HOW TO ESTABLISH A METROPOLITAN TRANSIT AUTHORITY

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and due by 15 February 2013 by noon GMT.
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Please note that this document has formatting issues that will be resolved in the final draft.

Table of contents: How to establish a metropolitan transport authority?

I. Key Messages

This Quick Guide, the second in a series of four on urban mobility, addresses the issue of how to set up a metropolitan transport authority (MTA) in a rapidly evolving urban area. It is aimed at municipal authorities who desire to improve urban mobility and access in their city, and complements the other guides (on Developing an Urban Mobility Plan, Forging an Urban Mobility Compact, and Establishing a Multi-Stakeholder Forum). It aims to provide a simple step-by-step approach, and point to relevant examples from cities around the world. It also provides a hypothetical sample case of an imaginary city going through each of the steps, complete with forms and templates that could be used by any city attempting to go through this process.

The key messages of this guide are:

-Explicit administrative roles and responsibilities, with clear accountability, is essential to the successful establishment of a new MTA, and its smooth working with the rest of the government.

-Legal authority must be granted to the MTA, along with adequate financial resources, to ensure that the potential it has on paper is translated into reality.

-There is likely to be a great need for capacity building on many levels – for example, planning, financial analysis, participatory techniques –and resources (time, financial, professional) will need to made available such training for the MTA to be as transformational as it can.

II. The need for a metropolitan transport authority

Urban Transport is an activity that is usually controlled by multiple and overlapping institutions, especially in rapidly changing metropolitan areas. The multiplicity of agencies providing various urban services often creates a familiar bureaucratic jam. In fact, the responsibilities for policy making, planning, investment, operations, and management are divided in Central, State and local government organizations with the result that there is no unity of command, nor a coherent approach to various issues confronted by this sector. Further, cities have complex urban management problems, and lack the resources (often both professional skills and investment funds) to deal with them. Available resources are often poorly organized across the various agencies with jurisdiction and authority. Thus, the core problem is often the absence of a coherent policy, and/or gaps between policy and implementation of projects, and a lack of political will to deal with complex transport issues where existing stakeholders strongly defend their interests, and emerging and less powerful stakeholders struggle to find a place for themselves.

In addition, cities, often expanding into and around the various villages and towns around them, as well as taking over previously agricultural land, evolve into metropolitan areas. As a result, the emergence of a "metropolis," based on the concentration of people and activities resulting

from a large increase in population in urban areas, often does not correspond to existing jurisdictional urban boundaries, leading to complex challenges concerning territory management, funding, competitiveness, civic participation, and accountability. Cities and metropolitan areas have their own geographical characteristics based on interdependence, dimension, and continuity of certain activities and urban services. The challenge lies in all of them being managed together to provide economic benefits for all and to grant a more balanced spatial distribution of activities, infrastructure, and service delivery.

Metropolitan transport authorities (MTAs) seek to tie these various pieces together, creating a single body that handles all transport-related policy over a metropolitan area. One commonly utilized definition of a transport authority by the International Association of Public Transport (known as the UITP because of its name in French) is: "Transport authorities are organisations which act in the public interest to ensure a well-functioning and integrated transport system within their territory. They are responsible for the planning, organisation and financing of public transport services." (UITP, 2012) However, given the evolution of responsibility of metropolitan transport agencies, it is also now common to include management of streets, parking, bicycle infrastructure and facilities, and public space and access to public transport. The spread of cities over administrative boundaries add another element essential to the challenge of providing high quality services in an organized and integrated manner.

Across the world, typically urban transport lacks the institutional support and clear mandates for needed short- and long-term planning exercises and the imperatives of implementation. The most important step for institutionalizing the process is to provide adequate professional expertise, establish the appropriate legal and administrative structure, and to motivate the staff involved for better performance. Disaggregated data and studies of demand assessment and its fulfilment, along with public satisfaction, should be on-going and regular, leaving major comprehensive studies for long term intervals. Administrators, managers, planners, economists, investors, end users, and other stakeholders should sit together and study the city in its social and economic context so that growth and development will be guided by informed studies rather than ad hoc initiatives. To be meaningful, the planning process should be transparent, participatory, regular, and accountable. Top level commitment for sustainable mobility leading to better quality of life in cities is crucial. Thus the present administrative and institutional chaos offers both a challenge and an opportunity.

Holistic and long term mobility planning requires an integrated assessment of various modes and sectors (energy, socio-economic, mobility, technologies, etc.), in order to face the sustainability challenges on its many dimensions, including social, environmental, and financial. The challenge lies in balancing the needs and demands of stakeholders from various sections of the society in a manner that is sustainable to the society as a whole, along with the spatial and temporal complexity. A professional, well-organized transport authority is the key governance requirement to contribute to urban sustainability, managing the complexity of the urban transport systems in a holistic manner to ensure improved quality of life for its citizens (UITP, 2010; and Booz, Allen, Hamilton (BAH) and Bay, 2011).

Another challenge is adequate funding for such activities. Plans often are no more than laundry lists of projects, in the worst of cases isolated and inconsistent. Yet even well-conceived and structured plans can face financial challenges. There is often limited financial planning by the authorities for assessing the financial viability of a particular initiative and its long term

sustainability. Many planning departments have an idea of the various forms of revenues that could be possible for funding, but there seems to be a gap in integrating these with a holistic perspective for assuring the inputs and revenues for financially sustainable urban transport. The gaps in financial planning and sporadic initiatives (and perhaps lack of authority) result in sub-optimal revenues and thus cast doubt on the long term sustainability of the transport infrastructure and the rolling stock.

Thus, one of the most relevant issues concerning this subject is to define the institutional model for metropolitan areas. In this context, it is imperative to understand the various relevant economic and political actors, sectors, and structures, along with financing relations. This is a time consuming and sensitive exercise, and there is no one-size-fits-all strategy. Case by case analysis is required. However, services like transportation require this kind of approach to bring consistency to a metropolitan organisation. Thus, there can be no one quick fix strategy to structuring this institutional system, since all organizational strategies may not be suitable for varied political, societal and administrative backgrounds and structures. This document presents a step-by-step guide, aimed at city officials, to establishing an MTA that can be adjusted and adapted to local conditions.

III. Step-by step: How to set up a Metropolitan Transport Authority

This section provides a step-by-step approach to setting up a Metropolitan Transport Authority (MTA). As mentioned above, this process will need to be adapted differently by every urban region attempting to do this, but we seek to provide a structure within which adaptation can take place.

Step 1: Context analysis

Setting up of a Transport Authority typically requires a national or state level mandate. For example, in India, the National Urban Transport Policy (NUTP) of 2006 is the policy driver for States (and, in turn, cities) to have a Unified Metropolitan Transport Authority (UMTA). However, before setting up the transport authority, there must be a clear understanding of the ground reality with respect to the current political context, legal /policy framework, resource availability, political pressure, stakeholders and competing. A multi-stakeholder consultation is important at this juncture, to understand the over-lapping of jurisdictions, services, , financial liabilities, and responsibilities in order to identify administrative and legal processes and bottlenecks.

Mandated by the National or State Government, and with funding facilitating it, a committee needs to be set-up to oversee a study that would be a government position or policy paper, highlighting the crucial factors for the institutional arrangements envisaged. The paper should then be discussed through multi-stakeholder participation. The broad components of the government paper could include the following pieces:

- o Analysis of current situation- transport, land use plans, socioeconomic and demographic data, growth trends, and development patterns

- o Organization and operation of public transport systems, private transport systems, intermediate transport systems, land use institutions, and informal providers
- o Investment in and ownership of transport infrastructure
- o Visible traffic-related issues, including:
  - ▪ Traffic management and parking
  - ▪ Travel demand management
  - ▪ Traffic enforcement
  - ▪ Traffic and road safety
- o Urban transport institutions
- o Financing urban transport services – current funding arrangements and cost recovery estimates as well as current and possible alternative funding mechanisms for both infrastructure and operations, including user fees, additional government transfers, PPP initiatives, and others
- o Proposed strategy and priority action program
  - ▪ Administrative and legal framework analysis
  - ▪ Service area demarcation
  - ▪ Economic, social implications
  - ▪ Policy implications
  - ▪ Gap Analysis – identification of administrative, legal, and information gaps that need to be in order for the proposed institutional changes to be effective
  - ▪ Alternatives analysis

Questions to be addressed include:

1. Analysis of the current institutional and governance arrangements. Why is the institutional change needed? This starts with analysis of the political and administrative organization of the metropolitan area. This will be different for each country, and thus establish different rules of the game to start the process.

2. Who has the authority for transport and urban development? Is there a dialogue between these domain areas? Is there a broader metropolitan authority overall? What are the weights of the different levels of government in the topic?

3. Regulatory powers in the field of transport and mobility. How far can each of the actors go in defining actions and strategies of urban mobility and its relationship to urban development of cities? What are the regulatory limits, legal jurisdiction and duties to these areas, both thematic and territorial level (Municipality / Commune, State / Province, Federation/central government)?

4. Urban development plans and land in the municipalities. List projects underway, and seek to define which of them are common, to begin to deepen the perception of need for a metropolitan authority. This step is important because it makes clear the possibilities

of a more formal collaboration and institutionalization, and the benefits that might accrue to different stakeholders.

5. What are the local regulations for the formation of metropolitan areas? What is the legal and regulatory framework in order to sign metropolitan arrangements? What steps are necessary? What are the changes in the legal and regulatory framework that must be taken to create the necessary conditions?

6. Can there be legal interaction between the public and private sectors, or how is that organized? This is especially important where PPPs are either building/running infrastructure or providing service, as they are virtually all over the world.

7. International case studies to address lessons learnt, and how that could be contextualized for the country. What are the critical success factors?

    a. *Impetus for change* – What was the reason for governance change in transportation?

    b. *Direction of governance change* – What governance models is the region is moving from and towards?

    c. *Mechanism for change* – Is legislative change required? What other processes would be involved?

    d. *Accomplishments* – What are the key accomplishments to date?

    e. *Lessons learned* – What important lessons have been learned?

    f. *On-going challenges* – What are the on-going challenges, particularly if the governance change has not been successful or has not been fully implemented?

8. Some proposed concepts of alternative governance structures, institutional and organizational arrangements need to be discussed for finding the best institutional set-up.

9. Political support and opposition – Are there political, business, and civil society leaders who support this initiative? (Please note that Quick Guides Three on Developing an Urban Mobility Compact addresses one technique to build and harness this support in the space of urban mobility planning.)

Sources: Authors, based on Booz, Allen, Hamilton and Bay, 2011, and Laquian, 2005

Cairo, Dublin, Tunis and Bucharest are examples cities which are currently considering metropolitan level transportation agencies that have completed organizational studies before taking the decision to create respective Transport and Management Authorities. For example, in Bucharest, a study will make recommendations on whether the Authority will be limited to a

public transport planning and coordinating body, or will have direct power to regulate or fund public transport operations. It also will study whether the Authority should own and operate public transport assets such as the metro or parts of the surface transport system; or should confine its role to passenger transport or include other urban transport functions such as traffic management and overall transport planning (Naniopoulos et. al., 2012). The study for establishing the Kuwait land transport authority in 2009-2010 was to study land transport issues in Kuwait and define the conditions for establishing an organising and regulating authority. The resulting study examined various types of authorities, and proposed a definition of the scope of responsibilities for the Authority, its mission and its internal organization (Mezghani, 2010).

