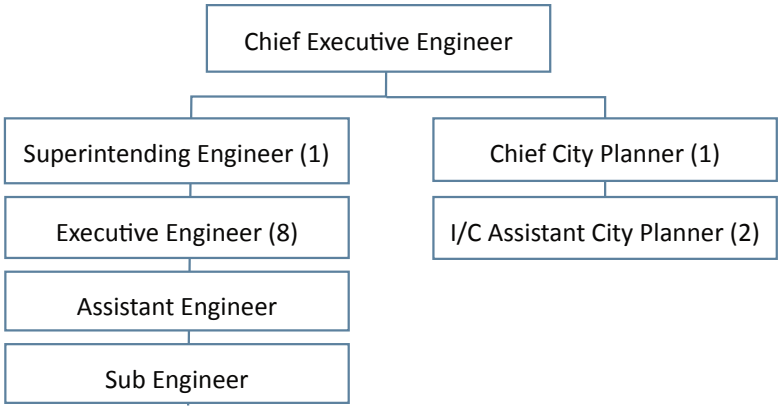
Urban Transport staff in IMC



Urban Transport Staff in AICTSL



Urban Transport Staff in IDA



None of the staff interviewed has had a formal education in transport planning/ engineering but majority of the staff has received some past training in urban transport. Most staff has been educated in the field of civil engineering and construction. The table below presents the awareness of technical staff on sustainable transport concepts.

The focus and inclination of administrators and technical staff in Indore appears to be more towards is "transport projects" such as BRT and road construction and not on integrated transport planning and management. NMT infrastructure seems to be neglected. There is little interest as well as capacity to implement complete street projects that prioritize walking and cycling.

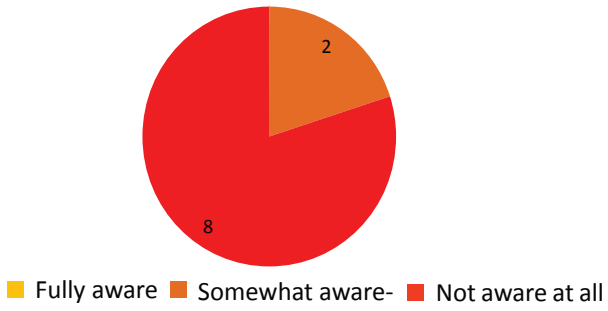
Educational Qualifications of Staff in Indore

Number of staff interviewed	10
Number of staff with Master Degree	8
Number of staff with Bachelors Degree	0
Number of staff with Diploma	2
Number of staff with education in Transport Planning	0
Number of staff who have received training in Urban Transport	8

Awareness on Sustainable Transport Concepts in Indore

	Fully aware	Somewhat aware	Not aware at all	No Answer
National Urban Transport Policy	1	3	6	0
Role of sustainable urban transport in ensuring equity	1	3	6	0
Role of sustainable transport in energy security and mitigating climate change	1	4	5	0
Street design guidelines on design of "Complete Streets"	0	2	8	0
Guidelines by MoUD and other organizations on managing urban bus services	2	3	5	0
Parking management and pricing	1	7	2	0

Awareness about "Complete Street" Design in Indore



8 out of 10 people interviewed were not aware about complete street design

The urban transport staff in Indore also shared their vision for improving urban transport in the city. Select ideas that were shared are presented in the box below.

"Mobility options for people in Indore should be safe, comfortable, economical and user friendly".

"Urban Transport should be easy to access and not be crowded"

"Urban Transport planning and management should be handled by technically qualified staff. The decision making authorities should keep consider the views of the technical staff"

"The city bus service in Indore should be expanded to include all corners of the city"

"There is a need for a long range sustainable transport plan for the city"

"The public transport system should be high quality, disciplined, self sufficient and people friendly to attract more people"

These views expressed by the technical staff bring to light the following concerns regarding understanding of sustainable transport in Indore:

- There is an overall understanding and agreement among staff regarding the need to augment and improve public transport systems in the city.
- City bus service and BRT in the city is generally well accepted by the technical staff
- There exists some level of understanding regarding the need for long range transport planning that fulfils sustainability objectives.
- Understanding of "Urban Transport" is limited to a public transport service. Other aspects of sustainable transport including pedestrian and cycling friendly street design, parking management and land use transport integration not understood or are considered a priority.

- Understanding of "Urban Transport" is limited to a public transport service. Other aspects of sustainable transport including pedestrian and cycling friendly street design, parking management and land use transport integration not understood or are considered a priority.

- There appears that important decisions regarding urban transport infrastructure are taken by political leaders and senior administrators not necessarily incorporating the views of the technical staff. This highlights the need for creating more awareness regarding urban transport among elected officials and other decision makers.
- The development authority staff's orientation is more towards large roadway projects to spur development in the city. IDA does not have a specific to mandate to promote sustainable transport in the city.

The following table presents the capacities among staff in Indore to successfully implement public transport projects

Capacity in Planning and Implementing Sustainable Transport in Bhopal

	Fully aware	Somewhat aware	Not aware at all	Not relevant
Use of GIS and other modeling software for transport planning	1	3	6	-
IRC Design Standards for Roads	1	3	6	-
Bus Operations and Route Planning	1	4	5	-
Standard Operating Procedures for Bus Services	0	2	8	-
Using PPP for transport and parking management	2	3	5	-
Procurement, contracting and monitoring of consultants	1	7	2	-

The above table indicates that there is very limited capacity among technical staff to handle public transport projects. Indore has recently started a city bus service and has also made significant investments in BRT service. Yet, majority of the technical staff interviewed in Indore reported very little understanding regarding standard operating procedures for bus services including route rationalization and operations planning. 4 out of the 10 staff interviewed belonged to AICTSL which is specially constituted for the operations and management of bus services and BRT in Indore.

In addition to identifying knowledge and skill gaps in urban transport, the questionnaire based assessment also identified key organizational and management training needs. The top three short term needs requiring immediate training as identified by the city managers in Indore are as follows:

- **Leadership & Team Building**
- **Proposal/project preparation**
- **Mentoring**

Based on the questionnaire survey, interviews and UMCs assessment of staff capacities, the following training needs in sustainable urban transport are identified for Bhopal:

Top Training Needs for Indore

Training Area	Target Audience	Training Methodology
Managing Contracts for Bus Operations	Technical Staff, AICTSL	Classroom training on writing contract documents and dissemination of sample contracts
Business Model for Bus Operations	Technical Staff, AICTSL	Class room training and discussion with experts.
Street Design with a focus on pedestrian comfort and safety	Technical Staff, IMC and IDA	Hands on design workshop accompanied with field visit. Dissemination of street design guidelines.
Integrating IPTS with Bus Service and BRT	Technical Staff, AICTSL	Field visits and dissemination of best practices

JABALPUR

Context

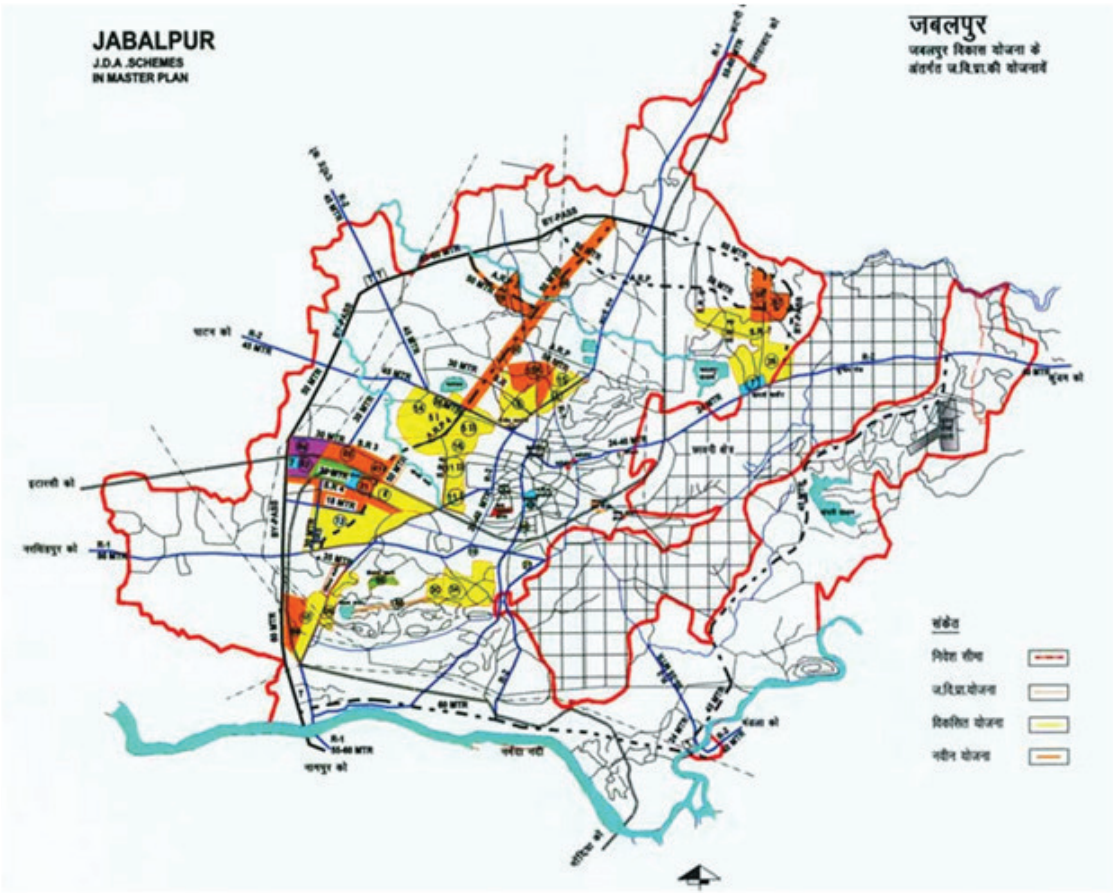
Jabalpur is third largest city of Madhya Pradesh and is recognized as a major trading and industrial centre. Jabalpur is also the seat of Madhya Pradesh High Court.

In the 13th century, the city of Jabalpur was the capital of the erstwhile medieval Gond rulers. By 16th century the Gond rulers had established the powerful kingdom of Gondwana. From time to time, the Mughal rulers tried to overrun the kingdom which finally fell to the Marathas in 1789 and was later taken over by the British in 1817. The British made Jabalpur the commission headquarters of the Narmada territories and established a cantonment there in late 19th century (NIUA, 2011). Even today close to one third of the city's area is under cantonment. Other than its historic significance, Jabalpur is also known for its picturesque setting along the banks of river Narmada.

The area of Jabalpur City is 106.19 sq. km and the planning area for the city under Jabalpur Development Authority (JDA) is about 245.2 sq km. The city's population has grown from 9.5 lakh (Census, 2001) in 2001 to 10.5 lakh in 2011 (Provisional Population, Census of India), showing a growth rate of 10.5% and compounded annual growth rate (CAGR) of 1.08 %. The growth rate in Jabalpur is fairly low as compared to other cities in Madhya Pradesh. The central areas of the city between Katni road, Kundam road and the railway line are the most densely populated. New development is happening largely towards north and northwest.

Jabalpur has seen little development in the past few decades. Though a considerable large city with a population of more than 10 lakh, urban systems including drainage, storm water management and transport are severely lacking in the city.

Jabalpur Master Plan Highlighting New Growth Areas



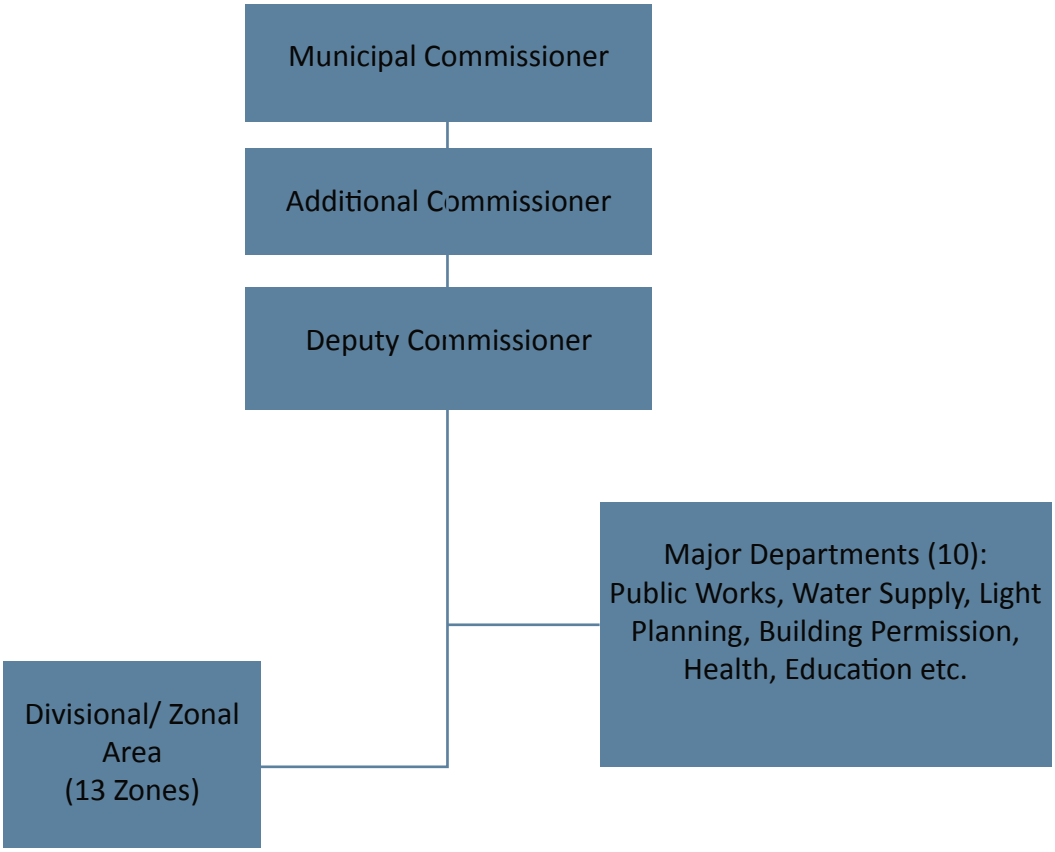
Local Governance

Jabalpur Municipality was established in 1864 and the financial resources of the Municipality were met by taxes such as water tax, market tax, cleaning tax etc. Jabalpur remained a municipality till 1948. After Independence, the Nagar Palika Act (Act No.3-1948) was passed in 1948. Under this Act on June 1,1950 Jabalpur Nagar Nigam was established .

Under this Act, the city was divided into 30 wards. There was a provision of 43 members in the committee, out of which 34 were elected members, six were selected & three members were nominated. Today the Jabalpur Municipal Corporation is governed under the MP Municipal Corporation Act, 1956 which repealed the 'City of Jabalpur Corporation Act', 1948. The JMC is responsible for providing basic services such as water supply, sanitation, SWM, roads etc. to its citizens.

The JMC has a Mayor-in-Council type of system. The city has 60 electoral wards each represented by a ward councilor. The Mayor of Jabalpur Municipal Corporation is directly elected by the citizens. The Mayor chairs the Mayor-In-Council comprising 10 elected ward Councilors. The Mayor presides over all the meetings of Mayor-in-Council. There are also several advisory Committees constituted for various JMC departments. The Municipal Commissioner heads the executive wing and he is assisted by two Deputy Commissioners. The executive wing is responsible for the day-to-day functioning of the Corporation and assists the deliberative wing in decision making process. Administratively the city is divided into 13 zones. The following figure represents the organizational chart of JMC with key departments.

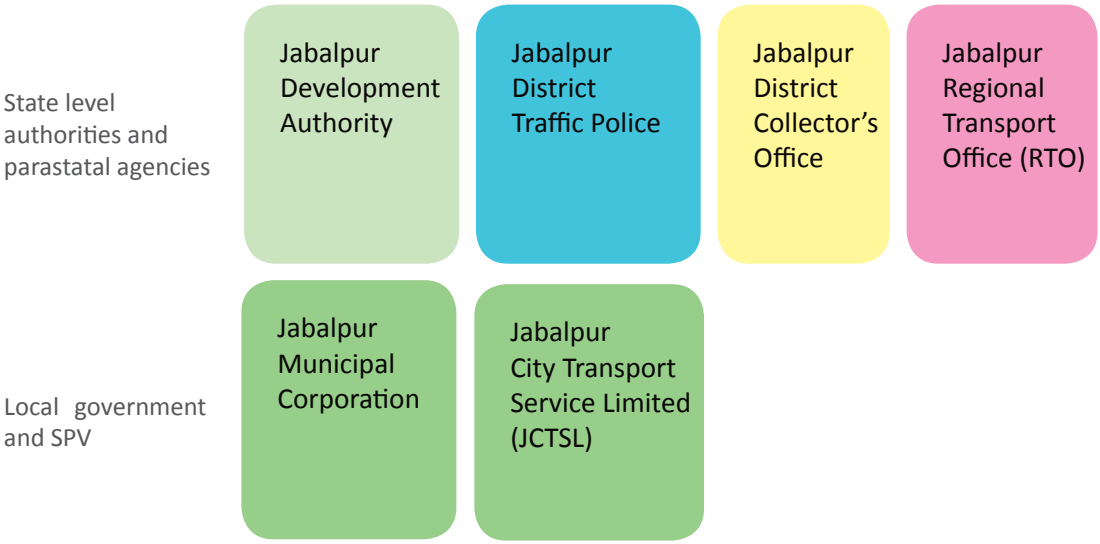
Organizational Chart of JMC



City level Departments and Parastatal agencies in Urban Transport

The role of planning for traffic and transportation in Jabalpur at present vests with a number of agencies, including Municipal Corporation, JDA, RTO, private bus operators, etc. The following departments in JMC and other city level bodies are responsible for managing one or more aspects of urban transport in the city.
JMC is the responsible authority for providing licenses to cycle rickshaws in the city. The application form can be collected from the Municipal Corporation or any of the ward offices and has to be submitted back with the stipulated fee amount. The license application is addressed to the municipal commissioner, JMC.