In the US, research work to examine the processes of governance transformation for improved regional public transportation was guided by a technical working group with representatives from transit agencies, metropolitan planning organizations, a state department of transportation, private consulting organizations, and the American Public Transportation Association (APTA). The research and the experience of the consulting team identified different governance models that are in place among U.S. transit agencies and the processes that transit agencies use to effect change in their governance structures. These transformations generally follow three steps: 1) recognizing the need to change, 2) analysing available mechanisms for change, and 3) effecting governance changes (BAH and Bay, 2011).

SAMPLE CASE
There is no active metropolitan mechanism for addressing major transportation issues of regional significance for the fast urbanizing area of PQR. Given the large number of institutions concerned with transport in the PQR Area with their own priorities and agendas, there is an urgent need to establish a high level steering committee at the metropolitan level for policy setting, coordination, and decision-making. More specifically, such a committee is needed to establish major transport policies, resolve cross institutional issues, set investment priorities, and identify funding resources for major transportation investments. The National Sustainable Policy mandates regional co-operation across sectors to achieve the low carbon growth path envisaged by the country. The National Planning Authority commissions a study, funded by a multi-lateral funding organization. The study is guided by a high level committee, headed by the Prime Minister or President (Chairman), along with Ministers of Transport, Energy, Urban Development, Housing, Environment, Planning, Economy, Economic Development, Local Government, and Finance, and representatives of the local planning bodies, local administration, and the mayors of the cities in the adjoining urban areas. Other governmental or non-governmental institutions, civic organizations might also be represented, although not likely in all meetings. However their inclusion in the process from early on will be essential to success. This committee would meet as frequently as needed to accomplish its policy making, coordination, and decision making functions. This might be as frequently as monthly and not less than once quarterly to be effective. The study period is 1 year. It concludes its work with publication of a policy paper on the requirement for establishment of Metropolitan Transport Authorities for rapidly growing and large urban areas.

Following initial publication of this paper, there will be a two to three month period for public consultation on the proposals in the document. All related agencies will be invited to submit their views on the proposals within the same two month period. A cross-departmental team, from the Departments of the Environment and Local Government, Public Enterprise and Finance, will be established immediately to consider the outcome of the consultation process, prepare the necessary legislation, and address the detailed administrative arrangements for the proposed strategic body. This body shall be called the Metropolitan Transport Authority (MTA).

The next step will be to seek official Government approval to the General Scheme of the Bill subject to consideration of the views of the stakeholders and the Committee, and the outcome of the public consultation. Preparatory work (detailed design, legal framework, organizational capacity, and other administrative details) on the establishment of the body will proceed in parallel with the drafting and passage of the legislation. The objective will be to formally establish the body as soon as possible after the enactment of the legislation.

Step 2: Design of the organizational setup

The design of the organizational setup is key to the success of the authority, so that there is no ambiguity with regard to authority and responsibility, structural, financial, and operational issues during the decision making process. The following are the key issues that the organizational design should address.

A. Establish the metropolitan area – service area

In a growing urban region, major traffic flows are between different local government jurisdictions as well as within them. The region, rather than the municipality, becomes the effective unit of major transport interaction. Levels of authority overlap within the hierarchical system and are often the source of jurisdictional conflicts. It is therefore imperative to clarify the jurisdictional boundary and establish the spatial responsibility of the MTA, at the very outset. This is important as this forms the basis for all forms of structural, operational, and legal agreements. Based on the objectives of the MTA, a fully or partially integrated service area may be constituted. A uniform service area is preferred for a totally integrated transport system. In many transition economies, financing urban public transport is the responsibility of the municipalities, while the central government controls the fare levels. In countries with a federal structure, it is common to find very complex allocations of responsibility for urban transport between the central government, state government, and municipality. In Brazil, for example, suburban railways, until very recently, were under the responsibility of the federal government, and the state controlled the inter-city buses while intra-city and municipality buses were the responsibility of the city. Since metropolitan regions usually are the sum of many municipalities (and sometimes rural areas as well), with different political agendas, it may be difficult to reach agreements. As in Manila, Caracas, and Lima, multiple jurisdictions of equivalent size and status may be unwilling to yield any significant amount of power or financial control to another authority at the same hierarchical level. This contrasts with Bangkok where the city is given special legal status and treated more favourably than the other municipalities. Local district and municipal interests may not be well aligned on detailed matters of transport policy even in unitary cities. Thus it becomes important to subject this process to detailed stakeholder consultation and review.

Check list:

1. What will constitute the MTA boundary, in both physical and modal terms?
2. How does it take into account the MTA growth plans in the next 20 years? How are inputs from Structure Plans, Development Plans, Vision documents, and other relevant documents incorporated now? Into the future?
3. What are the municipalities, communes, urban local bodies, villages, etc likely to be under its purview?
4. Who are the development authorities involved?
5. What is the current structural and operational model?
6. What is the current financial model? How will this need to change?
7. Who will be the MTA member cities/villages/urban local bodies?
8. Have stakeholder meetings been conducted to understand the common issues, specific jurisdictional challenges, and growth plans, power sharing, functions and responsibilities, and funding models, as well as fears and aspirations of the affected stakeholders?

B. Establish the legal regime

First: Review policies related to urban transport

The first step in establishing the legal framework is to review the policies related to urban transport, or that may impact urban transport, and how it fits in with broader policy aspects, especially aspects concerning transport infrastructure and other modes of transport. For example, policies and regulations related to rule pricing and subsidies have a a direct impact on passenger and freight travel demand, but are generally outside the purview of "transport" policy. Ideally, such a review will help define overall objectives and responsibilities for policy-making and implementation. It will state the respective roles of all tiers of government and the private sector in urban transport and form the basis for regulation in this sector.

Second: Review existing regulations

The next step is to review the existing transport regulations to identify those that are inconsistent with regulatory objectives and to define the need for new or alternative regulations. For countries without a market economy tradition or with a legal framework that has remained unchanged for many years, the scope for changes can be considerable. For example, the road sector regulations may involve changes to the basic traffic regulations concerning driver training, testing and licensing, vehicle inspection and registration, and road and traffic management systems and rules, emission standards, road design standards, and role of private players and partnerships with the government. In other cases the main need may be for changes to the regulation of bus and freight services, through licensing,

insurance, pricing, and taxation provisions in order to establish a level playing field for competing bus and truck operators.

Third: Level of detail

In developing transport legislation, one important issue concerns the level of detail required in primary legislation. The drawback of detailed legislation is that the legal framework becomes too cumbersome, and does not allow flexibility for the change in the future as even minor regulatory changes require time-consuming changes in primary legislation rather than relatively simple changes to secondary regulations and ministerial decisions. This increases the scale of work involved in drafting and implementing the legislation, and thus may take years for enactment into law.

So, it is important to keep the legal framework sufficiently binding, yet flexible enough to allow changes in the evolving future of urban transport. The scope may include the following:
- Definition of the transport system,
- Goals and objectives of regulations,
- Scope of development tasks in different modes of transport and the role of central and local regulatory agencies,
- Cooperation requirements between regulatory agencies and the coordination powers of the central transport authority
- Tasks of the central transport authority and the local authorities
- Reporting standards and requirements
- Funding for operations and capital expenditures

Case Study: Ahmedabad

Ahmedabad is a city of approximately 5.6 million residents and an industrial hub of western India. The Ahmedabad BRTS was created with the aim of providing 'faster, reliable, eco-friendly and advanced' public transportation facilities for the city. The Ahmedabad Bus Rapid Transit System (BRTS) was launched in October 2009. Dubbed as Janmarg (People's Way), it was inaugurated for a network length of 31 kilometers and has expanded rapidly across the city. In a short period of time, the city recorded measurable drop in the number of two and three-wheeler vehicles as a direct impact of the service. The BRT is operated by a Special Purpose Vehicle (SPV) called Ahmedabad Janmarg Limited (AJL). It operates on a Public-Private Partnership (PPP) model. The Janmarg has been bestowed with critical praise and enjoyed popular support from the city through increased ridership since its inception.

The Janmarg was institutionally set up to streamline decision-making and facilitate maximum possible coordination within the various governmental bodies and its team of consultants. The daily operations were entrusted to be run by the AJL while the design and planning was with external agencies. Detailed studies were conducted and plans for financial models, infrastructure needs and systems design were informed by them accordingly. It was designed by a dedicated team of professionals from the Centre for Environmental Planning and Technology University (CEPT University). They worked in consultation with the technical experts from the Institute for Transportation and Development Policy (ITDP). The Janmarg operated performance-based contracts and invited competitive bidding for routes carefully designed by them. The management of the project was sought to be overseen by the City Commissioner and a Project Coordinator to streamline decision-making. Monitoring of performance has been conducted regularly.

Ahmedabad:
Chhavi Dhingra, "Enabling Sustainable Mobility in Indian Cities through Better Institutions and Governance", n.d.

Janmarg About Us: http://www.ahmedabadbrts.com/html/About_JanMarg.html Accessed on December 05, 2012.

C. Establish the management/governance structure

The governance and the management structure of the institution needs to be clarified as it involves multiple types of co-ordination required for integrated transport planning. The roles, responsibilities, and liabilities of actors – including operators, transport infrastructure owners, financiers, regulators, and others -- need to be clarified, either through legislation or binding legal contracts. This is especially important if there are PPPs in place. These levels of coordination are:

1. Functional
2. Operational
3. Financial

Functional coordination -The role of the MTA is to coordinate and plan for the transport system as a system, not any one particular mode or function. This requires another three levels of coordination:

- Co-ordination between land –use and transport development, as seen in the cases of Singapore or Curitiba (see "Additional Resources" section at the back of this document)
- Coordination between different modes
- Coordination in implementation and enforcement

This would mean that the MTA would be responsible for strategic planning with respect to land use and infrastructural planning and integrating it with the transport system. It would be responsible for development of strategic integrated land use and transport plan for the

metropolitan area. Thus some may think that the MTA should be a "Metropolitan Planning Authority" and broader than just transport. While we agree that this truly integrated planning is necessary, and that the steps we are listing in the document could also be the base for a broader planning entity, this document emphasizes the transport sector, but argues that it must be done in a holistic way (Again, please see "Additional Resources" for more on this topic). It needs to integrate the road way network planning with efficient public transport planning. It also has the responsibility to integrate the policy, planning, regulations and fare policies of the various transport modes. This requires coordination with the municipal authorities, state and/or private transport entities. This is needed for effective integrated land-use and transport planning so that the MTA and related entities are able to implement land-use guidance, development controls, and public transport plans that are coherent and consistent with the goals and objectives of the regions. MTAs should establish an administrative structure where all responsibilities are clearly identified and allocated to the necessary technical functions. Strategic functions need to be retained in higher levels of the institutional structure. This structure forms the basis of the capacity building process of the MTA.

Intermodal coordination is important to get the maximum efficiency of the public transit system. In some developing countries like India and Bangladesh, it may also involve para-transit modes (like auto-rickshaws and/or cycle-rickshaws) that provide the last-mile connectivity to the larger mass transit system, and are extremely crucial for efficiency of the public transit system. Integrated fare systems has a direct impact on the patronage of the public transport system, as seen in Madrid, with establishment of the Madrid Transport Consortium and its introduction of a multimode transit "commuter card" (World Bank, 2005).

Implementation and enforcement agencies like traffic police also need to be closely linked to transport and safety policy planning. Traffic safety needs to be given utmost importance, and thus responsibility should be allocated at a highest level of local administration like the mayor's office or a similar level in the absence of a strong mayor with administrative and political. Brazil and Chile, for example, have established traffic management as a distinct discipline with staff capabilities and on-going training (World Bank, 2002).

Operational Co-ordination- The role of private sector is becoming increasingly important in the cities and urban management, including the transport sector. Thus planning, procurement, and regulation of private sector for performance, and efficiency in service delivery requires effective co-ordination – an important role to be played by the MTA. Uncoordinated development, along with unregulated competition, creates a burden on the city's budget as well as the traveller. For

example, in Bangalore, India, construction of signal-free corridors has exceeded budgets as well as prioritizing private motorized transport over all other modes. Another example can be seen in Bangkok's expressways and mass public transit systems. Such uncoordinated and unregulated growth also creates environmental and safety hazards. Thus there is need for appropriate co-ordination by the MTA for efficient mobilization of the private sector. This is especially true in the case of extensive PPPs. Experience indicates that institutional responsibility of planning and operations for public transport should be detached. Also, regulations related to technical guidelines must be separated from procurement and financial regulation. Operating agencies may be encouraged to be commercial and private, allowing for a competitive environment for service delivery (World Bank, 2002). However, this will require clear legal framework with respect to service procurement and contract enforcement to ensure a level playing field. This entails a different set of skills, including high level legal skills, typically lacking in most transport agencies.

Organizational- There can be many types of organizational structures. **Table X** below demonstrates many types. One is where political representatives of all jurisdictions within the metropolitan area, without the executive powers, can form a regional coordinating committee. This sort of institution has been set up in several Brazilian metropolitan areas. Another structure is a professional executive agency governed by a board of political representatives of the constituent authorities who form a regional coordinating authority that will have to implement its policies, with operators either directly controlled by the executive or operating under contract to it. This sort of arrangement was seen in the United Kingdom until the mid -1980s. Some of the German "verkehrversbund" (for example, Hamburg) still follow this pattern. Yet another structure entails a board containing both political representatives of the constituent authorities and operators to form a regional mixed coordinating authority. This sort of arrangement pattern is noticed in "verkehrversbund" in Stuttgart. Alternatively, as in Berlin, a metropolitan area can have a two-tier arrangement with both a political body and an operators' body linked by a formal agreement. Yet another option is that seen in the Madrid Transport Consortium with a legally established independent authority governed by a broadly based representative board of directors, including directors nominated by the political jurisdictions but not under direct political control. This is yet another governing structure (World Bank/PPIAF, 2009; Naniopoulos et.al, 2009).

Case Study: Singapore

Urbanisation of Singapore after independence was heavily motorized and dogged by inadequate public transport. Growing concerns about sustaining the city's economic, social and environmental infrastructure prompted the authorities to develop a comprehensive plan in 1972. It laid out an extensive network of transport infrastructure and buttressed it with equally strong spatial and land use policies to decentralize the growing city. Every successive regional development plan has strived to be as holistic in its approach as possible and has yielded impressive results for the world to see. Citizens not only enjoy diverse modes of transport but incentives that support the vision of the city, as well. Quality of life and people-centered development have evolved and continue to drive the spirit of planning for the city. It is worthy of note that the city continues to be loyal to its vision. Singapore's unique governing structure and advantageous urban area greatly support the city's ambitions.

The objective of transport planning authorities of Singapore for its transport policies was to discourage vehicle density on its roads by providing its citizens high-quality public transport options. It strongly believes in providing people-centered options for mobility that suit the diverse needs of its population. The city has showed an envious commitment to its vision and made sustained efforts towards realising it with a combination of imposing regulations, providing infrastructure and effective governance. The Revised Concept Plan of 1981 comprehensively laid out a plan to integrate development of transport services with land use policies to maintain the density of growth within the city. Subsequent such plans have been drawn in order to fulfill the city's vision.

The Land Transit Authority (LTA) of Singapore is responsible not only for planning and development of transport infrastructure, but also bringing together various planning organisations to design and implement integrated transport and land use policies. It was established as a statutory body under Department of Communications by unifying four of its existing bodies (the Registry of Vehicles, Mass Rapid Transit Corporation, Roads and Transportation Division of the Public Works Department, and the Land Transport Division). Singapore adopted integrated approaches towards planning early on in order to maintain the momentum of Industrialisation in a nation with scarce resources. Although the State mostly functioned in the capacity of providing transport services after Independence, it quickly evolved to exercise greater control over transport planning and regulation as the city began to urbanise rapidly and rely increasingly on cars.

Although LTA was formed gradually, transport policies have enjoyed a shift towards more inclusive and sustainable options for decades. The administrative bodies have monitored the implementation of their policies with rigour and iterated from their learning swiftly.

Source:
Chor, C. H. (1998). *Urban Transport Planning in Singapore.* National University of Singapore.

	Representatives of the personnel	Representatives of national government with or without voting rights	Representatives of the consumer union	Representatives of the private operators	Representatives of the trade union or commerce	Representatives of municipalities and other L.A.	Representatives of regions or local government
State-owned corporation	Athens	Athens Bologna					
region or county acting also as MTA		Madrid Valencia	Madrid	Madrid Valencia	Madrid	Madrid Valencia Amsterdam Lisbon Barcelona	Madrid Valencia Stockholm Amsterdam Barecelona
Region/s and/or County (or local government/s) and local authorities	Berlin Hamburg Frankfurt South Yorkshire	Barcelona				Paris Turino	Paris Turino
Two Regions						Copenhagen	Copenhagen
Several Municipalities						Helsinki	
An ad hoc body under the control of a region					Paris	Paris	Paris
City-owned corporation	London						Milan

Source: Derived from Naniopoulos et.al., 2012

Financial Coordination- There needs to be a clear legal mandate for allocation of responsibility among levels of government. The questions that need to be answered include:

- How should inter-jurisdictional transfers work? What is the responsibility of the entities? Are the transfers consistent with the responsibility of the entities?
- If there are overlapping jurisdictions within a conurbation, what are the formal institutional arrangements that should be made for collaboration with the multiple municipalities?
- Will the Central or state use intergovernmental transfer arrangements? What are the types of arrangements? Will they encourage coordination at the metropolitan level?
- What are the statutory obligations of the local authorities? Are they linked to specific channels of finance (such as direct-line agency funding of reduced-fare or free public transport)? What happens in the case of financial collapse or difficulty?

D. Agree on tasks and responsibilities

The range of tasks that the MTA can engage is detailed in the following table.

			Core scope of the MTA						
		1. Acronym	a. MAPT			b. MATM			c.
		2. Rating Level	C	E		C	E		C
	Responsibilities of mode	Urban buses and interurban buses	▨			▨			▨
		Interurban railway	▨			▨			▨
		Metro/tramway	▨			▨			▨
		Ferry water transport	▨			▨			▨
		Taxi services		▨			▨		▨
	Special transport services	Municipal transport	▨			▨			▨
		Transport services for the disabled	▨			▨			▨
		Flexible transport (e.g. DRT, night serv.)	▨			▨			▨
		Transport service for workers				▨			▨
		School transport service				▨			▨
		Tourist service and services to airports	▨			▨			▨
		Other modes (carriage with horses, etc.)	▨			▨			▨
	Determination of service attributes		▨			▨			▨
	Coordinating transportservices (including freight trans.)		▨			▨			▨
	Network design	Bus lines	▨			▨			▨
		Urban ferry transport	▨			▨			▨
		Metro/tramway/suburban railway	▨			▨			▨
		Cycle lanes					▨		▨
	Planning and operations of bus lanes					▨			▨
	Award and/or conduct studies and projects		▨			▨			▨
	Design of transport infrastructure					▨			▨
	Management of urban haulage					▨			▨
	Research and innovation		▨			▨			▨
	General transport and mobility plans (city, region, etc)					▨			▨
	Approval of the location of stops, stations, parking places		▨			▨			▨
	Consultation with users (direct and indirect)		▨			▨			▨
	Information provision		▨			▨			▨
...anagement	**Marketing**		▨			▨			▨
	Demand, traffic and incident management	Traffic lights and signs				▨			▨
		Definition of one-way roads				▨			▨
		Pavement establishment				▨			▨
		a. traffic calming b. limitation measures				▨			▨
		Incident management				▨			▨
	Monitoring the indicators and lvel of road safety					▨			▨
	Audit of the adequacy of signs					▨			▨
	Mobility management (accessibility, soft modes: cycling & walking, car & bike sharing, parking policy)		▨			▨			▨
	Design of contracts and awarding of transport services		▨			▨			▨
...ment	**Monitoring of compliance with the contract's terms**		▨			▨			▨
	Quality manag., evaluation of LoS and users' satisfaction		▨			▨			▨
	Standars' definition: stops, rolling stock, station		▨			▨			▨
	Fare policy			▨		▨	▨		▨
	Tickets sales			▨		▨			▨
...s	**Fare revenues management**		▨			▨			▨
	Subsidy management						▨		▨
	Investment in infrastructure, rolling stock and systems						▨		▨
	a. Local transport tax, b. Pricing strategies (i.e. congestion charging): interaction with traffic limitation measures						▨		
	Tax for the added value of property due to new infrastructure						▨		
	Infrastructure	Stops				▨	▨		▨
		a. terminal stations b. depots				▨	▨		▨
	Ownership of systems	Issue & collection of tickets (e-ticketing)				▨			▨
		a. infotelematics b. info terminals				▨			▨
...development	**Land use issues**								
	Environmental (air pollution, noise emissions, energy consumption, etc) and development issues								

...opolitan Authority of Public Transport

...opolitan Authority of Transport and Mobility

...opolitan Authority of Transport, Mobility and Regional Development

...ervative

...nsive

...Naniopoulos et.al., 2012

A range of functions exercised by a sample of urban transport agencies is illustrated in <mark>Table X</mark> below. All the agencies listed are responsible for regulating public transport services, but there is a wide variation of other transport functions integrated within the individual authorities. Some agencies are limited to public transport planning and regulation only, while others extend to the management of the road system, and even to freight transport infrastructure. The Singapore Land Transport Authority (www.lta.gov.sg) is the transport agency with the widest scope, and the highest level of integration. It embraces not only road transport but also the rail mass transit system, the registration and licensing of private vehicles, and administering the private vehicle quota system and electronic road pricing. At the other end of the spectrum is Bangkok, with one of the lowest levels of integration of urban transport institutions, with around 20 government departments, agencies and state-owned enterprises exercising responsibilities related to urban transport.   It is not suggested that highly integrated agencies are necessary to successfully manage urban transport. However, it is clear that the larger the number of agencies involved in urban transport, the greater the difficulties of coordination, and this problem is more serious and detrimental without a clear and accepted delimitation of responsibilities.