City Level Departments and Parastatal Agencies in Urban Transport, Jabalpur



PWD Department, JMC

The Public Works department's is responsible for the construction and maintenance of roads and other infrastructure such as bridges, drains, public toilets etc. The PWD department is also the responsible authority for the maintenance of JMC owned buildings such as office structures, bus stops, sheds etc. In terms of transport management, PWD is responsible for strengthening the road system in the city through ROW allocation, junction improvements, road widening(if needed) etc.

The PWD department comprises of three executive engineers each in charge of 4-5 administrative zones in the city. The executive engineers are supported by assistant engineers and sub engineers. There are currently nine assistant engineers in PWD who are in charge of zonal offices in the city.

Colony Cell, JMC

The Colony Cell in JMC is primarily responsible for the regularization of illegal colonies in the city. The Colony cell also approves the plans for new colonies being constructed in JMC. The Executive Engineer of the colony cell, supported by a sub engineer is also currently responsible for the procurement of buses for the city under JNNURM program. So far JMC has procured 25 buses which are being operated by Jabalpur City Transport Services Limited (JCTSL), a specially formed SPV for bus operations.

Jabalpur City Transport Services Limited (JCTSL)

JCTSL is a SPV responsible for operating the organized city bus services in Jabalpur. JCTSL functions on a PPP model and is supported by JMC and Jabalpur Development Authority (JDA) with share of 51:49. The JCTSL currently operates 25 buses on 5 metro bus routes. The route planning is done by JCTSL and the bus operations have been contracted out to two private contractors Shri Sadguru and Sanskardhani.

JCTSL rents MPSRTC depot facilities for regular maintenance and upkeep of buses. The management of the company is entrusted with the Board of Directors. There are eight members on Board of Directors with Commissioner, Jabalpur Municipal Corporation as its Managing Director & Collector of Jabalpur as its Executive Director. The bus company staff comprise of the CEO, one technical assistant and one accountant who are currently employed on contract basis.

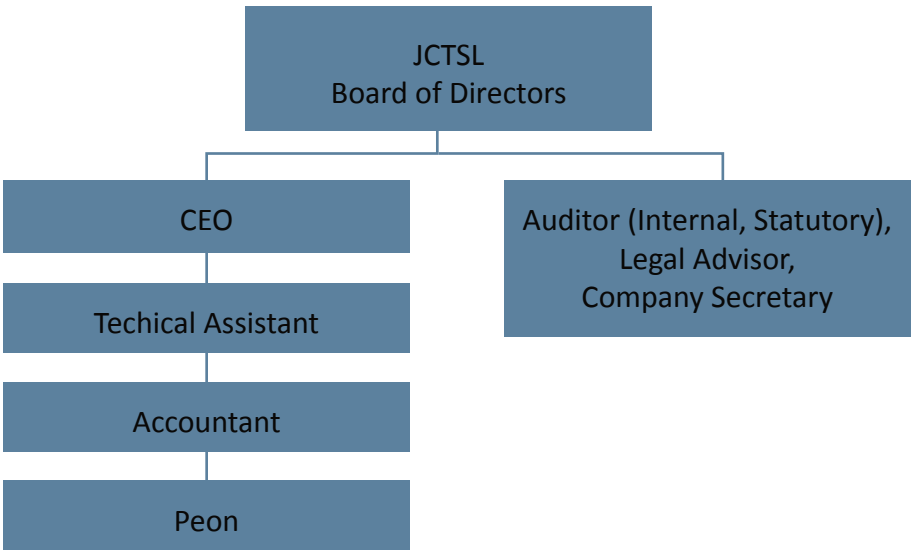
Jabalpur Development Authority (JDA): Local Level Implementing Body

The responsibility of JDA is to manage and regulate the growth and development in the Jabalpur urban area. The Madhya Pradesh Nagar Tatha Gram Nivesh Niyam 1973 (the Act) provides for the legal framework for development authorities in the State. The primary aim of JDA is the implementation of the development plan prepared by the T&CPD for Jabalpur planning area, which includes the area under the jurisdiction of the Municipal Corporation of Jabalpur (JMC) and surrounding villages.

The JDA develops colonies with basic infrastructure such as roads in the areas identified in the master plan using land pooling mechanism. JDA also approves private institutional residential and other type of development proposed by developers in accordance with the Master Plan.

JDA is a major stakeholder in constructing transport infrastructure such as BRT in the city. JDA also supports JCTSL and is a 49% shareholder in the company.

Organizational Chart of JCTSL



Transport Profile

Jabalpur like most other mid tier cities in north and central India has historically depended on walking, cycling and cycle rickshaws as primary modes of transport in the city. Most streets in Jabalpur are narrow urban streets, designed primarily for pedestrians and non motorized users. The growing use of personal motorized vehicles in the city has put tremendous pressure on the city's infrastructure leading to inefficiencies, congestion and safety challenges especially in central areas of the city.

Road Infrastructure

Jabalpur City is well connected by road and railway to major cities in the state and the country. NH7 traverses the city from north to south and connecting Jabalpur to Varanasi and Nagpur and NH 12, leading to Jaipur links the city to Bhopal. NH7 also acts as the principal arterial in the city. The total road length in Jabalpur is about 1,267 km of which approximately 1102 KM (85%) are municipal roads. The Jabalpur Development Authority (JDA) and Madhya Pradesh Housing Board (MPHB) have constructed 102 km of roads in colonies developed by them and another 63 kms of roads are highways constructed by the state PWD.

The railway line passing through the city limits the easy movement of vehicles between east cantonment and core city area. The Jabalpur Master Plan envisages new roads in the western part of the city to enhance the road connectivity in the city. These proposals have not yet been implemented (Jabalpur Municipal Corporation)

There are very little functioning pedestrian footpaths in the city. Where present, the footpaths are heavily encroached by permanent and temporary obstructions such as illegal extensions, parked vehicles, electric poles, trees, vendors etc. In the absence of dedicated space, slow moving traffic in the city including pedestrians, cyclists and cycle rickshaws share the limited road space with motorized vehicles resulting in inefficiencies and safety issues especially in inner-city and market roads.

Public Transportation

Jabalpur did not have any organized public transport until December 2006 when Jabalpur city transport services limited (JCTSL) was established to operate and manage the public transport system in the city. Currently JCSTL runs 25 standard sized buses procured under JNNURM on 5 routes in the city. The average headway for the bus operation is 20-25 min.

Typical road in Jabalpur with mixed traffic movements

City buses operated by JCTSL

JCTSL Depot Facilities

The JCSTL uses the existing depot facilities of MPSRTC (now defunct) for regular maintenance and repairs of its buses. A process is currently underway to officially transfer the depot to JCSTL/JMC. The city is further planning to procure 25 metro buses and 69 mid-sized buses to strengthen the bus system in the city.

JCTSLs future plans include starting special bus services catering to school and college students and improving the quality and operations of the bus system by introducing ITS facilities such as GPS tracking and common mobility card.

Majority of the public transport demand in the city is still being fulfilled by IPT vehicles including cycle rickshaws, auto rickshaws, mini buses and tempos operating as shuttles between designated points in the city. There are approximately 500 registered mini buses and tempos in Jabalpur (Jabalpur Municipal Corporation). There are assigned routes for mini-buses and tempos, mostly originating from the city center and connecting to the fringe areas of the city. There are also close to 3000 (licensed and non-licensed) pedal powered rickshaws providing taxi services for short distances primarily around the city centre.

There are no facilities such as dedicated stands, sheds and other public conveniences for these IPT vehicles in the city. The quality of service provided by these private transport vehicles is poor with issues of overcrowding, rash driving, no fixed time schedule and irregular stoppage.

Parking Management and Pricing

Free, haphazard parking is a major transport issue in the city. The pedestrian and traffic movement on most roads in core city areas is severely hampered because of illegally parked two wheelers and cars along the roadsides. More than a third of the right of way is encroached by parked vehicles leading to reduced capacity and efficiency of the road. The parked vehicles also encroach upon valuable public space on footpaths and force the pedestrians to walk on the carriageway jeopardizing their convenience and safety

JMC has proposed the construction of multi level parking garages in the inner city to solve the parking issues. However such structures will be of little use till on street parking is managed and strictly enforced.

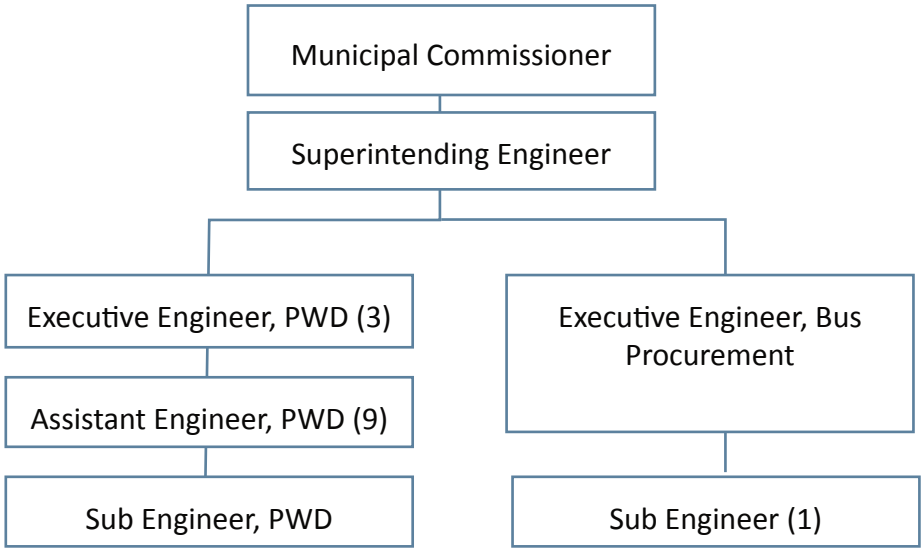
IPT vehicles in Jabalpur

Illegal parking on roadsides is a major nuisance in Jabalpur

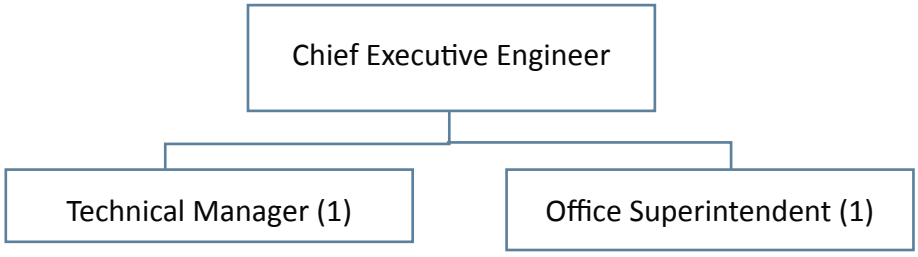
Capacity Assessment of Technical Staff in Urban Transport

For the purpose of this training need assessment, all existing staff (dedicated and shared) in urban transport within JMC, JCTSL and JDA was identified as below of which select people were interviewed.

Urban Transport Staff in JMC



Urban Transport Staff in Jabalpur City Transport Services Limited



The following table indicates the educational qualifications of urban transport staff in Jabalpur. None of the staff interviewed has had a formal education in transport planning/ engineering but most of the senior staff has received some past training in urban transport. Most staff has been educated in the field of civil engineering and construction.

Educational Qualifications of Staff in Jabalpur

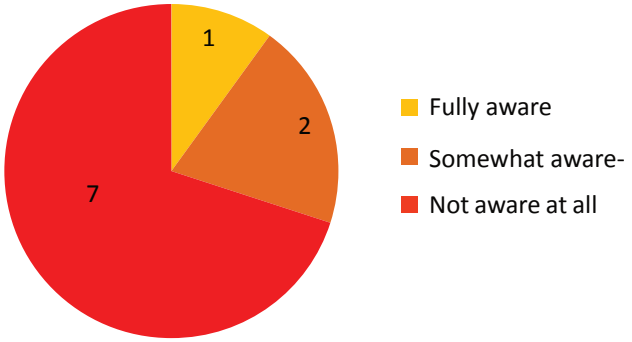
Number of Staff Interviewed	10
Number of staff with Master Degree	2
Number of staff with Bachelors Degree	4
Number of staff with Diploma	4
Number of staff with education in Transport Planning	0
Number of staff who have received training in Urban Transport	4

The table below indicates the awareness of technical staff on sustainable transport concepts. 7 out of the 10 staff interviewed for this study had not heard about NUTP which forms the basis of sustainable transport projects and policies in India. The awareness on various aspects of sustainable transport such as equitable allocation of road space, promoting NMT infrastructure and parking pricing was also observed to be low in Jabalpur.

Awareness on Sustainable Transport Concepts in Jabalpur

	Fully aware	Somewhat aware	Not aware at all	No Answer
National Urban Transport Policy	1	2	7	-
Role of sustainable urban transport in ensuring equity	2	3	4	-
Role of sustainable transport in energy security and mitigating climate change	1	6	3	-
Street design guidelines on design of "Complete Streets"	0	4	6	-
Guidelines by MoUD and other organizations on managing urban bus services	1	2	2	-
Parking management and pricing	1	4	3	-

Awareness about NUTP in Jabalpur



7 out of the 9 staff interviewed in Jabalpur were not aware about NUTP

The urban transport staff in Jabalpur also shared their vision for improving urban transport in the city. Select ideas that were shared are presented in the box below.

"Traffic Management is an urgent requirement for the city. If the ROW is properly managed, there will be no need for road expansion."

"Illegal parking along road sides should be strictly enforced."

"There is a need for wider roads, flyovers, junction development and planned parking areas."
"Cycle Rickshaws result in inefficiencies on roads. They should be disallowed."

"JMC should have a dedicated traffic and transport department with skilled and properly trained staff."

"Jabalpur should have wider roads and a metro service."

"The bus service in Jabalpur should be improved with ITS services and GPS tracking."

These views expressed by the technical staff bring to light the following concerns regarding understanding of sustainable transport in Jabalpur:

- There is widespread interest in low cost management solutions to solve urban transport issues rather than relying on new infrastructure and engineering solutions. Understanding and interest among administrators and senior staff regarding the need for a dedicated urban transport department in ULBs.
- Acceptance of the new bus service. Interest among technical staff and elected officials alike to improve and augment it.
- JDA staff is more inclined towards development of new infrastructure such as roads, flyovers , metro and BRT rather than viewing urban transport in a comprehensive manner and planning for it accordingly.
- Very few technical staff mentioned the importance of providing pedestrian and cycling facilities in the indicating a low priority for NMT.
- Lack of awareness on the benefits of non motorized modes such as cycle rickshaws and ways to improve and organize the sector.

The following table presents the capacities among staff in Indore to successfully implement urban transport projects.

Capacity in Planning and Implementing Sustainable Transport in Jabalpur

	Fully aware	Somewhat aware	Not aware at all	Not relevant
Use of GIS and other modeling software for transport planning	1	5	4	
IRC design standards for roads	3	6	1	
Bus operations and route planning	1	2	3	4
Standard operating procedures for Bus Services	1	1	3	5
Using PPP for transport and parking management	1	4	3	2
Procurement, contracting and monitoring of consultants	4	3	3	

Proper implementation of urban transport projects in Jabalpur is generally lacking. The above table indicates that there is very limited capacity among technical staff. While most staff states that they are somewhat aware about IRC codes, the level of awareness on specific aspects of the code dealing with footpaths and cycle tracks was observed to be low.