Table <mark>X</mark> – Range of Functions of Urban Transport Authorities

Transit Authority/Functions	1	2	3	4	5	6	7	8	9	10
Syndicat des Transports d'Ile-de-France (Paris)	█	█	█	█	█	█	█	█		
Transport for London (London)	█	█	█	█	█	█	█	█		
Metropolitan Transit Authority (New York)	█	█	█	█	█	█	█	█	█	█
Translink (Vancouver)	█	█	█	█	█	█	█	█		
Consorcio Regional Transporte (Madrid)	█	█	█	█	█		█	█		
Land Transit Authority (Singapore)	█	█	█	█	█	█	█	█		

Legend:

1:Strategic Planning
2:Investment, management, ops. policy planning
3:System/corridor planning
4:Financial planning
5:Long and short-term priority setting, decision making for investment, operating subsidies
6:Infrastructure project implementation
7:Service, operations regulation, enforcement
8:Strategic service, operations management
9:PT Service planning
*10:Daily PT operation, management - * In NY, the MTA handles the buses but not the metro operations*

Source: Derived from World Bank, n.d..

<u>Case Study: London</u>

London, the capital of England, is a sprawling hub of finance, trade, culture, education and tourism of Europe. The city is served by a dense network of various modes of transport. Millions

of people travel in the Greater London area on a daily basis through its network. It comprises of buses, trains, light rail, trams, boats and taxis.

Several efforts towards consolidating and bringing greater coordination for the transport services provided in London. Since the post-war times, the ownership of various transport service have changed hands. Transition from public to private and back with partnerships between the two, efforts to integrate the services better also reflected through an evolution in the ticketing system. As the city grew, the administrative scope grew, as well. The Greater London Act, 1999 was responsible for the creation of the Greater London Authority, a regional body responsible for transport, planning, police and emergency services. Transport for London, set up to oversee transport services for the Greater London area, was established in 2000. The Mayor of London was entrusted with preparing and executing policies for transport and land use for the region (called the London Plan). He also chairs a 16 member-board of the TfL, appointed by him.

TfL is composed of several subsidiaries (for instance, London Buses Limited, London Underground Limited, Crossrail Limited, etc) that are responsible for operating their respective services. Transport services under the TfL may be provided or contracted to external parties for operation. Responsibilities of the TfL are quite varied, ranging from the operating public transport to maintaining roads, managing traffic and running the London Congestion Charging Scheme (LCCS). While A Commissioner for Transport heads TfL, six Managing Directors oversee surface transport, underground, finance, communications, corporate counsel and planning. Local councils/boroughs are required to prepare transport plans and submit to the Mayor for his approval. Public participation has been encouraged significantly since the inception of TfL, as well. The services are financed by a combination of fare revenue, central government grants, advertising and the LCCS.

Source:

Transport for London, http://www.tfl.gov.uk/corporate/about-tfl/4510.aspx

http://www.tfl.gov.uk/corporate/11610.aspx

Accessed on December 20, 2012. (Again, please insert dates, and then add to references at back, under "Transport for London" as author)


E. *Financial resources and financial authority*

Financial authority of the MTA is important to give it the power to control and coordinate the various jurisdictional, functional and operational parameters. The MTA could be established with a corpus or fixed grant from the Central government, with a share from the State/Provincial government. Other funding options may include:

- Government transfers: These come from the gas tax and registration fees from the MTA jurisdiction. This can used to support public transit like the metro, metropolitan bus, commuter train systems, etc.

- Revenues from metropolitan tickets and passes from buses and commuter trains: From revenue collected from tickets and passes issued by MTA. The revenue could then be shared by the multiple transit organizations, if they exist, based on a proportionate rate decided by the MTA.

- Municipal contributions: The municipalities served by the MTA Transit services may also pay for services available in their areas.

- Subsidies from the National government: Capital costs for public transit may be partly borne by the National government, through grants, debt servicing, etc.

- Resources from the transit organizations: costs may be allocated for operating and managing metropolitan infrastructures to the transit organizations, or transit organizations may be made responsible for transit organizations, based on standards and guidelines mandated by the MTA.

- Other revenues: The MTA may receive interest income, for example from the corpus fund, or advertising revenues from buses or bus stops, or rental revenue from property.

For example, in France (Lyon), communes or local bodies are given authority to join to plan, finance and deliver own transport services. Financing includes an employee based tax, providing for public transport. Central government involvement is limited to grants for specific projects and capital funding (World Bank/PPIAF, 2009). Examples of funding sources are shown below.
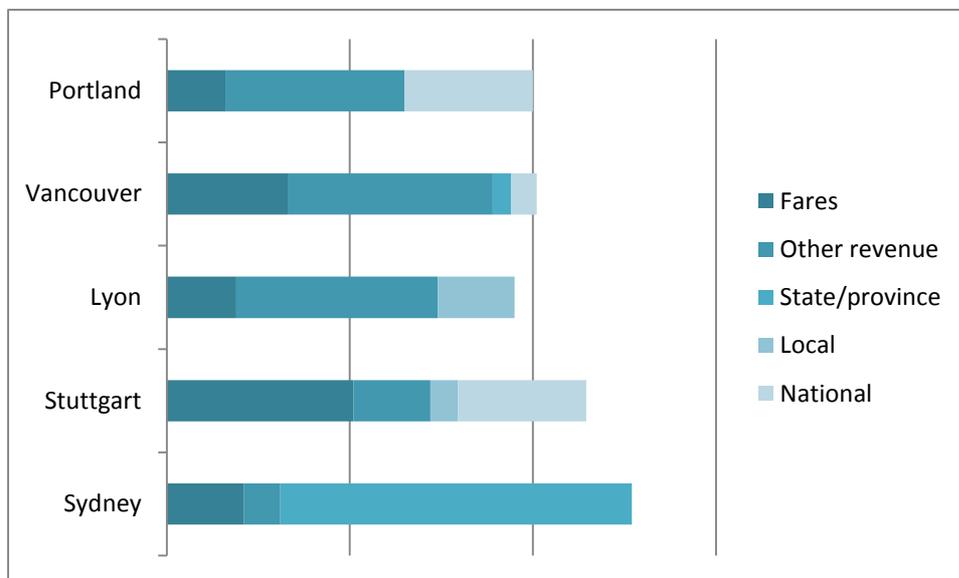
Source: World Bank/PPIAF, 2009   – needs labelling of lines, in %, and rechecking of data

Case Study: Budapest

The Budapest Transport Company was established in the 1960's. The company was responsible for providing public transport services for the city area. With time, the infrastructure of the company began to show cracks. A committee was appointed in order to survey the condition of the company's services, fleet, operations, etc. The transport company looked towards the success of Transport for London (TfL) for the overhaul of its administration, operation and financing. On the basis of the recommendations, a motion was passed by the General Assembly of the Municipality of Budapest to establish the Centre for Budapest Transport (BKK). It is an independent body owned by the city municipal body, national government and the regional county.

Since its establishment in 2010, it has undertaken many major projects to make the public transport services more accessible, reliable, and safe. Not only was the fleet upgraded and expanded, but the services were also expanded greatly. Integration of the transport services has greatly benefitted its organizational structure and its ability to streamline decision-making process. Regional transport companies too are needed to get their transportation plans approved from the government. Efforts to make the plans of the city and the region synchronous with one another are being conducted by them. Competitive tendering process will begin to operate soon as the directly awarded contracts after the overhaul of the transport company soon come to an end. The BKK has a budget awarded to it by the central government and was initially supported by an EU grant.

Source:

BKK: http://www.bkk.hu/en/main-page/bkk-in-brief/ Accessed November 19, 2012.

F. *Staffing/organizational issues*

The MTA should establish a structure within which responsibility for all necessary technical functions in urban transport are clearly identified and allocated. There is also need for a training strategy for professional and technical skills in urban transport. The capacity building of the MTA should address the key concerns listed and in the table below:

- How should scarce professional skills available initially be concentrated, and retained by adequate remuneration?
- What are the types of collaborations needed for knowledge transfer and sharing- national as well as international, to further develop, skills and experience.

Function	Principal responsibilities	Policy functions	Professional skills	Relationship to other organizations
Urban structure planning	Prepare and maintain metropolitan structure plan.	Shape development structure, create basis for development controls.	Land-use planners, environmental specialists	Responsible to mayor or city council
Strategic transport planning	Conduct strategic transportation studies Prepare comprehensive transportation plans for the city or metropolitan area.	Prepare broad strategies that other organizations should follow.	Transport planners, economists, civil engineers	Responsible to strategic transport authority. Receives input from other municipal transport units in preparing strategies and plans
Traffic management	Prepare traffic management plans; review development proposals with traffic impacts; operate Traffic Control and ITS (Intelligent Transport Systems); manage vehicle inspection and maintenance scheme; monitor environmental impacts.	Determine traffic priorities consistent with general strategy. Create parking and traffic management framework for lower-level districts.	Traffic engineers, economists, parking specialists, electrical engineers	Responsible to strategic transport authority. Must work in coordination and consultation with local police authority.
Public passenger transport	Plan and regulate public transport systems including buses, trams and light rail, taxis, and metros. Procure services.	Prepare passenger transport policies consistent with strategy and with financial capability. Set parameters for procurement agency.	Public transport and regulatory specialists	Responsible to strategic transport authority. Should be separate from any passen- ger transport operations
Traffic enforcement	Enforce traffic regulations; manage traffic events and incidents; collect accident data.	Collaborate in traffic management system design. Enforce traffic management policy.	Police officers	Traffic police provide traffic accident and traffic incidence information to safety and traffic management organization.
Road design, construction, and maintenance	Responsible for designing, constructing, and maintaining streets.	Maintenance prioritization	Civil engineers	Work closely with Traffic Management Organization to implement detailed traffic engineering works
Traffic safety	Road traffic safety strategy. Coordinate all departmental inputs, including those from health, education, and so on.	Analyze safety data; orchestrate inter-departmental collaboration to implement strategy.	Statisticians; traffic engineers	Directly responsible to mayor or city council. Relationship with health authorities necessary

Source: World Bank, 2002

In addition, one should consider adding urban planners and urban designers to prepare transit-oriented development and master plans, station area access plans, attractive pedestrian environments and economic development specialists who can help with decision related to location and creation of economic opportunities.