In addition to identifying knowledge and skill gaps in urban transport, the questionnaire based assessment also identified key organizational and management training needs. The top three short term needs requiring immediate training as identified by the Jabalpur staff are as follows:

- **Proposal/project preparation**
- **Information, education and communication**
- **Mentoring**

Based on the questionnaire survey, interviews and UMCs assessment of staff capacities, the following training needs in sustainable urban transport are identified for Bhopal:

Top Training Needs for Jabalpur

Training Area	Target Audience	Training Methodology
Parking Management	Technical Staff, JMC	Classroom training on concepts of parking management and introducing charged parking in the city
ITS for buses	Technical Staff, JCTSL	Class room training and sharing best practices
Street and Intersection Design with a focus on pedestrian comfort and safety	Technical Staff, JMC and JDA	Class room training, hands on design workshop accompanied with field visit. Dissemination of street design guidelines.
Running IEC campaigns on sustainable Transport	JMC	Sharing of best practices

GWALIOR

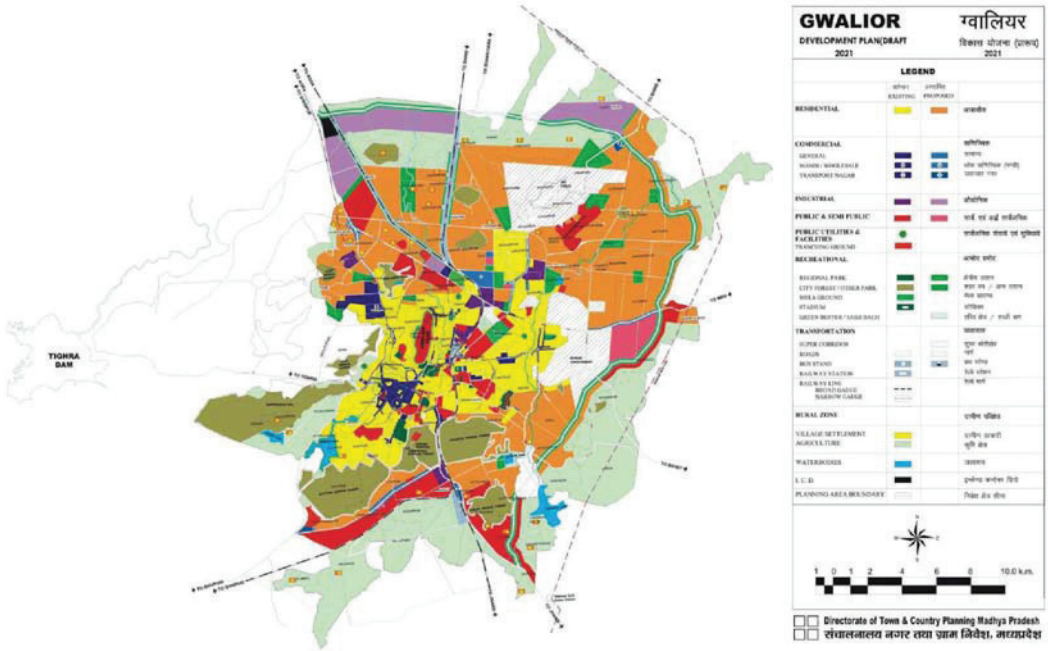
Context

Gwalior is among the major cities in Madhya Pradesh and is well known for its heritage and historical past. Historically the city of Gwalior has been coveted by various emperors and invaders because of its strategic location on the principal north-south trade route. Gwalior was ruled by Hindu kings of Tomar clan in the 14th century and became a part of great Mughal Empire after first battle of Panipat. The city did not remain under Mughal rule for long and went under the control of Lokendra Singh after the third battle of Panipat and was regained by the Scindias in 1765. The kingdoms of Indore, Malwa and Gwalior were merged together in 1948 to form the state of Madhya Pradesh. Today Gwalior is an important administrative and educational center in the state with several government headquarters and higher education institutions.

The city's population has grown from 8,27,026 (Census, 2001) in 2001 to 1,053,505 million in 2011 (Provisional Population, Census,2011), exhibiting a Compounded Annual Growth Rate (CAGR) of 2.74 %. The area of the city under Gwalior Municipal Corporation is 289.85 sq km while the Gwalior Planning Area (GPA) consists of 526.53 sq km. Majority of the population in Gwalior metro region resides in the old city and its vicinity which is developed around the foothills of Gwalior fort. Expansion and development of newer areas is visible along NH-3 which passes through the city. In the absence of adequate infrastructure as well as commercial activity in the new areas, the core city of Gwalior is getting denser.

Recent government initiatives to induce growth outside the old city include the establishment of city center as an alternate CBD and the creation of Special Area Development Area (SADA) towards the west of the city as a counter magnet for NCR. A Special Area Development Authority has been created for SADA which covers a jurisdiction of 300 sq km (Gwalior Municipal Corporation, Voyants Solutions , 2010). Both these initiatives have only been partially successful and Gwalior old city still faces challenges of outdated infrastructure, congestion and deteriorated quality of life.

Master Plan for Gwalior



Local Governance

The first local body in Gwalior came into existence in 1887 established by the Council of Regency as the local administration authority for the Gwalior Estate. Gwalior Municipal Corporation was established after independence under the Madhya Pradesh Municipal Corporation Act, 1956 with an area of 46.62 sq km under its jurisdiction. In 1969 the area was increased to 289 sq km. which is the current area of GMC.

GMC is divided into 20 administrative zones and 60 electoral wards. The political wing of GMC comprises councilors and mayor who are elected directly by the citizens of Gwalior. The City Council is elected for a term of five years and comprises 60 elected councilors (one from each ward), 6 members nominated by the State Government and the Mayor. The Commissioner is the administrative head of GMC and is supported by additional and deputy commissioners to fulfill his responsibilities.

There are also several assistant commissioners in GMC each in charge of multiple zones in the city. GMC is in charge of a range of functions related to public services and provision of infrastructure including solid waste management, maintaining property records, building permissions and construction and maintenance of streets and provision of street lights. Major sources of revenue for GMC include property tax, octroi and advertisement tax.

City level Departments and Para Statal agencies in Urban Transport

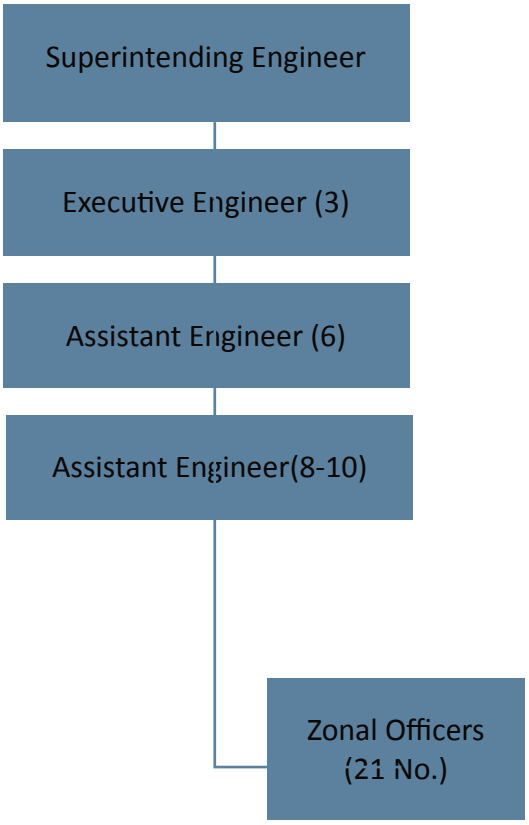
While there is no single agency or department in charge of all urban transport functions in the city, the following departments in GMC and other city level bodies are responsible for managing one or more aspects of urban transport in the city. The roles and responsibilities of the Traffic Police, RTO and Collectors office have been explained in earlier sections of the report.

City Level Departments and Parastatal Agencies in UT, Indore

Public Work Department (PWD) and Building Permissions, GMC

The Public Work Department in Gwalior Municipal Corporation is responsible for the construction and maintenance of road and other infrastructure in the city. The PWD department is headed by a Superintendent Engineer who is supported by Executive engineer and Assistant Engineers. The Assistant Engineers and Sub Engineers are also responsible for day to day administrative supervision at the zonal offices of GMC. The PWD department shares staff with the building permissions cell at GMC is primarily responsible for approval of new buildings in GMC in accordance with the plan prepared by TCPO. There is also a traffic cell formed within GMC with dedicated staff. The traffic cell takes up road and traffic related improvement projects such as junction development, construction of footpaths and FOBs, erecting traffic signals etc. The traffic cell staff represents GMC in the district level traffic advisory committee.

Organizational Chart of PWD, GMC

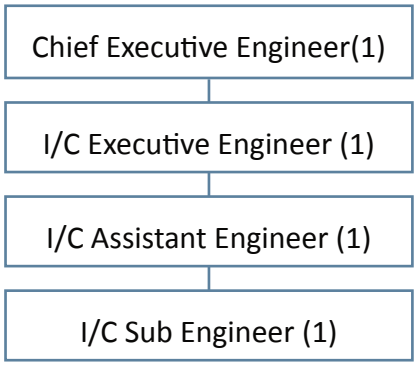


Gwalior Development Authority (GDA)

Gwalior Development Authority (GDA) is engaged in development, provisioning, operation, maintenance and management of urban infrastructure, various other facilities and planned city development under its jurisdiction in the city of Gwalior. The corporate body of GDA comprise of Chairman (political appointee), Collector of Gwalior, five members appointed by the State Govt. Commissioner, GMC, town planning experts, five non-official members appointed by State Government and the CEO who is the Member Secretary of the board.

The function of GDA is to control and regulate the development in Gwalior in accordance with the statutory master plan and is governed by the Madhya Pradesh Nagar Tatha Gram Nivesh Niyam 1973. The GDA develops colonies along with road and other infrastructure and sells plots in these residential schemes to people. In addition GDA also develops EWS housing, commercial complexes and other civic projects such as parks and playgrounds. It is also GDAs responsibility to approve institutional, residential or any other kind of development proposed by private developers outside the GMC boundary as per the requirements of the master plan.

Traffic Cell in GMC



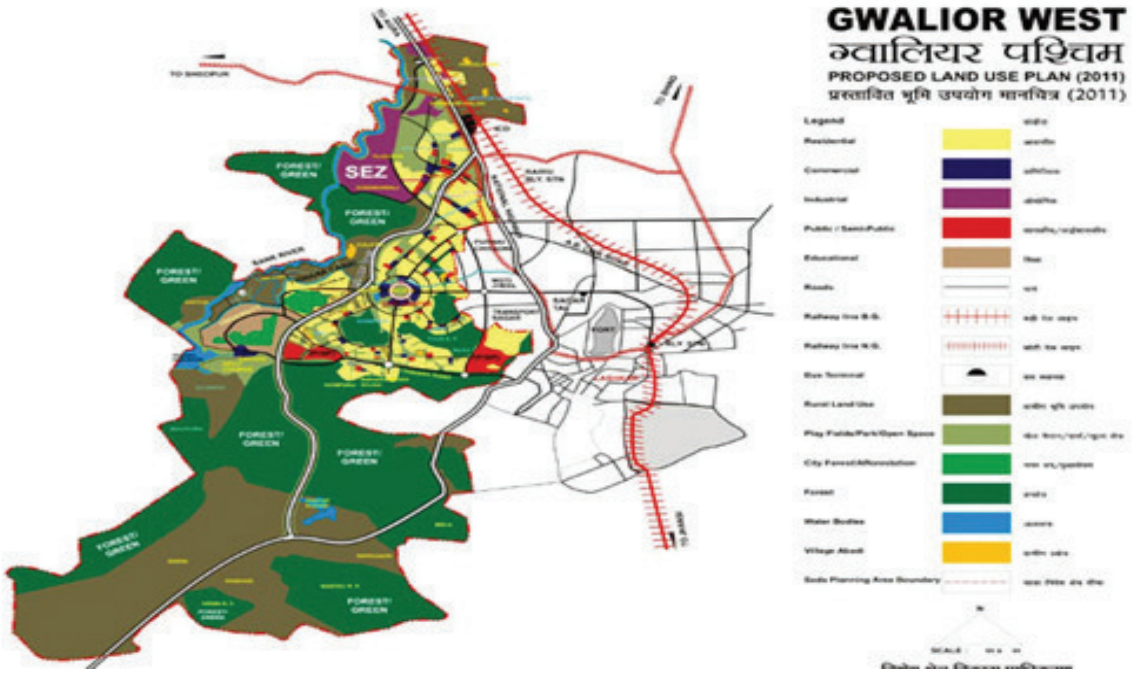
Gwalior Special Area Development Authority (SADA)

Gwalior was designated as a counter magnet city in the National Capital Region (NCR) plan – 1989 to act as a regional growth centre and provide an alternative to the migration from less developed area of Madhya Pradesh to the capital city of Delhi.

For implementation of the counter magnet project, the Government of Madhya Pradesh demarcated 30,000 hectares of land west of Gwalior to spur new development and constituted a Special Area Development Authority (SADA) for the region in 1992. Out of the 30,000 hectares under SADA jurisdiction 6,500 hectare is Government property; 9,000 hectare is privately owned; and over 14,500 hectare is reserve forest.

Current plans for SADA do not reflect an inclusive approach to development which includes integrating the new area with the existing city of Gwalior, up gradation of infrastructure in the old city and establishing strong transit connections between the existing city and the proposed new growth area.

Master Plan for SADA, 2011



Transport Profile

The key transport challenges facing the city is lack of traffic management and enforcement, growing use of motorized modes and lack of public transport causing congestion and noise pollution on all major roads.

The modal share(2010) in the city is 45% walk followed by 21% cycle, 17 % two wheeler, 10 % Tempo/Vikram(IPTS), 3 % Buses including mini buses and 2.4 % auto rickshaw (Gwalior Municipal Corporation, Voyants Solutions , 2010).

Road Infrastructure

Gwalior has very good road connectivity to neighboring cities in MP and other states. Three major highways pass through the city. National Highway (NH) 3 connects Gwalior to Indore, Ujjain, Agra, Delhi and Mumbai, NH 75 connects to Jhansi, Khajuraho, Chanderi & Bhopal and SH-37 leads to Bhind. Development in the city is guided by the presence of these three roads leading to a linear pattern of growth along these roads.

Most Roads in Gwalior lack pedestrian footpaths

The total road network in the city amounts to 782 KM and falls in the jurisdiction of GMC, GDA and state PWD. Some of the major roads in the city include Birla Nagar Roads, Race Course Road, A.B Road and Tansen Road. Most roads lack basic facilities and infrastructure including footpaths, lane markings, bus stops etc.

Roads in the older parts of the city are narrow and support several local and wholesale markets selling grain, cloth and other products. These markets see heavy footfall. Because of increasing number of motorized vehicles in older areas these roads experience heavy congestion during peak hours making it unpleasant and unsafe for pedestrians to walk around and shop.

Public Transport

The primary public transport modes in the city include tempos, mini vans and rickshaws. The city also has some tongas or horse driven carriages in the older areas. The tempos and mini vans operate as shuttle services between designated points in the city and are popular among women, students and visitors. The routes for these vehicles are set by RTO. Currently there are 17 IPT routes functional in the city. Though the IPT vehicles provide a frequent and somewhat reliable service in the absence of formal public transport the system is unorganized and largely unregulated. Several vehicles are highly polluting and risky compromising the comfort and safety of the passengers.

GMC had initiated an organized bus service in the city with 10 standard size buses. GMC installed bus stops in the city and also formed a special purpose vehicle to operate the buses on the lines of the Bhopal. The bus service however was not very successful as the private operator stopped the bus operations incurring heavy losses. Currently only three of the ten buses are functional.

Parking Management and Pricing

On street parking in Gwalior is haphazard and mismanaged. There is no pricing system for parking on the streets and two wheelers and cars park illegally along road sides and on footpaths. Our observations indicate that parked vehicles on the paved ROW are sometimes towed away but vehicles parked on footpaths are left as is. There is some public off street parking in the city managed by GMC.

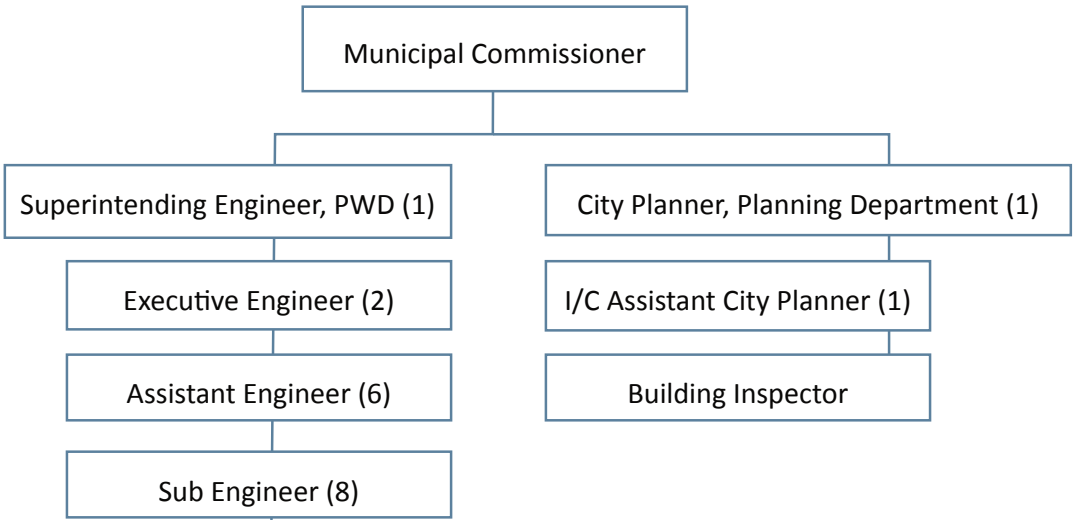
Tempos operating as IPT in Gwalior

Bus stops erected in the city remain largely unused

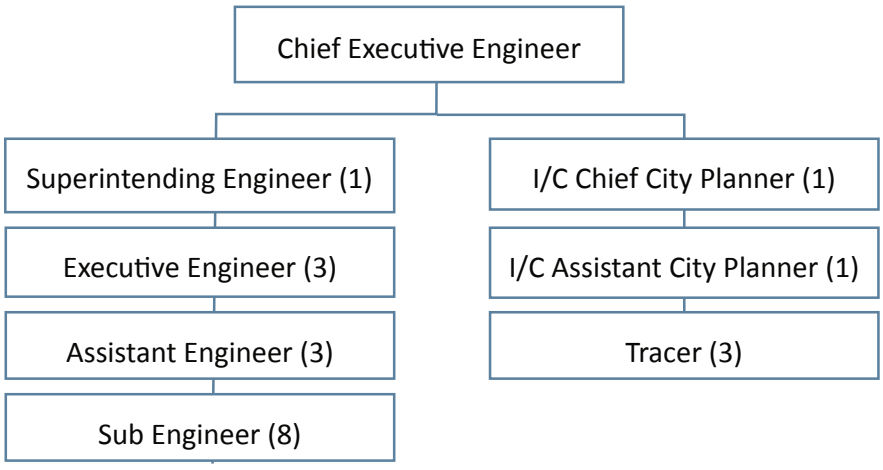
Capacity Assessment of Technical Staff in Urban Transport

For the purpose of this training need assessment, all existing staff (dedicated and shared) in urban transport within GMC and GDA was identified as below of which select people were interviewed.

Urban Transport Staff in Gwalior Municipal Corporation



Urban Transport Staff in GDA



The following table indicates the educational qualifications of urban transport staff in Gwalior. None of the staff interviewed has had a formal education in transport planning/ engineering. Many of the current staff members in GMC are in charge of multiple positions across departments. Some staff in the PWD department has had higher education but most other staff has had basic education (diploma or degree) largely in the field of civil engineering.

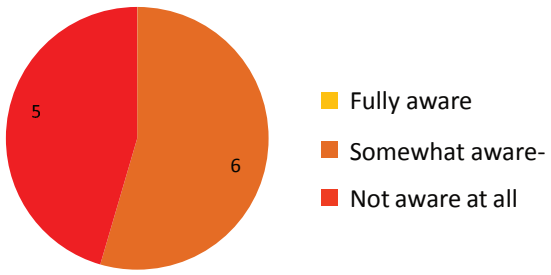
Educational Qualifications of Staff in Gwalior

Number of staff Interviewed	12
Number of staff with Master Degree	2
Number of staff with Bachelors Degree	6
Number of staff with Diploma	4
Number of staff with education in Transport Planning	0
Number of staff who have received training in Urban Transport	2

The table below indicates the awareness of technical staff on sustainable transport concepts. Majority of the staff interviewed expressed some basic level of awareness on concepts of sustainable transport, however UMC's assessment based on interviews and discussion does not validate the findings from the questionnaire survey. It was observed that there was least interest and awareness in sustainable transport among GMC and development authority middle management staff as compared to other cities in MP.

Senior administrators and managers in urban transport in GMC however exhibited high level of understanding and interest in implementing sustainable transport in the city.

Awareness about NUTP in Gwalior



6 out of 12 staff interviewed in Gwalior were somewhat aware about NUTP

Awareness on Sustainable Transport Concepts in Gwalior

	Fully aware	Somewhat aware	Not aware at all	No Answer
National Urban Transport Policy	0	8	3	-
Role of sustainable urban transport in ensuring equity	11	1	0	-
Role of sustainable urban transport in energy security and mitigating climate change	1	6	2	-
Concept of "Complete Streets"	1	7	1	-
Managing urban bus services	1	8	2	-
Parking management and pricing	5	5	2	-

The technical staff in Gwalior also shared their vision for improving urban transport in the city. Select ideas that were shared are presented in the box below.

"Subways and Foot over bridges are needed for safety of pedestrians"

"Proposals regarding footpaths and pedestrian facilities are often thwarted by elected officials. There is a need to educate and aware them on sustainable transport"

"There is a need for wider roads and better parking"

"Improve roads by widening junctions, adding dividers and footpaths"

"Gwalior needs luxurious taxis and AC bus service"

"There should be organized public transport in the form of small sized non polluting vehicles"

"There should be BRTS on main roads and flyovers to ease congestion"

These views expressed by the technical staff bring to light the following concerns regarding understanding of sustainable transport in Gwalior:

- There is an understanding among staff on improving public transport systems in the city.
- There is a good understanding on sustainable transport including safeguarding pedestrians and other vulnerable groups in the city among senior administrators.
- The vision of better urban transport among technical staff in largely auto oriented and reflects traditional engineering thinking.
- Interest in fancy public transport options such as AC buses and luxurious taxi services indicates lack of understanding regarding profile of existing public transport users.
- Improving urban transport is largely perceived as implementing new infrastructure projects such as flyovers and BRT. Comprehensive Urban Transport Planning is less understood.
- There appears that important decisions regarding urban transport infrastructure are taken by political leaders and senior administrators not necessarily incorporating the views of the technical staff. This highlights the need for creating more awareness regarding urban transport among elected officials and other decision makers.

The following table presents the capacities among staff in Gwalior to successfully implement urban transport projects.

Capacity in Planning and Implementing Sustainable Transport in Gwalior

	Fully aware	Somewhat aware	Not aware at all	Not relevant
Use of GIS and other modeling software for transport planning	0	8	3	1
IRC Design Standards for Roads	11	1	0	0
Bus Operations and Route Planning	1	6	2	3
Standard Operating Procedures for Bus Services	1	7	1	3
Using PPP for transport and parking management	1	8	2	1
Procurement, contracting and monitoring of consultants	5	5	2	0

Awareness about IRC codes for road construction was high among engineers and planners while awareness on other relevant sustainable transport areas such as managing urban services and parking management and pricing was found to be low in Gwalior. UMC's assessment reveals a general lack of interest among Gwalior staff on sustainable transport issues.

In addition to identifying knowledge and skill gaps in urban transport, the questionnaire based assessment also identified key organizational and management training needs. The top three short term needs requiring immediate training as identified by the Gwalior staff are as follows:

- **Proposal/project preparation**
- **Information, education and communication**
- **Mentoring**

Based on the questionnaire survey, interviews and UMCs assessment of staff capacities, the following training needs in sustainable urban transport are identified for Bhopal:

Top Training Needs for Gwalior

Training Area	Target Audience	Training Methodology
Organized public transport for small cities	Administrative and Technical Staff, GMC	Classroom training and exposure visits
Working with elected representatives to implement sustainable transport	Administrative and Technical Staff, GMC	Joint visioning workshop with ULB staff, elected representatives and experts
Street and Intersection Design with a focus on pedestrian comfort and safety	Technical Staff, GMC and GDA	Class room training, hands on design workshop accompanied with field visit. Dissemination of street design guidelines.
Urban Transport Solutions for old city	GMC	Workshop and field visits

UJJAIN

Ujjain is an ancient town in Madhya Pradesh and is of utmost religious importance for Hindus due to the presence of Mahakaleshwar, one of the twelve jyotirlingas in the heart of the city. It is also one of the congregation sites for the Kumbh Mela, a religious gathering (largest fair in the world) that takes place once every twelve years. Other than being a major religious hub, Ujjain is also a popular trade centre in agro-industrial products.

Ujjain has a population of five lakh and is situated at a distance of 183 km from Bhopal, and 50 Km from Indore. The area under Ujjain Municipal Corporation is close to 92 sq km and the planning area for Ujjain is 151 sq km. Of the 92 sq km within UMC about 30% is developed which has stayed constant since 2001. The city can be distinctly categorized into the old city and the new city. The old city, situated north of the railway line is the religious centre with an organic pattern of development and a high population density. The newer areas are largely residential and are developed in the south and southeast of the railway line.

The following table shows low to moderate population growth in Ujjain over the last 10 years indicating a slow pace of development. The floating population in Ujjain especially during religious festivals however is significant and should be a consideration while planning for infrastructure in the city.

Currently Ujjain is faced with challenges of unregulated development, increasing pressure on existing infrastructure, underutilized industrial area, and congestion and proliferation of slums. There is an urgent need to revitalize the old city, upgrade infrastructure and introduce new public spaces while maintaining the heritage value and character of the religious core.

Local Governance

Ujjain Municipal Corporation (UMC)'s core services include provision of basic services such as water, sanitation, SWM, transport etc. to Ujjain residents and maintenance of public spaces including roads, parks and playgrounds. UMC is also responsible for giving building permissions within the city limits and regularization illegal colonies by means of planning and providing adequate infrastructure.

The city has a Mayor-in-Council form of government. The organizational set up of UMC comprises a Political Wing (Deliberative) headed by the Mayor and Executive Wing headed by the Commissioner. There are 10 advisory committees on various municipal functions comprising of elected representatives from the city's 54 wards. The administration of UMC is managed from the central office and 4 zonal offices fostering decentralized service delivery. The zonal offices are headed by zonal officers who directly report to the commissioner.

Decadal Growth In ujjain

Year	Ujjain MC Population	Decadal Growth (%)	Area (Sq.Km)	Density
1951	129817	N/A	N/A	N/A
1961	144161	11.05%	N/A	N/A
1971	208561	44.67%	N/A	N/A
1981	282207	35.31%	N/A	N/A
1991	362633	28.50%	92.68	3913
2001	430427	18.69%	92.68	4644
2011*	515215	19.70%	92.68	5559

*(Source: CDP, *Census 2011)*

City level Departments and Parastatal agencies in Urban Transport

While there is no single agency or department in charge of all urban transport functions in the city, the following departments in UMC and other city level bodies are responsible for managing one or more aspects of urban transport in the city. The roles and responsibilities of the Traffic Police, RTO and Collectors office have been explained in earlier sections of the report.

PWD Department, Ujjain Municipal Corporation

The PWD department of UMC is responsible for the construction and maintenance of civil infrastructure in the city. The department is headed by superintending engineer and supported by Executive Engineer, Assistant Engineer and Sub Engineers.

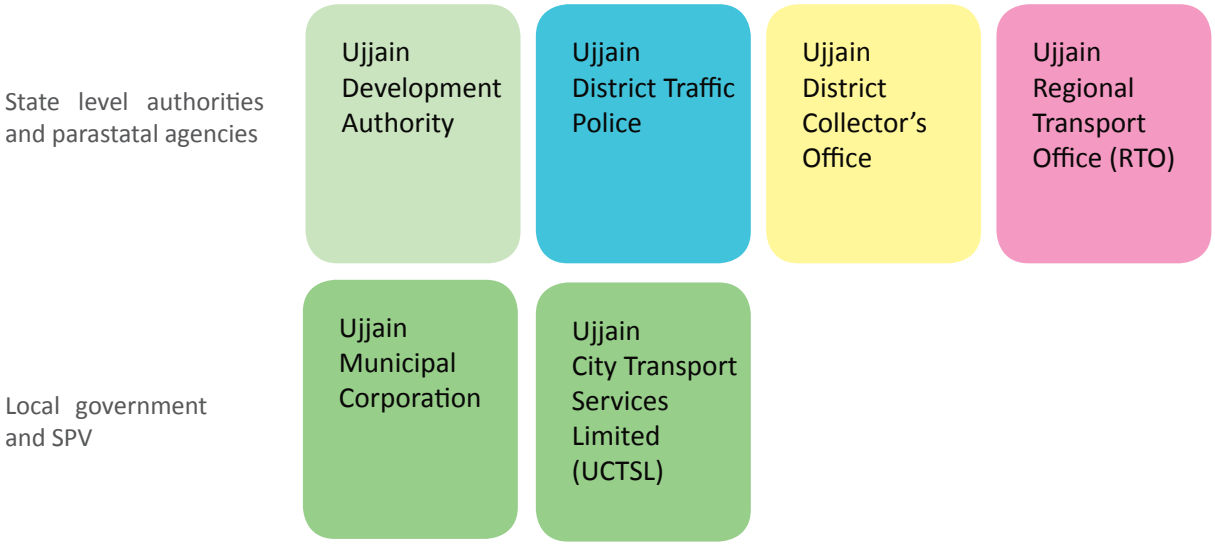
The major transport related functions of the PWD department include construction and maintenance of roads along with proper footpaths, street lighting, construction of traffic islands and grade separators, and construction of bus shelters.

Ujjain City Transport Services Limited (UCTSL)

UCTSL was formed in 2008 under the Company Act, 1956 as per the JNNURM requirements for procuring buses. The company was initially registered by Ujjain Development Authority, but UMC bought their entire share and now is the sole shareholder in the company. The board of directors in UCTSL includes the Mayor of Ujjain, District Collector, Commissioner, UMC, CEO of UDA, RTO officer among others. The commissioner is the managing director of UCTSL. Other staff in CTSL includes the CEO who is currently deputed from the State Revenue Department, a retired MPSRTC officer as the General Manager (GM) and an assistant GM.

UCTSL procured 40 CNG buses through the JNNURM funding and began bus operations in the city in January 2010. UCTSL appointed Mahakaleshwar Travels as the private contractor to run the buses on 10 routes in the city. The number of routes was revised to 6 in November 2010. In March 2011 the private operator ceased the operations citing major losses. The operator returned the buses in very poor condition to UCTSL and several of the CNG buses are now lying damaged and unused with no proper plans of utilizing them better. The UCTSL managed the bus operations on their own without the private operator for close to two years before it appointed Earth Connected Transway Private Limited as the new bus operator in February 2013.

City Level Departments and Parastatal Agencies in UT, Ujjain



UCTSL has augmented its bus fleet by purchasing 50 new diesel mid sized buses through JNNURM funding. The current operator is running 18 TATA CNG buses and 30 Eicher diesel buses on 6 routes in the city. All buses have an electronic ticketing system and UCTSL is currently installing GPS tracking devices in all buses to effectively monitor the operations. UCTSL has rented office, depot and workshop facilities for bus maintenance and repair from the now defunct MPSRTC.

UCTSL is interested in extending the urban bus service to adjacent towns and villages and also to cities like Indore and Dewas to cater to the high demand for inter-city travel.

Ujjain Development Authority

The Ujjain Development authority (UDA) formed under the Madhya Pradesh Nagar Tatha Gram Nivesh Niyam 1973 (Act) is responsible for the implementation of major proposals of Development Plan prepared by the TCPO. The main objective of UDA is to acquire land, develop the land and sell/ lease it for the purpose of city expansion. Primarily the UDA develops residential colonies for the sale of plot but is also involved in the construction of commercial, recreational and administrative facilities in the city.

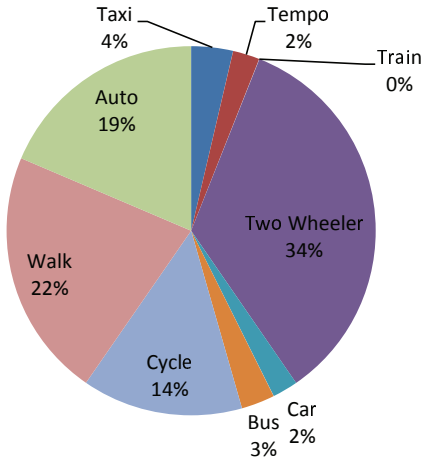
It is the UDAs responsibility to provide services such as roads and drainage lines in the colonies they develop. UDA also acquires land for the construction of parks, playgrounds and other recreational amenities in the city. In addition UDA also approves layouts and townships proposed by private developers.

UDA is a “development focused” authority with more interest in the development and sale of serviced land and apartments than the overall development of the city by the means of prorper planning and construction of civic infrastructure such as affordable housing, roads, parks and public spaces.

Transport Profile

Inadequate transport infrastructure in Ujjain is a major cause of concern for the city and is hampering future growth and development in the city. Ujjain is a major religious center in India and sees a high influx of pilgrims and tourists every year. The city has not been able to keep pace with the rapid development and changes around the religious core and deal with the additional pressure of the floating population. The following diagram indicates the modal share in Ujjain. While majority of the religious visitors and tourists in the city prefer to walk, the resident population is rapidly switching to motorized modes. In the absence of organized public transport, the share of IPT vehicles such as auto rickshaws and tempos is also very high especially in the core city.

Modal Share in Ujjain (CMP: Primary survey)



High levels of congestion, pollution and noise in the city are now proving to be a deterrent to economic development.