Case Study: Recife

Recife is located along the coast of Brazil with an estimated population of three and a half million inhabitants. It is also the fifth largest urban agglomerate in the country. The urban transport is mainly provided by a combinatory service of buses, metro and vans. The Greater Recife Transport Consortium was created in 2008, replacing the older metropolitan urban transport company (EMTU). The Consortium consists of 14 municipalities. It would absorb the remaining 12 municipalities in the future. It is owned jointly by the state government, and municipalities of Recife and Olinda, respectively. Currently, the bus transport in the region is provided by 17 private operators, who operate the system. The system network is mediated by the Consortium as is the fare structure. The metro rail service is operated by a federal organisation. It is operated independently of the Consortium except for interchange stations between the metro and bus services.

EMTU looked after the administration of the bus network. It awarded the various bus transport operators under it and also made decisions regarding schedules, frequency, fleet specifications and are structures, as well. With the exclusion of Recife and Jaboatao, intra-municipal limits operations for bus services were managed by the municipalities themselves. The metro service is managed, operated and financed by a federal agency. Small vans constituted a significant portion of the public transport, especially for communities living in remote areas or off the grid of formal transport. With the establishment of a more integrated Consortium, the operation of small vans was ceased, especially in congested areas of Recife. In other cases, the services of the small vans were sought to be integrated within the existing fold of public transport. Better integration of the metro and bus services was also sought to be a goal for the Consortium to be achieved. The Consortium was thus responsible for the contracts of the bus operators, conducting public competitive bidding process for routes, regulating operations, investing in infrastructure (physical and technological) and integrating fare structures and services.

Sources:

K.M.G William and G Correa, "Study of public passenger transport conditions in Recife, Brazil". Washington: World Bank IFC PPIAF, 2005.

Organising Authorities Committee of the UITP, A Vision for Integrated Urban Mobility: Setting up your Transport Authority. Brussels: UITP, 2011.

SAMPLE CASE

The current situation: *The city PQR has a population of about 1 million and is projected to grow to 3 million in the next twenty years. The Master Plan of the region indicates considerable greenfield growth in the northern and south eastern parts of the main city. This would mean considerable transport needs to coordinate and integrate with the existing city transport network.*

Currently the primary development agenda of PQR City is carried out by two main agencies, the PQR Municipal Corporation and the PQR Metropolitan Development Authority. These two organizations along with the Department of Public Works (PWD) are responsible for any planning and development in the urban transport sector in the city. The PQR Airport Development Authority is separate, and responsible for airport planning, development and operations. All these three organizations are responsible for planning, construction, operation and maintenance of the municipal roads, including flyovers, along with street lighting. The development authority and the City and County Planning Department are responsible for the overall planning in the area.

Issues: *The activities and functions of the different organizations involved in urban transport planning in city PQR indicate a presence of multiple agencies discharging similar duties. This has compounded the problem of service delivery. Though each of the agencies in question has some demarcation with respect to service delivery in specific locations, many a time there are duplications of effort. This also leads to lack of accountability with respect to service delivery. Also there is no agency looking after only urban transport issues. Urban transport has never been a priority for this city. With the Central Act mandating the need for a MTA, and the transport issues confronting the city and its impact on its growth and image, an agency focused on urban transport is required. The performance of the different modes of transport is controlled by their respective institutions and no central or nodal agency has any control on the accountability in ownership, performance, and maintenance in transportation infrastructure. The issues are summarized as follows:*

- *Multiplicity of organizations involved in urban transport*
- *Lack of coordination among organizations involved in urban transport*
- *Lack of transport planning expertise in the organizations*
- *No accountability in ownership, performance, and maintenance transportation infrastructure and systems operations*
- *No single apex agency regulating, facilitating and integrating operations of different modes*

Jurisdicational boundaries

In the future, the land use strategy indicates that growth be spatially distributed in the PQR metropolitan area. In line with this strategy, two new towns have been proposed in the north (New Town I and II), and one town in the south-west near the Airport (New Town III). Proposed developmental projects in New Town I and II (i.e., towards north) would also initiate growth in the area, provided transport and other urban development strategies are implemented at tandem.

By 2020, the jurisdiction of the MTA is proposed to be increased from 200 sq km to 328 sq. km, with the inclusion of the three new towns in the jurisdiction of the municipal corporation. 300 villages will be included under the MTA's jurisdiction, available in both list and map form.

Legal framework

The jurisdictional legal arrangements have started, where the details of all villages, is being surveyed, and initial developmental works have been initiated. The legal entities of the 3 new towns are being established. The legal arrangements with respect to the development authorities, utilities, land use provisions are being worked out. Some of the existing land use acts are being reviewed, and amendments to be made are identified. The legal framework is being developed based on the following scope:

- *Explanation of the transport system components in the PQR MTA*
- *What are authorities responsible for the different functions, what is the level of co-ordination?*
- *The goals and objectives of the new regulation*
- *Scope of development tasks in different modes of transport and the role of central and local regulatory agencies,*
- *Cooperation requirements between regulatory agencies and the coordination powers of the MTA*
- *Tasks of the MTA and the local authorities*
- *Regulatory powers*
- *Power to enact policies, and mandate enforcement*
- *Power to tax, and charge user fees*
- *Funding arrangements*
- *Recruitment Procedures, guidelines*
- *Outsourcing arrangements*
- *Use of data and information*
- *Reporting standards and requirements*

Some of the existing acts that needed to be reviewed include –

1. *The Urban Development Act 1979*
2. *The Transport Act 1986*
3. *Railways Safety Act 1967*
4. *Public Bus Transit Act 1988*
5. *Environment and Pollution Regulations*
6. *Public Bus Service Regulations*
7. *Contracting and Procurement Regulations*

Set up management/governance structure and staffing needs

The policy measures suggested by the National Sustainable policy will require capacity building at two levels – individual and institutional, and funds are allocated for this capacity building. Of course, such funds are rarely adequate, so additional funding or capacity building efforts will need to be found, but at least there is a base upon which to build.

The PQR MTA is formed by the merging of the PQR Urban Development Authority and the PQR Airport Development Authority, both of whom will cease to exist upon formation of the new MTA -

The responsibilities for policy making, planning, investment, operations and management were decided to be stream lined and strengthened in the institutional setup recommended. An empowered body will coordinate, oversee and regulate the entire transportation project. The frame work is critical for effective functioning of this body. It should address all the functions, clearly assign responsibilities and be responsive to the policy concerns of all citizens (mobility needs, improved access, air quality, and traffic safety). It also coordinates the development activities of the municipal corporations, municipalities and other local authorities, the Metropolitan Water Supply & Sewerage Board, the Electricity Transmission Corporation, the PQR Industrial Infrastructure Corporation, the Regional State Road Transport Corporation, and other such bodies.

The suggested Institutional set-up will have 'Four Levels'. Each tier level is responsible for some specific suggested functions. Capacity of the different levels is based on the respective functions. Co-operation among the levels is very important, and should be reviewed regularly to ensure improved service levels as well as institutional development and strengthening.

The main functions of the MTA were defined as:
- *Develop Master Plans with road network and land uses for the expanded areas*
- *Facilitate balanced development of infrastructure in the metro region*
- *Enforce better integration of sanctioned projects*
- *Undertake various projects to make this region the preferred choice for investments*
- *Enable planned development in the arterials*
- *Incorporate high level board with representation of ministers for better coordination*
- *Promote better access to institutional funding for high level of infrastructure*
- *Coordinate with other public agencies concerned with provisions for urban infrastructure services and amenities*
- *Initiate the process of mapping with the help of satellite images*
- *Engage reputed consultants in the development of Master Plans*

- *Set up regional offices for the convenience of public at large*
- *Regulate and control illegal developments through statutory plans and other measures*

4 regional offices were set up in the Metropolitan area to facilitate the various areas of the region,

Level 1

Regulatory (Guidelines, Standards, Norms)

- *Service levels/Benchmarks*
- *Street Standards*
- *Pedestrian Guidelines*

Planning

- *Land use and transport integration*
- *Initiation and coordination for land use and mobility plans-QA/QC*
- *Updating of plans*

Financial Authority

- *Sanctioning of urban transport related projects*
- *Power to levy user charges*

Co-ordination

- *Co-ordination with other departments concerned with urban development*
- *Co-ordination with the National level ministry mandates*

Level 2

Communes/municipalities

- *Planning*
- *Traffic Impact Assessment*
- *Traffic System management*
- *Traffic Demand Management*
- *Parking Plans*
- *Issuance of Building Permits*
- *Other Routine activities*
- *Consumer grievance/redressal office*

Transit authorities

- *Transit operations planning*
- *Management of Bus Services*
- *Public-private partnerships*

Public Works

- *Construction and repair of roads*
- *Co-ordination with other departments (water, sewage, etc)*

Traffic Police

- *Licensing*
- *Coordination and Planning with the municipalities for traffic management plan.*

Level 3 and 4

Traffic Police

- *Enforcement – traffic management plans, traffic rules, parking plans, accident database*

Bus Operators

- *Staffing of buses*
- *Day to day routine bus operations, fare collection, maintenance, etc*

Based on the above functions, capacity needs were also identified.

Figure X. *The proposed institutional structure for PQR MTA*

Financial Planning

It is proposed that the MTA will be set up with an initial corpus grant from the Ministry of Transport and Urban Development of about $XXX million. The initial set-up cost will be borne by the metropolitan region, either in kind (land, office space) and/or a grant from the State department of Transport.

The MTA will fund its operations from the following various sources:

- *Government Transfers- From the State wide fuel tax*

- *Contribution of the municipalities with its jurisdiction- local transfers from the municipalities within the MTA*

- *Fares – Fares from the public transit (bus and rail)*

- *Congestion pricing- From the revenue collected from this demand management strategy*

- *Traffic Impact fee- collected from developers, based on impact fee zones*

- *Capital funding from the Central, for select projects.*

Step 3: Proposal Development

Once the design of the organizational framework has been determined, establishing the MTA would require legislative action and establishment of the process of transfer of existing functions to the new organization, developing capacity of skilled professionals to push forward its goals and objectives along with streamlining and reducing bureaucracy.

Funding for preparation of the proposal may be sought from the World Bank, the ADB or other multi-lateral funding agencies interested in institutional strengthening in this sector.