Road Infrastructure

Ujjain is connected to major cities in the state and by six roads radiating out of the city. State Highway 27 connects Ujjain to Indore, the closest major city in Madhya Pradesh. Agar Road, Badnagar Road and Maxi road are some of the other major roads in the city. Ujjain has a total road network of nearly 350 Km. Most of the major roads and junctions experience consistent traffic congestions due to lack of traffic management, poor road design and loss of effective ROW because of commercial and parking encroachments. None of the roads in the city have functional footpaths or dedicated pedestrian spaces. Agar Road passes in front of the railway station and is the busiest and the most congested road in the city.

The old city of Ujjain as a dense grid of interconnected streets but in the newer areas, the grid becomes increasingly sparse. The city has grown linearly because of physical constraints such as the Shipra River and the railway line. The railway line divides the city into two parts with the old city to the north and new residential areas to the south. The northern and southern parts of the city are connected by a single ROB near the railway station.

The otherwise walkable narrow lanes of the old city are marred by congestion due to motorized traffic, encroachments and haphazardly parked vehicles. In spite of high pedestrian volumes in this area, there are no facilities provided to pedestrians. Pedestrians have to struggle to walk safely in the old city constantly fighting for space with tempos, two wheelers and auto rickshaws.

Public Transportation

UMC has initiated an organized bus service in the city under the aegis of UCTSL but majority of the public transport demand is still being met by IPT vehicles such as tempos, and auto rickshaws. Several of the intermediate transport vehicles are obsolete, unsafe and highly polluting. These IPT vehicles are operated by multiple private contractors and are given route permits by the RTO. The IPT system in Ujjain is highly disorganized. Many of the vehicles plying on the streets are illegal with no proper permits and licenses.

Pedestrians compete for space with tempos, rickshaws and motorized modes of traffic

Several large, highly polluting vehicles are still plying in the city

The formalized bus service has been introduced in the city since 2010 and is managed by a UCTSL, a SPV formed by the UMC. The UCTSL has procured 90 buses (40 CNG and 50 diesel buses) in the last three years under JNNURM funding out of which 48(18 CNG and 30 diesel) are currently being operated by a private operator on 6 routes in the city. 21 of the CNG buses procured are damaged and are lying unused.

Since its initiation, the organized public transport system in Ujjain has faced several challenges largely related to bus procurement and mismanagement of contracts. The following diagram presents the timeline of UCTSL including the various hurdles faced by the SPV and is indicative of the challenges faced by most bus systems in small cities in India.

Timeline for UCSTL

2008

- Formation of UCTSL

2009

- UCTSL receives a JNNURM grant of 14.5 Crores to buy 40 non AC and 10 AC buses.
- UCTSL selects TATA Motors to provide 40 non AC CNG buses at a cost of 6 Crores. The contract with TATA motors incudes penalty clauses if provision of buses is delayed.

2010

- TATA motors provides 40 buses to UCTSL in February 2010 after a delay of several months and owes UCTSL a penalty of 9 Crores. UCTSL stops the 6 Crore payment and demands an amount of Rs. 3 Crore from TATA motors. The matter is yet to be resolved.
- TATA motors stops the manufacturing of the particular CNG model provided to UCTSL.
- UCTSL awards the contract to run 40 CNG buses to a private operator in January.
- The private operator defaults on the contract in November 2010 citing heavy losses. The buses are returned to UCTSL in poor condition.

2011

- In absence of the private contractor, UCTSL decided to run the buses on its own.
- UCTSL faces challenges in the regular upkeep and maintenance of buses. The bus model selected was an electronic model with a computerized maintenance system and highly specialized spare parts . Since the manufacturing of such buses was stopped by TATA motors, UCTSL struggles to find spare parts for repairs.
- In the absence of adequate fuelling stations, CNG proves to be an expensive fuel.

2012

- UCTSL incurs severe losses in bus operations.
- Because of the poor handling of buses , unavailibility of spare parts and lack of maintenance, 23 of the 40 CNG buses are left damaged and remain unused.
- UCTSL uses remaining JNNURM fun to procure 50 mid sized non-AC diesel buses in place of the 10 AC buses which were sanctioned earlier.

2013

- UCTSL awards the contract to run 18 CNG and 30 diesel buses to a private contractor in March.
- UCTSL struggles to justify the course of events including purchase of diesel buses, hiring of new contractor and losses incured to the elcted wing.

Many CNG buses procured by UCTSL are now lying defunct

Currently UCTSL operates 48 buses in the city and 'Earth Connect Transway Pvt. Ltd.' is the selected private contractor. The UCTSL is planning to operationalize the remaining 30 diesel buses soon and is currently working on a routing plan.

The city bus system is facing strong competition from the IPT system, part of which is unauthorized and uncontrolled. Because of shorter frequency of buses and longer wait times, many passengers still prefer to use the tempos and vans which are more readily available.

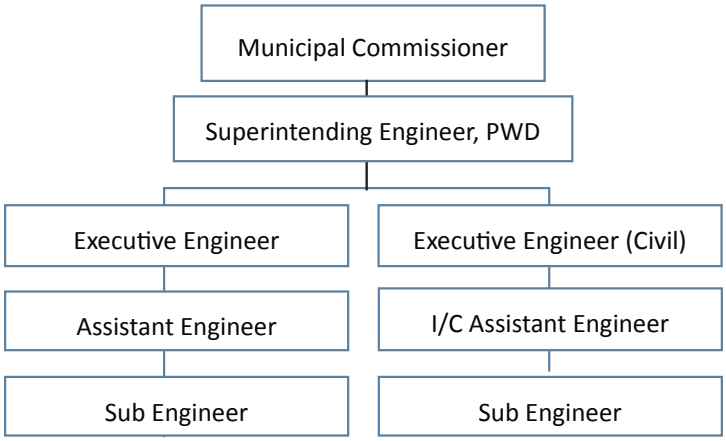
UMC had constructed 60 bus stops in the city a few years back. Only 12 of those bus stops are currently functional. The remaining bus stops were removed/ damaged in the process of road expansion.

Newly procured diesel buses are currently functional in Ujjain

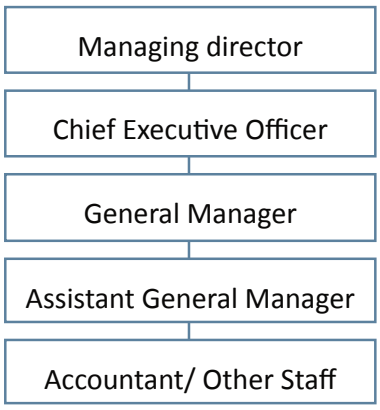
Capacity Assessment of Technical Staff in Urban Transport

For the purpose of this training need assessment, all existing staff (dedicated and shared) in urban transport within UMC, UCTSL and UDA was identified as below of which select people were interviewed

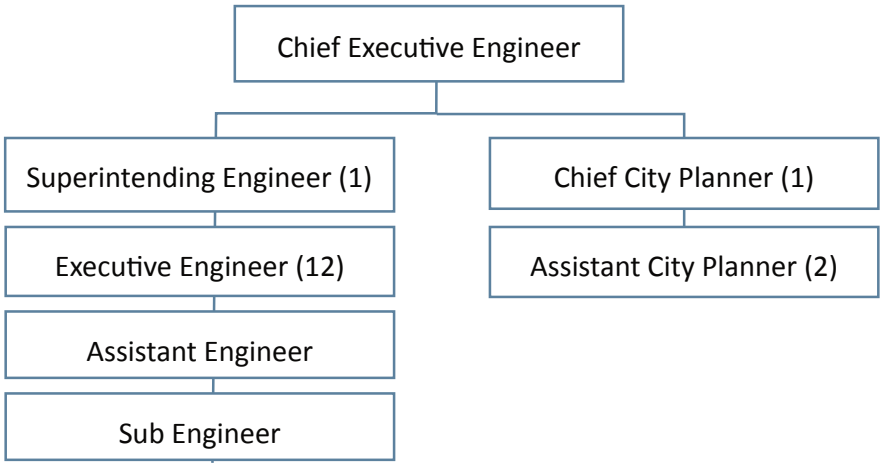
Urban Transport Staff in UMC



Urban Transport Staff in Ujjain City Transport Service Limited (UCTSL)



Urban Transport Staff in UDA



The following table indicates the educational qualifications of urban transport staff in Ujjain. None of the staff interviewed has had a formal education in transport planning/ engineering. Most staff has been educated in the field of civil engineering and construction and not equipped with the knowledge or skills to deal with complex urban transport problems.

Educational Qualifications of Staff in Ujjain

Number of staff interviewed	20
Number of staff with Master Degree	6
Number of staff with Bachelors Degree	11
Number of staff with Diploma	3
Number of staff with education in Transport Planning	0
Number of staff who have received training in Urban Transport	8

Awareness about Sustainable Transport in Ujjain

	Fully aware	Somewhat aware	Not aware at all	No Answer
National Urban Transport Policy	6	8	5	1
Role of sustainable urban transport in ensuring equity	9	7	3	1
Role of sustainable urban transport in energy security and mitigating climate change	6	11	2	1
Street design guidelines on design of “Complete Streets”	5	9	4	2
Guidelines by MoUD and other organizations on managing urban bus services	7	5	5	3
Parking management and pricing	11	5	1	3

The table on the following page presents the capacities among staff in Ujjain to successfully implement public transport projects. The lack of capacity among Ujjain staff in managing urban bus services is reflected in the various hurdles the UCTSL faced in operationalizing organized bus operations in the city.

Capacity in Planning and Implementing Sustainable Transport in Ujjain

	Fully aware	Somewhat aware	Not aware at all	Not relevant
Use of GIS and other modeling software for transport planning	6	6	6	2
IRC Design Standards for Roads	8	7	5	0
Bus Operations and Route Planning	9	6	3	2
Standard Operating Procedures for Bus Services	7	5	5	3
Using PPP for transport and parking management	11	7	2	0
Procurement, contracting and monitoring of consultants	7	11	1	1

A workshop was arranged in Ujjain in association with the UCTSL to gain inputs on the current urban transport situation from the technical staff and allow them to share their vision for the city. Select ideas that were shared at the workshop are presented below.

"Ujjain was among the first cities in MP to prepare a CMP but the plan is pending approval from the State government. The CMP needs to be approved and the ULB should start implementing its proposals."

"Need for better traffic enforcement in the city"

"A Route rationalization plan should be prepared for the bus service and other IPT modes. Buses can ply on arterials and authorized smaller vehicles such as TATA magic vans can cater to the dense old city areas."

"The city needs new flyovers, rotaries and traffic signals"

"The city should follow a plan while implementing transport proposals. For instance the city has decided to widen several roads irrespective of whether there is a real need. The city should not lose its heritage and character in the process"

"UCTSL services should be expanded to nearby towns and cities"

"Use of old polluting para transit vehicles should be curbed"

"Need for more awareness on sustainable transport among executive staff and elected representatives should be made aware"

These views expressed by the technical staff bring to light the following concerns regarding understanding of sustainable transport in Ujjain:

- There is an understanding among staff on the need for integrated planning and streamlining institutional framework in urban transport sector.
- Interest among staff to pedestrianize old city as well as other plazas in the city
- Interest and awareness about sustainable modes of transport.
- Acceptance among staff regarding the need to augment public transport services.
- The focus of urban transport is largely on relieving congestion for private motorized vehicles by means of road widening, construction of flyovers, rotaries etc.
- There appears that important decisions regarding urban transport infrastructure are taken by political leaders and senior administrators not necessarily incorporating the views of the technical staff. This highlights the need for creating more awareness regarding urban transport among elected officials and other decision makers.

In addition to identifying knowledge and skill gaps in urban transport, the questionnaire based assessment also identified key organizational and management training needs. The top three short term needs requiring immediate training as identified by the Ujjain staff are as follows:

- Proposal/project preparation
- Working with elected representatives
- Information, education and communication

Based on the questionnaire survey, interviews and UMCs assessment of staff capacities, the following immediate training areas in sustainable urban transport are identified for Bhopal:

Top Training Needs for Ujjain

Training Area	Target Audience	Training Methodology
Review workshop on Ujjain CMP	UMC, UCTSL	2-3 days Workshop
Planning for Sustainable Urban Transport in Ujjain	UMC, UCTSL, UDA, RTO, Traffic Police, Elected Officials	Hands-on workshop and field visits
Pedestrianization of streets and precincts in old city	UMC	Hands-on workshop and field visits
Sustainable business model for UCTSL with focus on revenue generation	UCTSL, UMC	Classroom training and sharing of best practices

DEWAS

Dewas is situated at a distance of 35 km from Indore and 153 km from Bhopal in the state of Madhya Pradesh. With a population of 2.89 lakh (census 2011), Dewas is primarily an industrial town and houses several small and midsized industries such as Cummins, Ranbaxy labs and a Government Bank note press.

The total area under the jurisdiction of the Dewas Municipal Corporation is 100 sq. km out of which about 45 sq km is developed land (Dewas Municipal Corporation, USAID, Alchemy Urban Systems, 2011). The industries are situated in the southwest part of the city and recent growth of the city is towards the north and northwest towards Ujjain and in the southwest towards Indore. Dewas experienced a moderate decadal growth of about 23% between 2001 and 2011

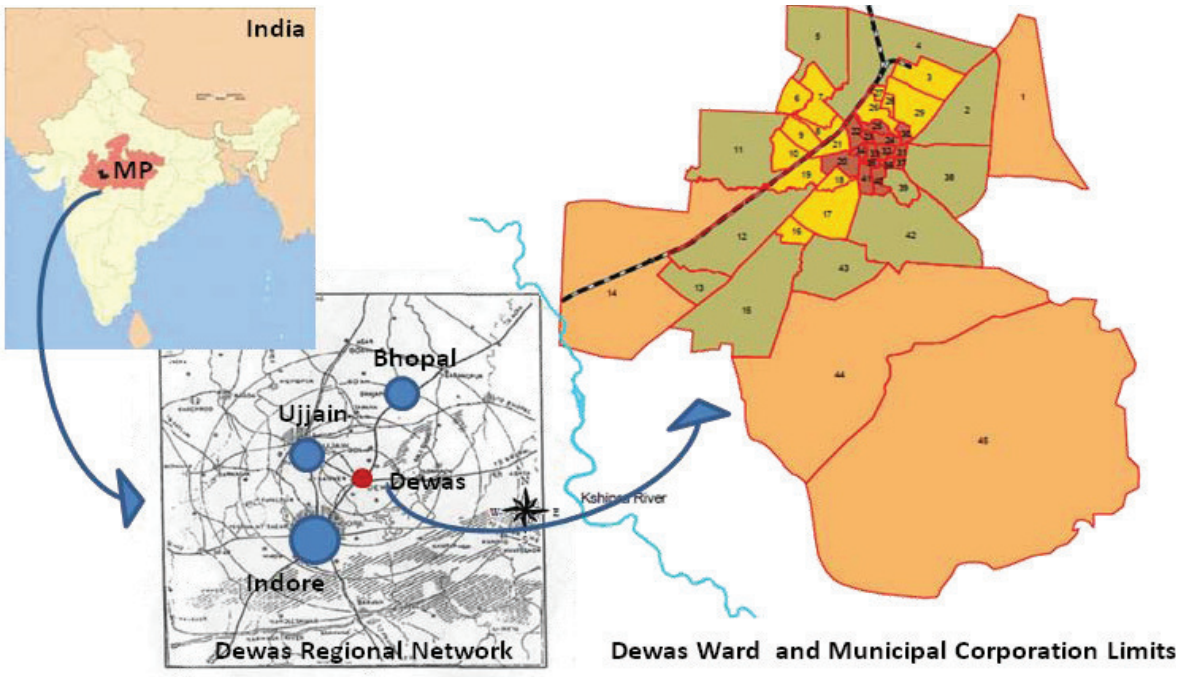
Dewas faces several problems including water scarcity, lack of sewerage and sanitation, limited land for industrial expansion and no proper road infrastructure (IMaCS, MPUSP, 2011)

Because of lack of infrastructure and limited education and recreation opportunity in the city, it is observed that people working in middle management and senior positions in the Dewas Industrial sector prefer to stay in Indore/ Ujjain and commute everyday into the city.

Currently there are severe gaps in urban service provisions such as piped water supply, SWM and development of new road infrastructure in the city like other towns of this scale in India. This has led to deteriorating quality of life in the city and has hampered the growth of the city.

With its existing industrial base and proximity to Indore, Dewas has the potential to become a leading industrial hub in the region if it speeds up investment in physical and social infrastructure in the city and plans for future growth in an equitable and sustainable fashion.

Location and Municipal Boundaries of Dewas, source: CDP



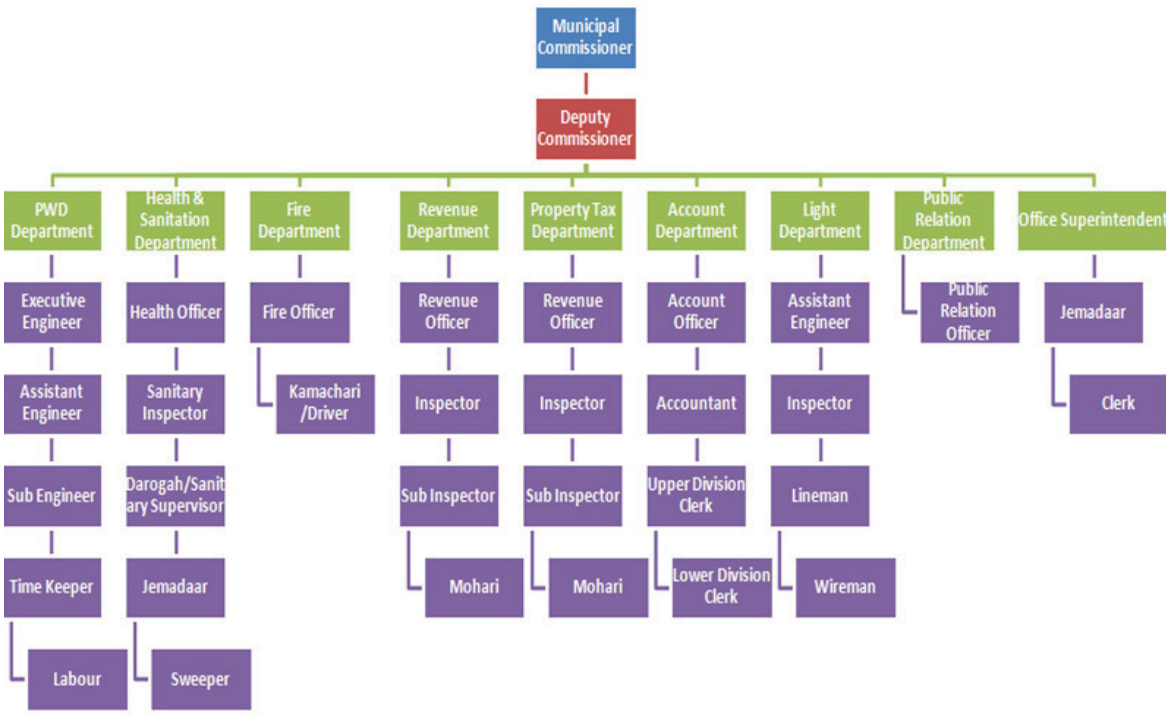
Local Governance

The Dewas Municipal Corporation (DMC) is responsible for the delivery of all municipal functions and provision of urban services in the city, including water supply, sanitation, street lighting, solid waste management, etc. The functioning of the Dewas Municipal Corporation (DMC) is governed by the Madhya Pradesh Municipal Corporation Act, 1956 and amendments made thereafter.

Currently DMC has 45 wards each represented by a democratically elected ward councilor and the Corporation is governed by the Mayor-in-Council. The Executive Wing of DMC is headed by the Commissioner and is responsible for the day to-day functioning of the Corporation. The various departments in DMC include water supply, sanitation, SWM, street lighting, roads, revenue etc. Following diagram shows the organizations structure of DMC.

The technical and financial capacity within DMC is very limited. DMC's own budget is limited but over the past few years, Dewas has received several grants under state and national schemes to improve basic services and road infrastructure in the city. With its limited capacity, Dewas has not been able to make the most efficient use of these monies.

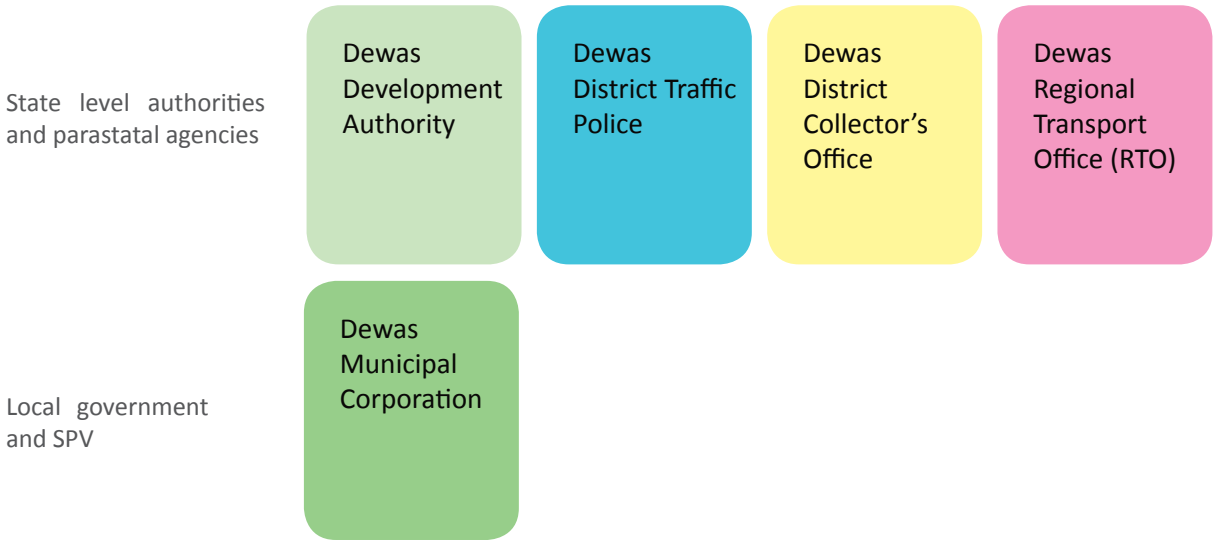
Organizational Structure of Dewas Municipal Corporation, Source: City Sanitation Plan



City level Departments and Parastatal agencies in Urban Transport

While upgrading road infrastructure is a major priority for the city, Dewas lacks a comprehensive vision for urban transport in the city. This is also reflected in the multiplicity of department and institutions dealing with urban transport. The following departments in DMC and other city level bodies are responsible for managing one or more aspects of urban transport in the city.

City Level Departments and Parastatal Agencies in UT, Dewas



PWD Department, Dewas Municipal Corporation

The Public Works Department is the primary agency for the construction and maintenance of roads within municipal limits as well as water and drainage related work. PWD Department is headed by an executive engineer/city engineer and supported by assistant engineer who takes care of day to day responsibilities for work related to departments. At present, the PWD has two executive engineers, three assistant engineers and 7 sub-engineer. PWD department is the agency responsible for managing the construction of roads, parking lots etc. under the Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT).

Dewas Development Authority (DDA)

The Dewas Development Authority is an autonomous body established under the Madhya Pradesh Town and Country Planning Act, 1973 (Nagar Tatha Gram Nivesh Adhiniyam 1973) with the purpose of implementing the city's Master Plan.

DDA implements residential schemes or townships to provide serviced land for house construction to Dewas residents. The roads and other infrastructure such as playgrounds and markets inside the townships is also developed by DDA. Other than developing these townships, the DDA also has the authority to provide land for industrial expansion and construction of major roads and other transportation facilities within the city for the efficient movement of people and goods.

Transport Profile

Dewas is experiencing a rapid increase in two wheeler population in the city. As per the CDP of Dewas, two wheelers constitute more than 80% of the vehicles plying on roads. Limited roads, lack of traffic management and enforcement and haphazard parking on road sides has led to congestion and deteriorating environment on all major roads in the city.

Road Infrastructure

State Highway (SH 18) and National highway (NH3,NH 86) connecting Dewas to Ujjain and Indore act as primary arterials within the city. There is a bypass road encircling the eastern portion of the city which has helped curtail heavy traffic in the city. Some industrial traffic still passes through the city streets.

The total road network of Dewas Municipal Corporation is 298 KM. The sparse road network facilitates only a few alternate routed for circulation within the city. Most roads are narrow with heavy encroachments and haphazard parking along road side leading to a highly inefficient use of ROW. The predominant number of trips in the city are on foot yet the city does not have any functional footpaths on majority of the roads. Illegal encroachments by commercial establishments and parked vehicles on road sides force the pedestrians to work alongside motorized vehicles jeopardizing their safety. Being an industrial town there are also a significant number of trips made on cycles. City roads again do not have any infrastructure provisions for cyclists.

Public Transport

In the absence of organized public transport system, auto rickshaws, TATA Magic vans and tempos are the popular modes of public transport within the city. Dewas Municipal Corporation along with RTO has facilitated the improvement and organization of the intermediate public transport system in the city. Larger polluting vehicles such as Vikram were phased out and TATA magic vans running on CNG were introduced in their place. The CNG station is established by GAIL gas and has a capacity to serve more than 1,000 small vehicles and 30 to 50 buses a day. Given the daily influx of population from Indore to Dewas, the Municipal Corporation is interested in initiating a bus service connecting the two cities.

Parking Management and Pricing

The core city of Dewas is largely commercial with several popular markets on Sardar Patel Road, Bhagat Singh Road , Mahatma Gandhi Road and other such roads in the city. Most of these markets see a heavy footfall with people coming on foot as well as personal vehicles. The markets do not have any parking facilities. In the absence of on street parking management and enforcement, most vehicles park haphazardly on streets hampering smooth vehicular as well as pedestrian movement. The CDP proposes on street parking facilities and parking lots in market areas in the city.

Heavy vehicles, two wheelers and pedestrians share a narrow ROW

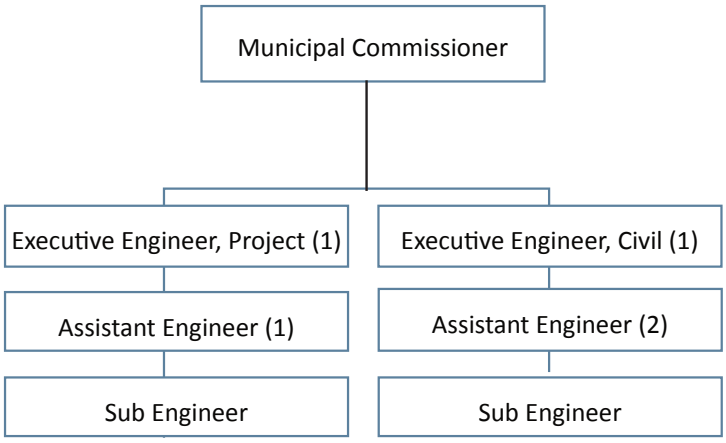
Dewas has replaced heavy polluting vehicles with TATA magic vans running on CNG

Haphazard Parking in Market Areas

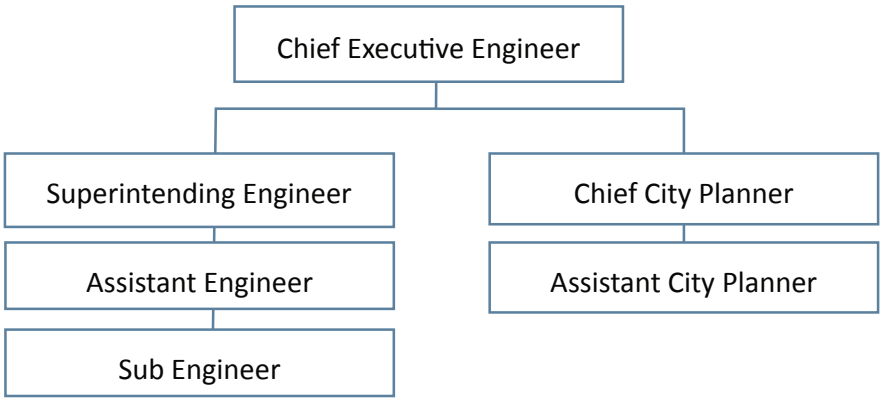
Capacity Assessment of Technical Staff in Urban Transport

For the purpose of this training need assessment, all existing staff (dedicated and shared) in urban transport within DMC and DDA was identified as below and was asked to fill the questionnaire survey in a workshop format.

Urban Transport Staff in DMC



Urban Transport Staff in DDA



The following table indicates the educational qualifications of urban transport staff in Dewas. None of the staff interviewed has had a formal education in transport planning/ engineering or has received any training in urban transport. Most staff has been educated in the field of civil engineering and construction.

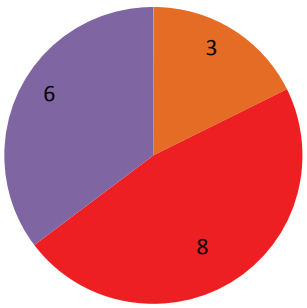
Educational Qualifications of Staff in Dewas

Number of staff Interviewed	17
Number of staff with Master Degree	6
Number of staff with Bachelors Degree	11
Number of staff with Diploma	3
Number of staff with education in Transport Planning	0
Number of staff who have received training	8

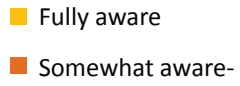
The following table presents the awareness of staff on sustainable transport concepts. The awareness levels across fields were observed to be very low.

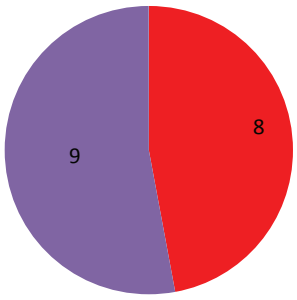
Awareness about Sustainable Transport in Dewas

	Fully aware	Somewhat aware	Not aware at all	No Answer
National Urban Transport Policy	0	3	8	6
Role of Sustainable Urban Transport in ensuring equity	0	3	8	6
Role of Sustainable Urban Transport in energy security and mitigating climate change	0	7	4	6
Street Design Guidelines on design of "Complete Streets"	3	6	5	3
Guidelines by MoUD and other organizations on managing urban bus services	0	0	8	9
Parking Management and Pricing	0	5	6	6



8 out of 17 staff is not aware about the National Urban Transport Policy





None of the staff interviewed had any knowledge on managing urban bus services

At the workshop, the participants were asked to share their vision for urban transport in Dewas. Select ideas that were shared are presented in the box below.

"Infrastructure development is most important aspect. Development in accordance with master plan is strictly needed and there is a need for better coordination among various departments."

"Busy streets should be widened. On street parking should not be allowed on major arterials."

"Industrial traffic from AB road should be shifted on the bye pass road/Ring Road."

"Reliable and High quality Public Transport should be introduced in the city."

"Improvement in the urban transport sector should happen in two stages. First the basics such as traffic management, systematic parking lots, zebra crossing etc. need to be taken care of. The second stage should include infrastructure development such as widening of roads, foot over bridges, grade Separators etc."

These views expressed by the technical staff bring to light the following points regarding understanding of sustainable transport in Dewas:

- There is an agreement among staff regarding traffic management and stricter parking enforcement.
- City managers in Dewas share a vision for planned growth of Dewas which is sustainable and equitable in the long term.
- There is interest in introducing high quality formal public transport in the city.
- There is a widespread understanding on the importance of coordination of various departments in Urban Transport.
- Street widening is largely considered the only solution to preventing congestion in the city
- Little mention about the plight of pedestrians and cyclists in the city indicates non motorized infrastructure is not considered a priority in the list of things.
- Traditional solutions to ensure pedestrian safety such as foot over bridges and subways indicate lack of awareness on modern thinking about complete street design.
- Street widening is largely considered the only solution to preventing congestion in the city

The following table presents the capacities among staff in Dewas to successfully implement public transport projects. The table highlights the lack of awareness in the sector of transport and parking management which appears to be a focus area for the city.

Capacity in Planning and Implementing Sustainable Transport in Dewas

	Fully aware	Somewhat aware	Not aware at all	Not relevant
Use of GIS and other modeling software for transport planning	3	4	5	5
IRC Design Standards for Roads	1	11	1	4
Bus Operations and Route Planning	0	6	4	7
Standard Operating Procedures for Bus Services	0	2	8	7
Using PPP for transport and parking management	2	6	4	5
Procurement, contracting and monitoring of consultants	8	2	2	5

In addition to identifying knowledge and skill gaps in urban transport, the questionnaire based assessment also identified key organizational and management training needs. The top three short term needs requiring immediate training as identified by the Bhopal staff are as follows:

- **Proposal/project preparation**
- **Human Resource Management**
- **Working with elected representatives**

Based on the questionnaire survey, interviews and UMCs assessment of staff capacities, the following training needs in sustainable urban transport are identified for Dewas:

Top Training Needs for Dewas

Training Area	Target Audience	Training Methodology
Urban Transport solutions for inner city areas	ULB	Classroom Training and Exposure Visits
Design of streets and intersections that are pedestrian and cyclist friendly	ULB	Classroom training, field visits and workshops
Organizing IPT system in the city	ULB, RTO	Classroom Training and Exposure Visits
Introducing intra city and intercity urban bus service	ULB, Collectors Office	Classroom Training and Exposure Visits

KEY STRATEGIES AND RESOURCES FOR TRAINING

For successful implementation of sustainable urban transport projects under JNNURM in MP and to ensure sustainability of these initiatives even after the JNNURM funding ceases, systematic trainings, study tour visits and reorientation exercises are required. Utilizing appropriate approach for training and capacity building will help urban transport staff become more proficient at their current jobs and will equip them with the skills to plan and implement sustainable transport projects in their cities. This Chapter provides key strategies on Training at various levels of employees in the ULB and development authorities.

Capacity Enhancement Strategy for Madhya Pradesh

The State Government of Madhya Pradesh is currently working on adopting a training policy for senior administrators and ULB staff. The policy is developed by the OSD- Training, Government of Madhya Pradesh. This exercise is in alignment with the proposed training policy. In addition the following tactics are suggested to foster a conducive environment for training in the state.