 SAMPLE CASE

The Ministry of Infrastructure, Public Enterprise and Transport (MIPET) of PQR, gets a grant from the XYZ International Agency and issues a call for consultant who has extensive experience in setting up similar institutions. The TOR for the Consultant was issued, and is seen below

 Terms of Reference of the Consultant:

        The Ministry of Infrastructure, Public Enterprise and Transport (MIPET) will require the services of a consultant with extensive experience in the setting up of similar institutions to:

        (a) Assist the MIPET with the necessary input from the Ministry during the

consulting firms' assignment for the detailing the proposal for setting up MTA (duration of one week starting third week of May 2013);

(b) Advise, assist and draft a proposal for MIPET with the following key areas of activity

The proposal contents may include but not limited to the following:

1. *Vision of the MTA*
2. *Objectives and Goals*
3. *Task and Responsibilities*
   a. *Policy formulation*
   b. *Political liaison and coordination with funding sources;*
   c. *Long term strategic planning*
   d. *Project implementation*
   e. *User charges*
   f. *Reform processes needed- restructuring, redesign of bus system regulation*
   g. *Reforms in management and co-ordination*
   h. *Regulatory functions*
4. *Financial management and reporting - the MTA must have a transparent an effective system of financial reporting common to all functions*
5. *Code of Ethics- The MTA must have built-in functions to ensure accountability and ethical conduct by all involved*
6. *Capacity Building Plan – organizational structure and staff needs (will depend on 3)*
7. *Time-line- Preparation of a timetable and implementation plan using a multi-stakeholder consultation process to gain agreement and cooperation of all parties involved.*
8. *Implementation of transfer of roles-Implementation of transfer of roles from existing agencies to the new MTA.*

The consultant (individual) is expected to be available for the above tasks over a total period of 6 to 8 weeks starting at the time when the consulting firm assigned the task of drafting the proposal for setting up the MTA.

Deliverables

1. *Draft proposal based on selected scenario from context study (Task I)- 4 weeks*
2. *Presentation to the MIPET – week 5*
3. *Final Proposal – week 8*

The proposal was sent to the Legislature for consideration in the summer session of parliament.

Step 4: Legal Arrangements

The legal arrangements will be dependent on the political and administrative structure of the country, state, and city in question, which will then be reflected in the proposal sent to the legislature. The major components of the legal framework may include the following:

1. Establishment Details – what are the local regulations for the formation of metropolitan areas? What is the legal and regulatory framework in order to sign metropolitan arrangements? What agreements? What steps are necessary? What are the changes in the legal and regulatory framework that must be taken to create the necessary conditions?

2. Governance Arrangements- Who defines the jurisdictions? What arrangements should be made for jurisdictional coverage? What would the functional arrangements be? What are the legal hierarchical arrangements? Who will oversee the financial commitments and ensure that ethics are being maintained?

3. Funding Authority – What are the funding arrangements between the jurisdictions? What are the arrangements for borrowing? Will there be the role of Central Government? What are the powers that the MTA needs to levy user taxes, and make other funding arrangements? Who has authority to negotiate with the private sector operators, and with financiers for loans or investment terms? Who has the authority to commit funds for longer term projects and commitments?

4. Functional Authority - Who has the authority for transport planning, transport operations, and enforcement? Who will control urban development? Who are the members? What are their respective responsibilities?

5. Regulatory Authority -What are the regulatory powers in the field of transport and mobility? How far each of the actors in defining actions and strategies of urban mobility and its relationship to urban development of cities? What are the regulatory limits, legal jurisdiction and duties to these areas, both thematic and territorial level (Municipality / Commune, State / Province, Federation, etc.)?

6. Agreements needed for joint projects – Who and how are joint projects proposed, overseen, and conducted? What are the coordination bodies, entities, or committees to carry out the projects? How is the area under joint projects "institutionalized" for continued joint oversight and coordination?

7. Amendments - What are the amendments needed to do the functions envisaged by the MTA? What are the amendments needed to be made to existing laws with regard to :
    a. Public transport authority
    b. Integration of modes

    c. Public Infrastructure

    d. Public passenger services

    e. Land use provisions

    f. Land Acquisition provisions/powers

    g. Other functional amendments needed

8. Dissolution arrangements for agencies that need to be dissolved or merged for changes in the structure of governance.

9. Recruitment Procedures for staff – How will staff members of the pre-existing agencies that have been dissolved be addressed? Their institutional knowledge should be captured and utilized, yet new ways of operating will need to be established.

10. Accounting Procedures, and Compliance

SAMPLE CASE:

The proposal forms the base of a package submitted to the legislature through the Ministry of Infrastructure, Public Enterprise and Transport (MIPET). This is the "MTA Establishment", and PQR is introduced as a pilot project, which will be replicated, in a staged manner after two years, to every urban area in the country with a population larger than 1 million. The revisions of the relevant acts have begun, and are being monitored to ensure that they allow the intent as well as the specifics of the MTA approach to be successfully implemented. These laws include those mentioned earlier: the Urban Development Act 1979, the Transport Act 1986, the Railways Safety Act 1967, and Public Bus Transit Act 1988, as well as the National Public Space Act that is currently pending in the legislature. In addition, the regulations implementing such acts, including the environment and pollution, public bus service, and contracting and procurement regulations, are also being revised. The goal is to clearly lay out responsibilities, so that things do not fall through the cracks or lead to intractable disagreements. These laws will complement the required changes at the state and municipal level in all cases as well, and it is expected that this multijurisdictional negotiation will be the lengthiest part of this step. To ensure that this does not paralyze movement, the MIPET Minister will appoint a special advisor to monitor this process in the case of PQR and and learn how to revise the process and its component parts during the expansion stage. This person will be respected within MIPET, but also in the state of XYZ where PQR is located, and in PQR itself, and fluent in the primary languages used in that region. This is to ensure accountability as well as the ability to interact with the broad range of stakeholders

The Act Follows (adapted from the Dublin Transport Authority Act) :

The PQR MTA Act

PART I

I General

PART 2

TRANSPORT

I Public Transport Infrastructure

- *Objectives and Policy*

- *Functions of Authority in relation to public transport infrastructure.*

   Funding of public transport infrastructure.

II Public Transport Services

- *Definitions*
- *Public transport services contracts.*
- *Funding of public transport services contracts.*
- *Public service obligations.*
- *Direct award public service contracts.*
- *Public service contracts in respect of services partially outside the jurisdiction*
- *Operator of last resort.*
-

III Integration Measures

- *Promotion of public transport.*
- *Integrated ticketing scheme*
- *F ares /pricing scheme.*
- *Integrated public transport information scheme.*
- *Road user information system.*
- *Access to bus stops, bus stands and bus and railway stations.*

IV Traffic Management

- *Strategic traffic management plan.*
- *Local area planning*
- *Traffic management guidelines*
- *Access Management*
- *Directions to road authority*
- *Agreement with PWD in relation to traffic management and other functions of Authority.*

V Demand management.

- *Guidelines for Congestion pricing*
- *Parking fees*
- *Demarcation of zones*
-

VI Research and Information

- *Data Collection norms and templates*
- *Research agenda*
- *Information, data, statistics, and analysis.*
- *Collaboration arrangements with academia, industry, NGOs, and think-tanks*
-
-

VII Relationships between Authority and Other Bodies

- *Relationship between Authority and development authority, municipal authorities, and transit agencies*

VIII Public participation process
- *Definitions*
- *The process*
- *The tools for involvement with media, civil society, neighbourhood committees, etc.*

PART 3
-
I Enforcement
- *Procedures for offences and penalties.*
- *Authorised officers and powers to call for production of documents, information, etc.*

- *Application to High Court for order for information.*
- *Directions and enforcement.*
-

PART 4

- *Land Use Provisions*
- *Zoning*
- *Traffic Impact guidelines*
- *Impact fee details*

PART 5
Amendments of Act of 2000
- *Amendment of Existing Acts – for incorporating above functions*

PART 6
-
Dissolution of agencies/functions

- *Dissolution of some functions of existing agencies, if required*

PART 7
-
Recruitment Procedures
- *Amendments to public service contracts.*
-

PART 8
Public-Private Partnerships
- *Definitions*
- *Process definition*
- *Performance Targets*
- *Authorities to be responsible*
- *Contracting procedure*
- *Contract negotiation*

PART 9
Allocation
- *Allocation of public funds to road authorities for demand management, traffic management., operations and service of public transport*
- *Other service areas*

PART 10
Outsourcing
- *-Consultants- process of bidding, selection of consultants*
- *-Other types of agreements, as necessary*

Step 5: Finalization – Enactment of the Act, and Monitoring and Evaluation

Once all the legal formalities have been completed, the final step is to ensure that the new laws are applied properly, and institutions changed to meet their new responsibilities. This involves reviewing the administrative decrees that define the goals and specific objectives of the agency, its powers and responsibilities, and the accountable entity or agency. This will need to include the authority of the central regulatory and policy-making agency to set technical standards against which actual transport activity can be monitored; the authority of this agency to set

reporting standards for executing agencies, to allow an effective reporting and monitoring system to be established; and the de-commissioning of agencies that are no longer needed or redundant in the new regime. The metrics that will be used to assess performance include ridership, perceptions of safety, on time performance, absenteeism, and customer satisfaction (Smart Growth America, 2012).

Step 6: Staff organization, media /outreach

Based on Balthazard (2006) a talent management framework consists of the 6 components as below:

- Workforce Planning
- Recruitments
- Management of Talent
- Performance Management
- Remuneration and career development
- Succession Planning

Once the functions and competency requirements have been identified, the lacunae in the skills required need to be identified. Also, the existing skills/capacity that exists need to be taken into account and nurtured with proper remuneration and training. Recruitment positions need to be prioritized, as **workforce planning** has to balance capacity risk as well as immediate needs (Bhat et.al., 2006).

It is to be understood that urban transport planning as a profession that is a fairly recent and evolving, especially in the developing countries. There are considerable gaps in the demand and the supply of professionals in this field. Thus there is need for a systematic approach that supplements this gap. The focus should be to develop a "cadre" of transport professionals, with continued development of their career in the system (Working Group to Planning Commission of India, 2011). There needs to be a short term and a long term strategy for **management of talent**. Short term strategy is to focus on how to bridge the gap in the near future, cognizant of the fact there is a supply constraint. The **short term strategy** should focus on;

- Augmentation of the existing staff, professionals and decision makers in the
- Internship or fellowship programs with local universities
- The national government sponsoring relevant masters and M. Tech and research programs in the field of urban transport planning and technology field of urban transport planning and management through existing schools and universities national and international.

- Promotion of e-learning
- Development of manuals and toolkits, in the context of the country/region

Recruitments should adhere to the functions identified above, and also flexibility for rotation of functions for "cross-pollination" in order to have a holistic and integrated structure.

Universities of developed countries may have established transport and traffic skills that can be transferred to developing countries through " twinning arrangements", as between Zurich, Switzerland and Kunming, China, and also between and Gothenburg (Sweden) and both Hanoi (Vietnam) and Ibadan (Nigeria), through bilateral arrangements (World Bank, 2002). Over time, these skills and approaches can be incorporated and mainstreamed into both transport and broader planning higher education programs in developing countries.

Long term strategy should have a consistent but focused investment in training and development:

The existing talent need to be nurtured and the potential of the employees need to be maximized, and so the focus on the following is pertinent:
- On the job training
- Job instruction training
- E-learning programmes developed to the context of the region
- Mentoring programme to tap the in-house expertise of the experienced employees
- Out-sourced training that will help the employee to broaden his/her horizon of thoughts, and promote innovative thinking
- Continued support from the National and the State governments to the MTA for dissemination of knowledge through organization of workshops and conferences, training sessions, research, data bank and information.
- Encourage sector professional movement between government departments, academia and private sector through specific programmes.

No knowledge management process is complete without an evaluation process. **Performance Management** programme should focus on creating a consistent, fair, and impartial process for the establishment of key performance indicators in an organization. Key performance may be quantitative such as cost of personnel and training time per employee. It could also be qualitative employee-output related key performance indicators including value added per person and the return on investment of training/recruiting (World Bank, 2002).

Compensation policy needs to be fair. It includes all payments and benefits. The compensation structure needs to be competitive enough. However, the MTA will not be able to compete with the compensation of the consultants, and so there should be other methods to encourage talent to join and motivate them for continued interest within the MTA. Rewards should be linked with performance and, as noted before, performance should be measured equitably.

Career Development and Succession Planning is an important part of the long term sustainability of the MTA. As employees are cultivated and managed with training, mentoring, evaluation and rewards, it is important to develop leaders. Some informal, but deliberate nurturing within companies brings out leaders. Once the leadership potential employees, focus should also be on their qualification as well as competence. Developing leaders from within is beneficial as the organizational integrity will be preserved, and ensures a smooth transition when a senior employee leaves, or retires.

SAMPLE CASE

As seen from the structure diagram (figure X), the capacity of the different levels of the institutional structure was identified. The MTA initially formed a HR Committee (academies, experts, and government official from Transport and Urban development department), to handle the initial skeleton staff. The staff requirements were-

1. *Administrator (nominated by Central Gov.)*
2. *Urban Planner- 10 years + experience (1)*
3. *Transport Planners – 10 year + experience*
4. *Transport engineer with modelling experience- 5 + years' experience(2)*
5. *Technicians (CAD, Drafting, data entry)-2*
6. *Administrative assistant (1)*
7. *Accountant (1)*
8. *IT personnel (10 years + experience)*

These were advertised in the national as well local newspapers, and other relevant forums.

Apart from the above staff, there was a need for a consultant to set the process for the new authority. Advertisement for the consultant was also issued nationally and internationally.

The Consultant was required to identify processes that needed to be in order, and the actions related to that and the time line. They were:

1. *Administrative processes*

2. HR process

3. Technology processes

IV. Keys to Successful Metropolitan Transport Institutions

Several important parameters have been cited for successful MTAs. These include: Planning/decision-making for all significant public investments in all transport modes

- Authority over strategic operations and management policies
    - e.g., number of actors, levels and types of services, pricing, public information, integration of modes and services of modes and services
- Defined and predictable sources of funding
- Formal linkages to land-use and environmental planning
- Formal public/private sector participation
- Sound quantitative basis for decisions (World Bank/PPIAF, 2009)

To this we can also add political support at all relevant levels – likely to be municipal, state, and central, and perhaps even neighbourhood – for these agencies to effectively use the authority they are granted. The table below addresses guiding principles for broader metropolitan governance, and these also hold true for transport-related institutions and approaches.

Table X: **Guiding Principles of Good Metropolitan Governance**

Coherency	It shares that governance must be intelligible to the electorate. A system based on welter of agreements, complex formulae and compromised principles is inefficient. Marginal changes with present systems will not suffice. Confusion breeds indifference and apathy which in turn provide ideal conditions for corruption and demagoguery.
Participation	Governance must fully take into account and allow for the participation of representatives of community groups, women the elderly and the young, the business sector, social partners and all levels of government involved in the metropolitan area. New technologies and methods of communication can encourage and support more interactive policy environments, bringing government closer to people.
Competitiveness	It is necessary conditions when urban regions are emerging and national barriers to trade are falling and factors of production are mobile. Emphasis on investment in social and human development and hard and soft infrastructure is required rather than tax sops for investment attraction.
Subsidiary	For the quality of governance to be the best, services must be delivered by the most local level that has sufficient scale to reasonably deliver them. The principle rejects functional duplication and overlap. The principles of subsidiary and holism go together suggest a major decentralization of service delivery responsibility to local governments within a context of powerful policies and guidelines promulgated by senior governments.
Coordination	The administrative fragmentation of metropolitan region calls for coordination among local authorities across jurisdictions and between elected authorities and various regional boards/agencies with function or sectoral responsibilities is a priority, especially in strategic planning.
Particularity	It states that except where the case of standard policy is founded on human rights and immutable standards, policies and institutions of government must be crafted to fit the unique circumstances of various parts of the country. This principle is also important to more localized policy institutions because it permits construction of unique solutions for various areas within the urban region.
Equity	The administrative fragmentation of metropolitan region calls for coordination among local authorities across jurisdictions and between elected authorities and various regional boards/agencies with function or sectoral responsibilities is a priority, especially in strategic planning.
Holism	Any system must reflect the potential and needs of the entire urban region because this is the area that defines the economic and the environmental challenge. Each part of an urban region affects all others: this does not necessarily mean that all parts of the region require the same system of

	governance but it means that all parts of urban whole must be considered in the analysis – without artificial boundaries.
Fiscal Probity	Any system must be created with the explicit recognition that the costs of governing most urban regions must be reflective of benefit received. Debt load and tax rates are high in the urban centres of many OECD countries, and cannot be sustained in the face of strong international competition for investment. If cities are to meet the key social environmental and economic challenges of our time, they must ensure careful resource stewardship.
Sustainability	Economic, social and environmental objectives must be fully integrated and reconciled in the development policies of urban areas. This means adopting an outcome oriented approach, which is holistic and integrates short, medium and long term coordinates. In environmental terms, it means managing the metropolitan region in the context of the wider bio-region, the qualities and potential of which must be enhanced and preserved for future generations and as a contribution to a sustainable planet. In social terms, it means ensuring that social cohesion is maintained and strengthened.

Source: (OECD, 2000 and 2003)

Establishment of a successful MTA requires technical, financial, and political knowledge and support. The lack of any of these will hamper its ability to fulfil its role as an institution that successfully helps structure mobility options, improve access and efficiency, and allow the transport system and infrastructure to provide needed support and structure to its metropolitan area and its economy.

Useful Definitions for Discussion on Urban Mobility

Transport and urban development concepts that might come up during the multi- stakeholder forum	Definition	Source
Accessibility	The ease of reaching destinations. The degree of ease with which it is possible to reach a certain location from other locations. One meaning of accessibility specifically focuses on people with disabilities and their ability and right of access to facilities and services.	GTKP
Access to and Egress from to transit	Time taken/distance to be travelled to reach a transit station from origin and time taken/distance to be travelled to reach the destination from the transit station, respectively.	
Area Licensing Scheme (ALS)	A demand management strategy aimed to reduce auto travel within city centres. The Singapore Area Licensing Scheme, introduced in 1975, required motorists to purchase a license (and display it) to enter the central area. It was the first pricing scheme to be successfully implemented in the world. It was replaced by the current Electronic Road Pricing (ERP) system in 1998.	GTKP
At grade	An at-grade intersection is a junction at which two or more transport axes cross at the same level (or grade).	
Auto-free Zones	Areas of a city or town in which automobile traffic is prohibited (also called "Car-free Zones and "Pedestrianised Zones").	GTKP
Average Daily Traffic (ADT)	The total volume of traffic, combining both directions, using a road in a single 24-hour period.	GTKP
Bikeway	A facility designed to accommodate bicycle travel for recreational or commuting purposes. Bikeways are not necessarily separated facilities; they may be designed and operated to be shared with other travel modes.	GTKP
Bikesharing	A bicycle sharing system, also known as bikesharing, is a service in which bicycles are made available for shared use to individuals who do not own them.	
Bus Lane	A lane designed to give priority to buses and save journey time in places where roads are congested with other traffic.	GTKP

Bus Rapid Transit (BRT)	A bus-based mass transit system that delivers fast, comfortable, and cost-effective urban mobility through the provision of busways and bus priority measures along with rapid boarding and alighting and excellence in customer service.	GTKP
Busway	A bus only, exclusive right-of-way (at-grade or grade-separated). Dedicated bus lanes that operate separately from all other traffic modes.	GTKP
Bollards	Rigid posts that can be arranged in a line to close a road or path to vehicles above a certain width. Bollards can be mounted near enough to each other that they block ordinary cars, for instance, but wide enough to permit special-purpose vehicles through. Bollards can be used to enclose car-free zones: removable bollards allow access for service and emergency vehicles.	GTKP
Carpooling	The shared use of a car, especially for commuting to work, often by people who each have a car but travel together to save cost and to promote other socio-environmental benefits. In some locations, there are special facilities intended to encourage carpooling such as designated pick-up points and high-occupancy vehicle lanes that only allow cars with multiple riders at certain times of the day.	GTKP
Carsharing	A type of car-rental where people rent cars for short time periods, often by the hour with self-service reservation, pickup, and return.	GTKP
Central Business District (CBD)	A term generally used to describe the heart of an urban downtown.	Hamilton City
Congestion Charge	A demand management strategy aimed to reduce auto travel into congested urban areas. The London congestion charge is a fee for some motorists travelling within those parts of London designated as the Congestion Charge Zone. It aims to discourage the use of private cars, reduce congestion, and raise funds for investment in public transport.	GTKP
Capacity	A transportation facility's ability to accommodate a moving stream of people or vehicles in a given time period.	FHWA/FTA, 2007
Carbon Monoxide	A colorless, odorless, tasteless gas formed in large part by incomplete combustion of fuel. Human activities (i.e., transportation or industrial processes) are largely the source for CO emissions.	FHWA/FTA, 2007
Demand-responsive public transport	Provision of public transport services to meet individual needs of travellers (origin and destination, time of day, etc.), normally using a central dispatching system.	GTKP

Density	Density is a measure of the intensity of use of housing land. It is calculated on the basis of the number of habitable rooms per unit area.	SCC
Design guidelines	Criteria established to guide development toward a desired level of quality through the design of the physical environment, and which are applied on a discretionary basis relative to the context of development.	Hamilton City
Electronic Road Pricing (ERP)	A demand management strategy aimed to reduce auto travel in selected areas and along certain routes within congested periods. Introduced in Singapore in 1998, the system is based on a pay-as-you-use principle and motorists are automatically charged during peak hours. A device known as an In-vehicle Unit (IU) is placed on the lower right corner of the front windscreen within sight of the driver, in which a stored-value card, the CashCard, is inserted for payment of the road usage charges. It is mandatory for all Singaporean vehicles to be fitted with an IU if they wish to use the priced roads.	GTKP
Environmental Impact Assessment	The process by which information about the likely environmental effects of major projects is gathered, evaluated and taken into account by the local authority in considering whether or not planning permission should be granted.	SCC
Environmental Justice	Environmental justice (EJ) assures that services and benefits allow for meaningful participation and are fairly distributed to avoid discrimination.	FHWA/FTA, 2007
Flyover/overpass	A bridge, road, railway or similar structure that crosses over another road or railway.	GTKP
Geographic Information System (GIS):	Computerized data management system designed to capture, store, retrieve, analyze, and display geographically referenced information.	FHWA/FTA, 2007
Grade separated	A grade-separated crossing provides continuity of a bicycle/pedestrian facility over or under a barrier. A bicycle/pedestrian crossing structure may be either a bridge or an underpass.	CAMPO
High-Occupancy Vehicle	(HOV): a vehicle with two or more occupants, used in HOV, or carpool, lanes.	GTKP
HOV Lane	A lane reserved for vehicles with a driver and one or more passengers. These lanes are also known as "Carpool Lanes", "Commuter Lanes, "Diamond Lanes" and "Transit Lanes".	GTKP
Impact Evaluation:	The assessment of the effects of an intervention beyond the outcomes on individuals targeted by the intervention.	