Creation of job descriptions for unique staff positions

Drafting proper job descriptions is the first step towards prioritizing training needs in ULBs. The job descriptions for all staff (permanent and shared) should be drafted or reviewed where present. Necessary changes to those job descriptions should be identified and analyzed in light of the new thinking towards integrated sustainable transport and likely changes in the institutional structures in the sector. Job descriptions for future dedicated staff in urban transport should be drafted. Based on the job descriptions a gap analysis between current skills and required skills of all staff should be undertaken.

Maintaining a staff database at ULB

A detailed sector wise database of all employees should be maintained in the ULBs.

Constitute a training cell in UADD

A training cell should be constituted at UADD which keeps tab of training needs of ULB staff in various sectors. The training cell should maintain a database all employees of the ULBs, of different levels of officers showing intervals and details of trainings received in their careers. The database should also include a list of eligible employees for various training programs which would be prepared in a participatory manner with concerned departments. The training cell should also maintain a list of training providers in various sectors and work on developing a partnership with them to ensure that training is demand driven and specific.

Constitute a policy on job rotation

Administrative heads and management staff of various departments in ULB undergo frequent job rotation. It is also observed that because of shortage of staff at all levels; technical staff is shared/ rotated across various departments within ULB. It is recommended that UADD develop a Job rotation policy to assist ULBs in structured job rotation after evaluating aptitude and knowledge base of the staff. An induction training course for various sectors should also be developed to equip staff to smoothly transition into their new job profile.

Adopt category wise training modules

Depending on needs of individuals and nature of work carried out, training areas should be defined and a variety of training methods should be adopted for different levels of officials in the organization. Different categories of ULB staff and their training needs are described in further sections.

Training as a pre-requisite to Promotion

Training should be made prerequisite to promotion to ensure that all staff is well breast with the current trends and happening in their sector. Minimum person days of annual training could be made mandatory for employees for promotions or grade changes. 8 person days of training for administrators and managers and 4 person days of training .

Training Budget

ULBs should allocate a fixed amount in the yearly budget for trainings and exposure visits in various sectors.

Reforms to ensure long term sustainability of capacity building programs

Along with training inputs, it is necessary that the Government of Madhya Pradesh also undertake the following reforms to become an efficient and effective service oriented institution:

- Rationalization of institutional structure in urban transport at state and city level
- Regrouping of various departments involved in one or more aspect of city transportation and formation of an Urban Transport Department in Municipal Corporations.
- Implementation of 74th amendment and strengthening of ULBs by delegation of powers and furthering decentralisation.
- Drafting position specific job descriptions for urban transport staff
- Formation of a dedicated training department at the state level responsible for training and capacity building of ULB and Development Authority Staff in various sectors including urban transport. The training department will collaborate with training institutions for imparting training on demand basis.

Training needs for each category of ULB Staff and Elected Officials

The earlier section provides a comprehensive list of specific training areas to foster better understanding and implementation of sustainable transport in Madhya Pradesh. This section provides suggested training modules for various levels of ULB staff in urban transport management. The Training requirements have been identified for all unique positions of all departments of ULB.

Staff Categories

1. Executive Officers and Senior Management This category of staff includes administrators and senior management including the Commissioner, Deputy Municipal Commissioners, Zonal heads and CEOs of Government Special Purpose Vehicles. The training requirements for this category primarily focus on leadership, direction setting and management.

2. Managerial/ Supervisory Staff: Management/ Supervisors are responsible for the quality and efficiency of theservices in various departments of the Corporation. This category would include Chief Engineers, Superintending Engineers, Chief City Planner and General Managers of Government Special Purpose Vehicles. The training areas for this category include advanced functional knowledge on sustainable urban transport and managerial aspects of successfully planning and implementing projects.

3. Technical Staff: The technical staff actually carries out the tasks associated with implementing projects on ground. Skilled technical staff is crucial in ensuring efficient and effective service delivery. This group would include Assistant Engineers, Sub Engineers, Assistant Town Planners, and Field Staff etc and the training areas for this category focus on enhancing knowledge in functional areas of transport and improving technical skills.

4. Elected Officials : The role of elected officials is to safeguard public interest. They are often the final decision making authority on several improvement projects in the city. This category would include the Mayor, Standing Committee members and councillors. The training areas for this group focus on goal setting, leadership and current trends and ideas in urban transport and land use planning.

The table on the adjacent page presents a list of training modules for these staff categories.

Knowledge, Technology and Skill Enhancement Areas for Training in MP

The following table presents a comprehensive list of training areas in urban transport in for cities in Madhya Pradesh.

	Training Areas	Department/ Authority
	Comprehensive Planning for Urban Transport	
1	Formulating an Urban Transport Policy for MP	UADD
2	Preparation of CMPs- Scope and Purpose	ULB, Bus SPV
3	Setting up a unified transport authority at the regional level	TCPO, UADD ULB and Development Authorities
4	Visioning and Goal setting for Sustainable Transport	UADD,TCPO ULB, Bus SPV, Development Authority
5	Preparation of an integrated regional transport plan	ULB and Development Authorities
6	Integrating transport plan with statutory master plan	TCPO, UADD ULB and Development Authorities
	Public transport and IPT	
7	Planning for an appropriate organized Public Transport System	ULB, BUS SPV
8	Vehicle selection and procurement	ULB, Bus SPV
9	Traffic demand surveys for route planning and preparing PT plan	Bus SPV
10	Business Model for SPV	Bus SPV
11	PPP contracts for bus operations	Bus SPV
12	Intelligent Transport Management System for bus services	Bus SPV
13	Infrastructure requirements such as depots & terminal for bus systems	Bus SPV
14	Planning and Designing a BRT including conducting feasibility studies	ULB, Bus SPV (Bigger cities)
15	Integrating organized PT with other para transit modes	
16	Using Advertising on buses and bus stops for revenue collection	Bus SPV
17	Organization and management of para transit	ULB, RTO, Collectors Office, BUS SPV
18	Introduction to Cycle Sharing systems	ULB, Bus SPV
	Street Design with a focus on Pedestrian and Cycle Safety	
19	Principles and elements of complete street design	ULB, Development Authority
20	Conducting Primary surveys such as street audits and pedestrian counts	ULB, Development Authority
21	Standards and guidelines including IRC codes for footpath and cycle track construction	ULB, Development Authority
22	Intersection Design for pedestrian and cyclist safety	ULB, Development Authority

- Immediate need
- Mid term need
- Long term need

Sustainable Transport Knowledge Areas for Training in MP

Staff Category	Type of Training	Time Frame
Senior Administrators	Advisory support and handholding	Immediate
Administrators and Technical Staff	Classroom Training	Immediate
Senior Administrators	Advisory support and handholding	Immediate
Administrators and Senior Staff	Workshop	Immediate
Administrators and Senior Staff	Classroom Training	Mid term
Administrators and Senior Staff	Classroom Training	Long Term
Administrators and Senior Staff	Classroom Training and Exposure Visits	Immediate
Senior Technical Staff	Classroom Training	Immediate
Technical Staff	Workshop and demonstration on site	Immediate
Senior Administrators	Classroom Training	Immediate
Administrators and Senior Staff	Classroom Training	Immediate
Technical Staff	Exposure Visit	Immediate
Technical Staff	Exposure Visit	Immediate
Technical Staff	Classroom Training and Exposure Visit	Immediate
Administrators and Technical Staff	Classroom Training	Mid term
Administrators and Senior Staff	Classroom Training	Mid term
Administrators and Senior Staff	Classroom Training	Mid term
Technical Staff	Classroom Training	Mid term
Technical Staff	Classroom training and field visit	Immediate
Technical Staff	Training on field and interactive workshop	Immediate
Technical Staff	Classroom training	Immediate
Technical Staff	Training on field and interactive workshop	Immediate

Knowledge, Technology and Skill Enhancement Areas for Training in MP

	Training Areas	Department/ Authority
Parking Management		
23	Formulating and adopting a progressive Parking Policy	ULB
24	Basics of Parking management and Pricing	ULB
25	PPP for on street parking enforcement and management	ULB
26	Rationalizing Off-street parking requirements	TCPO, Development Authority, ULB
Pedestrian and Urban transport oriented Development		
27	Revitalizing old city areas	ULB
28	Pedestrian oriented micro planning	ULB, Development Authority
29	Reorientation of zoning regulations	TCPO, Development Authority, ULB
30	TP schemes mechanism for micro planning	ULB, Development Authority
31	Transit Oriented Development (TOD)	TCPO, Development Authority, ULB
Administration and Management Areas		
32	Proposal/project preparation	ULB, Development Authority
33	Working with elected representatives	ULB
34	Information, education and communication	ULB
35	Media handling & management	ULB, Development Authority
36	Leadership & Team Building	ULB, Development Authority
37	Human Resource Management	ULB, Development Authority

- Immediate need
- Mid term need
- Long term need

Staff Category	Type of Training	Time Frame
Administrators and Senior Staff	Advisory support and handholding	Immediate
Administrators and Senior Staff	Classroom Training	Immediate
Technical Staff	Classroom Training	Immediate
Administrators and Senior Staff	Classroom Training	Long term
Administrators and Technical Staff	Classroom Training and Workshop	Immediate
Administrators and Technical Staff	Workshop	Mid term
Technical Staff	Classroom Training	Mid term
Administrators and Technical Staff	Classroom Training	Mid term
Administrators and Technical Staff	Classroom Training	Mid term
Technical Staff	Classroom Training	Immediate
Technical Staff	Classroom Training	Immediate
Technical Staff	Classroom Training	Immediate
Technical Staff	Classroom Training	Mid Term
Technical Staff	Classroom Training	Mid Term
Technical Staff	Classroom Training	Long Term

Training Modules for Different Staff Categories in ULB

Category of ULB staff	Training Areas
Executive Officers and Senior Management	Visioning and Goal Setting for Transport
	Urban Management
	Role of private sector participation
	Institutional reforms in Urban Transport
	Governing laws, rules and regulations
	Best practices in Transport
	Public and Media Relations
	Emerging financial models in transport
Managerial/ Supervisory Staff	Best practices in Transport
	Transport Planning and Budgeting
	Project Formulation and Proposal Writing
	Trends, Reforms, policy changes in Transport at national and state level
	Recruiting and Monitoring of Consultants
	Understanding of Contract Mechanisms
	Interdepartmental coordination
	Use of technology
Technical Staff	Trends, Reforms, policy changes in Transport at national and state level
	Best practices in Transport
	Policies, Rules, regulations and guidelines for various urban transport elements
	Engineering and technical skills relating to planning and design of transport system
	Use of technology
	Recruiting and Monitoring of Consultants
Elected Officials	Best practices in Transport
	Trends, Reforms, policy changes in Transport at national and state level
	Transport and Equity
	Role of private sector participation
	Fostering community involvement

Training Providers in Urban Transport

The role of training providers is to organize training programs and workshops which cater to the training needs of City managers identified through this study. This section provides a list of training providers in India which provide training in the urban transport sector. The list includes academic institutions, research organizations, nonprofit companies and technical advisories. The list has been collated based on secondary research as of April 2013.

Institute of Urban Transport (IUT)

Institute of Urban Transport was set up in 1997 with the objective of promoting and coordinating urban transport in the country. The membership of the institute comprises of academics, architects, economists, engineers, transport planners, town planners and professionals from various disciplines. The institute manages the affairs of National Urban Transport Information Centre of the Ministry of Urban Development, which has been set up to compile data on urban transport in scientifically designed formats and maintain it methodically. IUT publishes various toolkits and organizes training workshops in urban transport areas such as road safety, street design, Bus operations etc. in partnership with national and international experts.

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E-mail : iutindia@gmail.com,
Website : www.iutindia.org

National Institute of Urban Affairs (NIUA)

National Institute of Urban Affairs (NIUA) is a premier institute for research, training and information dissemination in urban development and management. Established in 1976, as an autonomous body under the Societies Registration Act, the Institute enjoys the support and commitment of the Ministry of Urban Development, Government of India, State Governments, urban and regional development authorities and other agencies concerned with urban issues.

Contact Details:
Director, NIUA
National Institute of Urban Affairs
Core 4B, India Habitat Centre, Lodhi Road, New Delhi 110003
Telephone (91 11) 24643284/24617517

Centers of Excellence in Urban Development & Urban Transport, MoUD

The Ministry of Urban Development, Government of India has established 13 Centers for Excellence in the area of urban development and urban transport. These centers were selected from among national level institutes and organizations of repute who demonstrated long term expertise and quality work either in urban development or urban transportation. The centers of excellence would join hands with the municipal bodies to work on specific issues in the sector strengthening capacity building, promoting awareness, research and training on specific topics in these areas.

Center Name	Focus Area	Contact Person	Contact Details
Administrative Staff College of India Hyderabad	Municipal Service Delivery, Urban Reforms and Public Private Partnership	Dr. S. K. Rao Director-General	Bella Vista, Raj Bhavan Road, Khairatabad, Hyderabad 500 082,India. Phone : +91-40-66533000. Fax : +91-40-23312954 email: skrao@asci.org.in
Centre for Environment and Development Thiruvananthapuram	Waste Water Management and Solid Waste Management	Dr. Babu Ambat, Executive Director & Member Secretary, CED	Centre For Environment And Development (CED) Thozhuvancode, Vattiyoorkavu P.O, Thiruvananthapuram – 695 01. Website:www.cedindia.org
Centre for Science and Environment New Delhi	Sustainable Water Management		
Indian Institute of Management Bangalore	Urban Administration and Financial Management		Centre for Public Policy IIMB,Bannerghatta Road, Bangalore-560076, India. Tel: 91-80-26993323 Fax:91-80-26584050 / 26993359 email:cpp@iimb.ernet.in web: www.iimb.ernet.in
Indian Institute of Technology Guwahati	Integrated Land Use Planning & Water Resource Management		
Indian Institute of Technology Chennai	Decentralised Waste Water Management and PPP		
Integrated Research and Action for Development(IRADe) New Delhi	Climate Change Vulnerability and Adaptation		

Center Name	Focus Area	Contact Person	Contact Details
Lal Bahadur Shastri National Academy of Administration Mussoorie	Urban Development and Management		Lal Bahadur Shastri National Academy of Administration, Mussoorie-248179 (Uttarakhand) Website:http://www.lbsnaa.gov.in
The Energy and Resources Institute New Delhi	Urban Development	Dr. R K Pachauri Director-General	Darbari Seth Block, IHC Complex, Lodhi Road, New Delhi - 110 003, INDIA Tel. (+91 11) 2468 2100 and 41504900 Fax (+91 11) 24682144 and 24682145
Indian Institute of Technology Delhi Phone: 91-11-26596361, 26858703 Fax: 91-11-6858703, 26851169 email:mahesh@cbme.iitd.ernet.in	Public Transit Planning, design and Optimization with special focus on BRT; Integrating of urban planning, traffic flow, use of ITS, impact / benefits to environment including NMV; Road Safety factors in Urban areas		TRIPP, Indian Institute of Technology, Hauz Khas, new delhi - 110 016 india
CEPT University Ahmedabad	Land use-Transport Integration, Transit Oriented Development; BRT Planning & Management; Fiscal tools for Urban Transport Management; Transit Impact Assessment, Social and environmental aspects of urban transit; Sustainable Urban Transport	Prof. H.M. Shivanand Swamy Director (CoE-UT) Tel :: + 91-79-26302470 Email: hmshivanandswamy@cept.ac.in	CEPT University,Kasturbhai Lalbhai Campus, University Road, Ahmedabad-380009, Gujarat, India. Phone – 0091-79-26302470 / 26302740 Fax - 0091-79-26302075
National Institute of Technology Warangal	Strategy for improving Mass Transit Patronage; Modelling Urban Growth Landuse-Transport Integration; Development of Capacity Analysis for Urban Streets; IS based Traffic & Road Safety Management System; Modelling & Mapping Environmental Pollution.		
Indian Institute of Technology Chennai	ITS application in Urban Areas; Urban Transport Systems Planning; Urban Transportation Infrastructure Management.	Dr. R. Sivanandan Email: rsiva@iitm.ac.in	Transportation Engineering Division Department of Civil Engineering IIT Madras Chennai 600 036

The Institute for Transportation and Development Policy (ITDP)

The Institute for Transportation and Development Policy (ITDP) is an international non-profit founded in 1985 to promote environmentally sustainable and socially equitable transportation worldwide. ITDP works with city governments and local advocacy groups to implement projects that reduce poverty, pollution, and oil dependence. ITDP India works in Chennai, Pimpri-Chinchwad, Pune, and Rajkot. In 2009, with technical support from ITDP, Ahmedabad's Janmarg bus rapid transit (BRT) system opened and earned the city the 2010 Sustainable Transportation Award. ITDP supports local government in planning and execution of BRT infrastructure and systems for pedestrian and cyclist safety and comfort, parking management and pricing. ITDP also works on sustainable transport policy to encourage reduced car use and transit-oriented development. ITDP has provided trainings in the areas of BRT, Operational Planning and Street Design.