Infrastructure	The underlying foundation or basic framework of a city, including streets, parks, bridges, sewers, street lights, and other utilities.	Hamilton City
Instruments (policy, economic, fiscal)	Actions and rules that are implemented by the government to achieve a change in behavior. Examples include taxes, fees, and subsidies.	
Integrated Planning	Integrated Planning is the interaction between the transportation decision-making process and external processes. Identifying the influences of these external processes on the transportation process is important in ensuring the end product of the transportation process is comprehensive and attained through full collaboration with other partners.	PIARC
Integrated transport systems	Networks of links (bus, rail, road etc.) rather than individual routes, connected in terms of physical access, ticketing, service frequency, timing and capacity.	SCC
Intelligent transportation Systems (ITS)	A combination of Information Technology and telecommunications systems used in the development of car navigation systems, traffic signal control systems, container management systems, variable message signs, speed cameras, monitoring systems (such as security CCTV systems). Also included are applications that integrate live data and feedback from a number of other sources (such as parking guidance and information systems, weather information, bridge de-icing systems, and the like).	GTKP
Interchange	A grade separated intersection or junction that enables traffic to change from one road to another without crossing a stream of traffic.	GTKP
Intermodal	The connections between modes of transport.	GTKP
Land Use	Refers to the manner in which portions of land or the structures on them are used (or designated for use in a plan), i.e., commercial, residential, retail, industrial, etc.	FHWA/FTA, 2007
Living Street	A street in which the needs of car drivers are secondary to the needs of users of the street as a whole; traffic calming principles are integrated into their design.	GTKP
Mass Rapid Transit	A rail based public transport system that transports large numbers of people at high frequency through the provision of multiple sets of high capacity vehicles, high speeds, exclusive right-of-way infrastructure, efficient fare collection systems, and fast boarding and alighting techniques.	GTKP
Metropolitan planning organization	Organization made up of representatives of local government and transport authorities, with responsibility for defining transport policy in a given metropolitan area	PIARC

Mobility Management	A demand-oriented approach to passenger and freight transport that involves building partnerships and using a set of "tools" to support and encourage a change of attitude and behaviour among transport users towards using sustainable modes of transport. Mobility Management requires information, organisation, co-ordination and effective marketing and promotion.	GTKP
Modal Split	The percentage of travellers using a particular type of transportation. For example, if 60% of all travellers use cars to get from A to B, while 30% use the train and 10% use the bus, then the public transport (bus and train) modal share would be 40%, while the motor vehicle (car and bus) modal share would be 70%.	GTKP
Mode Share	The proportion of total journeys (trips) carried out by various modes of transport. Modal split can also be defined as the share of different modes of transport, including non-motorized modes and pedestrian trips, within overall transport demand.	GTKP
Mixed uses	Provision of a mix of complementary uses, such as say residential, community and leisure uses, on a site or within a particular area.	SCC
Multi modal	The availability of transportation options within a system or corridor.	GTKP
Non-Motorised Transport (NMT)	Any form of transportation that provides personal or goods mobility by methods other than by fuel powered engines (including electric power). This would include walking, trips by bicycles and tricycles, human porterage, handcarts and wheelbarrows; animal drawn carts and other human powered vehicles.	GTKP
Origin Destination (O-D) survey	A survey conducted of the traffic using the study area roadway system to determine/document current traffic patterns.	
Park and Ride	Public transport stations that allow commuters and other people wishing to travel into city centres to leave their personal vehicles in a car park and transfer to a bus, rail system (rapid transit, light rail or commuter rail) or carpool for the rest of their trip. The vehicle is stored in the car park during the day and retrieved when the commuter returns. Park and rides are generally located in the suburbs of metropolitan areas or on the outer edges of large cities.	GTKP

Parking Management	Parking Management includes a variety of strategies that encourage more efficient use of existing parking facilities, improve the quality of service provided to parking facility users and improve parking facility design. Parking Management can help address a wide range of transportation problems (see Parking Evaluation and Parking Solutions), and help achieve a variety of transportation, land use development, economic, environmental objectives.	VTPI
Paratransit	An alternative mode of flexible passenger transportation that does not follow fixed routes or schedules.	GTKP
Peak Hour	The 60-minute period in which the largest volume of travel is experienced.	GTKP
Peak Traffic flow	The maximum traffic flow recorded during a given period of time (e.g. hourly, daily, monthly).	PIARC
Pedestrian oriented	An environment designed to make movement by pedestrians fast, attractive and comfortable for various ages and abilities; considerations include separation of pedestrian and auto circulation, street furniture, clear directional and informational signage, safety, visibility, shade, lighting, surface materials, trees, sidewalk width, intersection treatment, curb cuts, ramps and landscaping.	Hamilton City
Performance Measures	Indicators of how well the transportation system is performing with regard to such measures as average speed, reliability of travel, and accident rates. Used as feedback in the decision-making process.	FHWA/FTA, 2007
Polluter pays principle	One of the core principles of sustainable development is the "Polluter Pays" Principle. This recognises that the polluter should pay for any environmental damage created, and that the burden of proof in demonstrating that a particular technology, practice or product is safe should lie with the developer, not the general public. Unfortunately, when and how much the polluter should pay is often unclear.	Sustainable Environment
Public Transit	Transport system available to the public in an urban centre, using vehicles designed for use by multiple individuals, with fares, schedules and routes that are planned and available in advance.	PIARC

Public Transport	Public transport includes public transit (urban buses, underground, tramways and suburban trains) and the use of road vehicles, trains, boats and sometimes planes. It may involve fixed fares, schedules and routes (ferries, trains and planes) or more flexible systems adapted to individual needs (car pooling and shared taxis). Public transit services are generally provided by buses, underground, tramways and suburban trains.	PIARC
Private Transport	A transport system in which one or more persons use a private vehicle.	PIARC
Quiet Lanes	Minor rural roads that are appropriate for shared use by walkers, cyclists, horse riders and motorised users. They should have low traffic flows travelling at low speeds.	
Road hierarchy	Categorisation of roads by function and intended traffic management treatment.	Hamilton City
Road Pricing	A term used to cover all the various charges applied for the use of roads. The term includes fuel taxes, licence fees, tolls, and congestion charges, including those that may vary by time of day, by the specific road, or by specific type of vehicle being used.	GTKP
Road Safety Audit	A systematic safety analysis procedure which brings traffic safety knowledge into the road planning and design process with the purpose of preventing traffic accidents.	PIARC
Sidewalk	A path for pedestrians, situated alongside a road.	GTKP
Site Plan	A plan prepared to scale, showing accurately with dimensions the boundaries of the site and the location of all buildings, structures, natural features, uses and principal site design features proposed for a parcel of land.	Hamilton City
Smart growth	An approach to urban planning and transportation that concentrates growth in the centre of a city to avoid urban sprawl; and advocates compact, transit-oriented, walkable, bicycle-friendly land use, including neighbourhood schools, streets that work for everyone, mixed-use development with a range of housing choices.	GTKP
Social Impact	A change in the quality of life of a community that extends beyond the direct use of the road space in the vicinity of the community.	PIARC

Speedtable	A traffic calming device designed as a long speed hump with a flat section in the middle. The long, flat design allows cars to pass without slowing as significantly as with speed humps or cushions.	
Stakeholders	Individuals and organizations involved in or affected by the transportation planning process. Include federal/state/local officials, MPOs, transit operators, freight companies, shippers, users of the transportation infrastructure, and the general public.	FHWA/FTA, 2007
Sustainable urban mobility	"The ability to meet the needs of society to move freely, gain access, communicate, trade, and establish relationships without sacrificing other essential human or ecological values today or in the future."	WBCSD, 2001
Sustainable transport system	A sustainable transport system: - Allows the basic access and development needs of individuals, companies and society to be met safely and in a manner consistent with human and ecosystem health, and promotes equity within and between successive generations. - Is affordable, operates fairly and efficiently, offers a choice of transport mode and supports a competitive economy, as well as balanced regional development. - Limits emissions and waste within the planet's ability to absorb them, uses renewable resources at or below their rates of generation, and uses non-renewable resources at or below the rates of development of renewable substitutes, while minimizing the impact on the use of land and the generation of noise.	ECMT, 2004
Tactile paving	Tactile paving is a system of textured ground surface indicators found on many footpaths, stairs and train station platforms to assist blind and vision impaired pedestrians.	
Traffic Calming	A set of strategies which aim to slow down or reduce traffic, thereby improving safety for pedestrians and bicyclists as well as improving the environment for residents.	GTKP
Traffic Congestion	Occurs when transport demand exceeds transport supply in a specific section of the transport system. Under such circumstances, each vehicle impairs the mobility of others.	GTKP
Traffic Incident	An abnormal and unplanned situation, including an accident, adversely affecting the traffic flow.	PIARC
Traffic Management	The process of adjusting or adapting the use of an existing road system to meet specified objectives without resorting to substantial new road construction.	GTKP

Transit-Oriented Development (TOD)	A mixed-use residential or commercial area designed to maximize access to public transport, and often incorporates features to encourage transit ridership.	GTKP
Transportation Demand Management (TDM)	The application of plans and policies to change or reduce demand for car use by encouraging the behavioural change of household choices of travel. It is sometimes also referred to as "Travel Demand Management".	GTKP
Travel Time Index (TTI)	The ratio of the travel time during the peak period to the time required to make the same trip at free-flow speeds. A value of 1.3, for example, indicates a 20-minute free-flow trip requires 26 minutes during the peak period.	GTKP
Urban design	The planning and design of cities focusing on the three dimension form and function of public and publicly accessible space.	Hamilton City
Urban Traffic Management and Control (UTMC)	A framework to allow the different applications used within modern traffic management systems to communicate and share information with each other. Thereby a more robust and intelligent system can be used to meet current and future management requirements.	GTKP
Vehicle occupancy	The ratio of the number of passengers to the operational capacity of a vehicle. For private vehicles the driver is included.	PIARC
Wayfinding	The information available to people which they need to find their way around the city and can be verbal, graphic, architectural and spatial.	Hamilton City
Zebra crossing	A zebra crossing is a type of pedestrian crossing usually painted in alternating dark and light stripes on the road surface and designed to give rights of way to pedestrians, while crossing roads.	

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Additional Resources

Still under development