Contact Details:
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Tamilnadu, Tel:+91 44 45562426

EMBARQ

EMBARQ is an international non-profit whose mission is to catalyze and help implement sustainable transport solutions to improve quality of life in cities. Since 2002, the EMBARQ network has expanded to Mexico, Brazil, China, India, Turkey and the Andean Region, collaborating with local transport authorities to reduce pollution, improve public health, and create safe, accessible and attractive urban public spaces. The network employs more than 120 experts in fields ranging from air quality management, geography, civil and transport engineering and urbanism.
EMBARQ India started activities in 2006 in Mumbai and has since then expanded to the cities of Bangalore and Delhi working with Indian authorities to catalyze and help implement solutions to the problems of urban mobility. Embarq has published several resources on bus operations and BRT design and also provides trainings in these areas.

Contact Details:
Embarq India
Godrej and Boyce Premises Gaswork Lane,
Lalbaug Parel Mumbai 400012 India
Tel: +91 22 24713565

Central Institute of Road Transport (CIRT)

CIRT offers management development programs covering general management, transport operations and maintenance engineering. The programs are meant for practicing managers in STUs, other organizations operating transport services besides road transport officials. All programs are residential and their duration ranges from one week to four weeks. In addition, the Institute undertakes consultancy and research assignments on transport policy, transportation planning, traffic management, maintenance management, materials management, human resource management and management information systems.

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Central Institute of Road Transport
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Fax: +91-020-67345407
Website: http://www.cirtindia.com

Engineering Staff College of India (ESCI), Hyderabad

Engineering Staff College of India (ESCI) is a unique institution which deals for professional development of engineers & executives. Set up in October 1981 by the premier body of professional engineers of India, The Institution of Engineers (India). ESCI will be completing three decades of service to the nation in imparting training different disciplines like Climate Change, Civil & Transportation Engineering, Environment Management, Information Technology, Management & Technology, Power & Energy, Quality & Productivity, Water Resources Development, as well as providing consultancy services to the industry and government agencies.

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Andhra Pradesh, India
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Email : ic@escihyd.org
Web Site :www.escihyd.org

Indian Institute for Human Settlements (IIHS)

The Indian Institute for Human Settlements, the promoter of the IIHS University, is a Section 25 not-for-profit company under the Indian Companies Act. It has been brought into existence, nurtured and led by a group of eminent Indians from all walks of life. The IIHS functions out of two city campus facilities in New Delhi and Bengaluru. IIHS organizes residential training courses throughout the year on areas such as GIS applications in planning, transport and urban development.

Contact Details:
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GIZ International Services: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

GIZ was established in 1975 as a private company owned by the German Federal Government with two registered offices is in Eschborm and Bonn.

GIZ IS started its activities in India in 2006, with its portfolio concentrated on projects with international organizations, governments, foundations and companies with worldwide operations. Currently there are 69 international and national staff working for GIZ IS in India to support on vocational education, corporate social responsibility, environment and energy, but extend across the full range of themes covered by GIZ. Projects are currently being implemented throughout the country on behalf of the European Commission, Indian state governments and international companies.GIZ is supporting the SUTP project in India. It has published various resources on transport planning and provides training in the areas of pedestrian and cycle systems, public transport etc.

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National Transportation Planning and Research Centre (NATPAC)

National Transportation Planning and Research Centre (NATPAC) was established in 1976 as a Division of Kerala State Electronics Development Corporation (KELTRON), a Public Sector Enterprise under the Government of Kerala. In 1982, NATPAC was reconstituted as an R&D institution under the Department of Science, Technology and Environment, Government of Kerala. The Centre undertakes research, training and consultancy work in the fields of traffic engineering and transportation planning, highway engineering, public transport system, alternate options for transport system, transport energy, inland water transport, tourism planning and rural roads.

Contact Details:
NATIONAL TRANSPORTATION PLANNING AND RESEARCH CENTRE,
An Institution of the Kerala State Council for Science, Technology and Environment
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Thiruvananthapuram, Kerala
Phone : + 91 471 – 2548200, 2548209
Fax : +91 471 – 2543677

E-Mail: natpac@asianetindia.com

Centre for Green Mobility (CGM)

Centre for Green Mobility is an Ahmedabad based non-profit organization that support local governments to implement sustainable urban transport solutions. Currently CGM is working in the cities of Bhopal, Jaipur and Vadodara providing technical support on various NMT initiatives. CGM conducts workshops and trainings on street design and BRT systems.

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Chief Executive Officer
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b/h Rajpath Club, off S G Highway,
Ahmedabad 380059

Resources and Publications on Sustainable Urban Transport

Urban Transport Parameter	Title	Organization	Link
Design and construction of "Complete Streets" that are walking and cycling friendly	Guidelines and Toolkits for Urban Transport Development in Medium Sized Cities in India : Module Five : Non Motorized Transport	MoUD,ADB	http://sti-india-uttoolkit.adb.org/
	Better streets, better cities: A guide to street design in urban India	ITDP ,EPC	http://www.itdp.org/documents/BetterStreets111221.pdf
	Street Design Guidelines	UTTIPEC, DDA	http://uttipec.nic.in/writereaddata/linkimages/7554441800.pdf
Create dense and inter-connected street networks that enhance accessibility	Guidelines and Toolkits for Urban Transport Development in Medium Sized Cities in India : Module One: CMP	MoUD,ADB	http://sti-india-uttoolkit.adb.org/
	Urban Road Safety Toolkit	MoUD, TRIPP-IIT-Delhi	http://www.iutindia.org/CapacityBuilding/Toolkits.aspx
	The Town Planning Mechanism in Gujarat, India	The World Bank World Bank Institute	http://www.hcp.co.in/file_manager/publications/Town-Planning-of-Gujarat_Research-Paper.pdf
Ensure efficient use of ROW through traffic management and organized and paid parking	Guidelines and Toolkits for Urban Transport Development in Medium Sized Cities in India : Module Four : Parking	MoUD,ADB	http://sti-india-uttoolkit.adb.org/
	Guidelines for Road Markings	UTTIPEC,DDA	http://uttipec.nic.in/writereaddata/linkimages/5074369330.pdf

Urban Transport Parameter	Title	Organization	Link
Support High Quality Public Transport which is reliable, comfortable and frequent	Bus Karo: A Guidebook on Bus Planning & Operations	EMBARQ	http://www.embarq.org/en/bus-karo-a-guidebook-bus-planning-operations
	Guidelines and Toolkits for Urban Transport Development in Medium Sized Cities in India : Module Two: BRT	MoUD,ADB	http://sti-india-uttoolkit.adb.org/
	Guidelines and Toolkits for Urban Transport Development in Medium Sized Cities in India : Module Three: Bus Service	MoUD,ADB	http://sti-india-uttoolkit.adb.org/
	Urban Bus Toolkit: Tools and Options for reforming urban bus systems	The World Bank,PPIAF	http://www.ppiaf.org/sites/ppiaf.org/files/documents/toolkits/UrbanBusToolkit/assets/home.html
	TCRP Report 118 : Bus Rapid Transit Practitioner's Guide	Transportation Research Board	http://www.fltod.com/research/bus_rapid_transit/transit_cooperative_research_program_bus_rapid_transit_practitioners_guide.pdf
	Bus System Toolkit	MoUD,DFID,Wilbur Smith Associates	http://www.iutindia.org/CapacityBuilding/Toolkits.aspx
Maintain compact city footprint by facilitating public transport oriented development	Transit Oriented Development (TOD) Road Map for Delhi	UTTIPEC,DDA	http://uttipec.nic.in/writereaddata/linkimages/8729211245.pdf
Strengthen and improve Intermediate Public Transport for last mile connectivity	Toolkit for public cycle sharing system	MoUD,ITDP	http://www.urbanindia.nic.in/programme/ut/PublicCycleSharingToolkit.pdf
	The Alwar Vahini Story : Transforming Town Urban Transport	District Administration,Alwar	http://alwarvahini.com/avstory.html
Urban Transport Planning and institutional framework	PPP TOOLKIT for Improving PPP Decision-Making Processes	Ministry of Finance,GoI	http://toolkit.pppinindia.com/urban-transport/module1-intro.php?links=intro1
	Toolkit For Alternative Analysis	MoUD,DFID,Wilbur Smith Associates	http://www.iutindia.org/CapacityBuilding/Toolkits.aspx
	Toolkit For Institutional Framework for Urban Transport	MoUD,DFID,Wilbur Smith Associates, CRISIL	http://www.iutindia.org/CapacityBuilding/Toolkits.aspx
	Toolkit For PPP in Urban Transport	MoUD,DFID,Wilbur Smith Associates	http://www.iutindia.org/CapacityBuilding/Toolkits.aspx

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LIST OF CITY MANAGERS INTERVIEWED FOR TNA

	City	Name	Designation	Department
1	Bhopal	Mr. Devendra Tiwari	City Engineer (Project) & Addl. CEO	Bhopal Municipal Corporation & Bhopal City Link Limited
2	Bhopal	Mr. Manish Chaube	Asst.Engineer	PIU-Bhopal Municipal Corporation & Bhopal City Link Limited
3	Bhopal	Mr.Anilkumar Nanda	City Engineer (Civil)	Bhopal Municipal Corporation
4	Bhopal	Mr.S.K.Mishra	Executive Engineer	Bhopal Development Authority
5	Bhopal	Mr. Anand Mohan	Executive Engineer	Bhopal Development Authority
6	Bhopal	Prakash Chandra Choudhary	Executive Engineer	Bhopal Development Authority
7	Bhopal	Pankaj Shrivastava	Executive Engineer	Bhopal Development Authority
8	Bhopal	Sanjiv Khare	City General Manager	Private Bus Operator,BCLL
9	Indore	Mr. Hanskumar Jain	Superintending Engineer (Project)	Indore Municipal Corporation
10	Indore	Mr.Sunilkumar Gupta	Assistant Engineer (Project)	Indore Municipal Corporation
11	Indore	Mr.Naresh Jainwal	Sub Engineer (Project)	Indore Municipal Corporation
12	Indore	Mr. T.D. Sonawane	Procurement & Finance Manager	AICTSL
13	Indore	Mr. Sandeep Trivedi	Assistant EDP Manager	AICTSL
14	Indore	Mr.Mohammed Irfan	Assistant Technical Manager	AICTSL
15	Indore	Mr. Rahul Shrouti	Assistant Account Manager	AICTSL
16	Indore	Mr.Prashanth Bachu	Chief Operation Advisor	AICTSL
17	Indore	Mr.R.K.Singh	Chief City Planner (Planning)	Indore Development Authority
18	Indore	Mr.C.P.Mundra	Executive Engineer	Indore Development Authority
19	Jabalpur	Mr.Sanjay Pandey	Executive Engineer	Jabalpur Municipal Corporation
20	Jabalpur	Mr.R.K.Gupta	Executive Engineer	Jabalpur Municipal Corporation
21	Jabalpur	Mr.Sandeep Thagle	Chief Executive Officer	Jabalpur City Transport Service Limited
22	Jabalpur	Mr.G.S.Chandel	Zonal Officer	Jabalpur Municipal Corporation
23	Jabalpur	Mr.Umesh Jopre	Zonal/Divisional Officer	Jabalpur Municipal Corporation
24	Jabalpur	Mr.Ajay Sharma	Executive Engineer	Jabalpur Municipal Corporation
25	Jabalpur	Mr.Satyendra Dubey	Sub Engineer	Jabalpur Municipal Corporation
26	Jabalpur	Mr.Tarun Kumar Anand	Superintending Engineer	Jabalpur Development Authority
27	Jabalpur	Mr.D.S.Mishra	Executive Engineer	Jabalpur Development Authority
28	Jabalpur	Mr. Rakesh Gupta	Assistant Engineer	Jabalpur Development Authority
29	Gwalior	Mr.B.K.Sharma	Sub Engineer	Gwalior Development Authority

30	Gwalior	Mr.Vijay Bhandari	Sub Engineer	Gwalior Development Authority
31	Gwalior	Mr.R.G.Gole	Assistant Engineer	Gwalior Development Authority
32	Gwalior	Mr.Manoj Mathur	Sub Engineer	Gwalior Development Authority
33	Gwalior	Mr.B.K.Tyagi	Sub Engineer	Gwalior Municipal Corporation
34	Gwalior	Mr.R.K.Pandey	City Planner	Gwalior Municipal Corporation
35	Gwalior	Mr.Govind Bihari Chansolia	Sub Engineer	Gwalior Municipal Corporation
36	Gwalior	Mr.Rajesh Singh Parihar	Sub Engineer	Gwalior Municipal Corporation
37	Gwalior	Mr.Devendrakumar Gupta	Sub Engineer	Gwalior Municipal Corporation
38	Gwalior	Mr.Keshav Singh Chauhan	Sub Engineer	Gwalior Municipal Corporation
39	Gwalior	Mr.Sushil Katare	Executive Engineer	Gwalior Municipal Corporation
40	Gwalior	Mr.Sureshkumar Ahirwar	I/C Executive Engineer	Gwalior Municipal Corporation

41	Dewas	Mr.Ashutosh Kanungo	Executive Engineer	Dewas Municipal Corporation
42	Dewas	Mr.P.K.Suman	Dy.Commissioner	Dewas Municipal Corporation
43	Dewas	Mr.B.M.Gupta	Executive Engineer	Dewas Development Authority
44	Dewas	Mr. Ravi Kant Mishra	Fire Officer	Dewas Municipal Corporation
45	Dewas	Mr.P.K.Pathak	Assistant Engineer	Dewas Development Authority
46	Dewas	Mr. Dinesh Chauhan	Sub Engineer	Dewas Municipal Corporation
47	Dewas	Mr.Saiyad Shahid Ali	Sub Engineer	Dewas Municipal Corporation
48	Dewas	Mr.G.S.Songad	Sub Engineer	Dewas Municipal Corporation
49	Dewas	Mr.Munawar Baig		Dewas Municipal Corporation
50	Dewas	Mr. Vipin Kumawat	Executive Engineer	Dewas Municipal Corporation
51	Dewas	Mr. Jagdish Prasad Verma	Sub Engineer	Dewas Municipal Corporation
52	Dewas	Mr.Jitendra Singh Sisodiya	Sub Engineer	Dewas Municipal Corporation
53	Dewas	Mr.Vijay Jadhav	Sub Engineer	Dewas Municipal Corporation
54	Dewas	Mr.Somabh Tripathi	Sub Engineer	Dewas Municipal Corporation
55	Dewas	Mr.Khan Mohmmed Tofik	Sub Engineer	Dewas Municipal Corporation
56	Dewas	Mr. Mushahid H. Hanfi	Sub Engineer	Dewas Municipal Corporation
57	Dewas	Mr. Satyaprakash Acharya	Sub Engineer	Dewas Municipal Corporation

58	Ujjain	Mr.Asha Ram Ahirwar	Executive Engineer	Ujjain Municipal Corporation

59	Ujjain	Mr.Arun Jain	Executive Engineer	Ujjain Municipal Corporation
60	Ujjain	Mr.S.K.Shah	Superintending Engineer	Ujjain Development Authority
61	Ujjain	Mr.B.R.Chakrabarty	Assistant Engineer	Ujjain Municipal Corporation
62	Ujjain	Mr.Sujeet Khare	Sub Engineer	Ujjain Municipal Corporation
63	Ujjain	Mr.Ravindra Kataria	Assistant Engineer	Ujjain Municipal Corporation
64	Ujjain	Mr.Chandrakant Shukla	Assistant Engineer	Ujjain Municipal Corporation
65	Ujjain	Mr.Rajesh Singh Chouhan	Sub Engineer	Ujjain Municipal Corporation
66	Ujjain	Mr.R.B.Sharma	Executive Engineer	Ujjain Municipal Corporation
67	Ujjain	Mr.Jaysinh Rajput	Tax Department	Ujjain Municipal Corporation
68	Ujjain	Mr.Ansar Ahmed	City Bus Pass	Ujjain Municipal Corporation
69	Ujjain	Mr. Sunil Jain	Sub Engineer	Ujjain Municipal Corporation
70	Ujjain	Mr.Tofique Khan	Tax Department	Ujjain Municipal Corporation
71	Ujjain	Mr.Sachin Pawar	I/C City Bus (Control Room)	Ujjain Municipal Corporation
72	Ujjain	Mr.Kailash Chandra Patidar	Executive Engineer	Ujjain Development Authority
73	Ujjain	Mr.Balkrishn Sharma	Simhastha	Ujjain Municipal Corporation
74	Ujjain	Mr.B.P.Dwivedi	General Manager	Ujjain City Transport Services Limited
75	Ujjain	Mr.Pawan Kumar	Tax/Revenue	Ujjain Municipal Corporation
76	Ujjain	Mr.K.C.Shukla	Dy. Municipal Commissioner	Ujjain Municipal Corporation
77	Ujjain	Ms.Eakta Jaiswal	CEO	Ujjain City Transport Services Limited