Metropolitan Transportation Institutions; Six Case Studies
Australia, Brazil, Canada, France, Germany and the United States

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South Asia Region
Transport Unit

A South Asia Transport Working Paper

World Bank
## ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
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<tbody>
<tr>
<td>AO</td>
<td>Autorités organisatrices</td>
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<tr>
<td>BRT</td>
<td>Bus Rapid Transit</td>
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<tr>
<td>DB</td>
<td>Deutsche Bahn</td>
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<tr>
<td>EBTU</td>
<td>Brazilian Agency for Urban Transportation</td>
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<tr>
<td>EMTU</td>
<td>Metropolitan Authority for Urban Transportation</td>
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<tr>
<td>MoUD</td>
<td>Ministry of Urban Development</td>
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<td>MPO</td>
<td>Metropolitan Planning Organization</td>
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<td>NUTP</td>
<td>National Urban Transportation Policy</td>
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<td>PDU</td>
<td>Plans de Déplacements Urbains</td>
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<tr>
<td>RIT</td>
<td>Integrated Transit Network</td>
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<td>SSB</td>
<td>Stuttgarter SrsassenBahnen</td>
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<td>STU</td>
<td>Secretariats of Urban Transportation</td>
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<td>VRS</td>
<td>Verband Region Stuttgart</td>
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<td>VVS</td>
<td>Verkehrs und Tarifverbund Stuttgart</td>
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Preface

This working paper was initiated in 2009 in response to a request from the Government of India for the World Bank to provide support to the development of urban transport governance institutions in India. It is funded by a grant from the AusAid.

This paper was written by Kevin Heanue and Andrew Salzberg, consultants to the World Bank, under guidance from Ke Fang, Senior Urban Transport Specialist, and Samuel Zimmerman, former Urban Transport Advisor, of the World Bank. It synthesizes individual case studies written by Kevin Heanue, Toni Lindau, Slobodan Mitric, Christina Rosan, Phil Sayeg, and Niklas Sieber.

Special thanks are due to the valuable comments on earlier drafts by Zhi Liu, Slobodan Mitric, O.P. Agarwal, and Arturo Gomez.
Table of Contents

Introduction ........................................................................................................................................... 1
Synthesis & Themes ............................................................................................................................... 4
Case Study Summaries ........................................................................................................................ 13
Introduction

Transportation has always played a fundamental role in the formation of cities. Ports evolved where rivers flowed into the ocean or at the confluence of major rivers; sleepy outposts at the junction of major roads became bustling trading hubs. Although this relationship between transportation and development has been evident since the creation of the earliest urban societies, all previous conceptions of the city were made obsolete by the advent of the Industrial Revolution. By the end of the 19th century, massive urbanization and the invention of mechanized transport combined to transform the cities of the western world into sprawling behemoths. With the advent of private motor vehicles in the early 20th century, the spatial expansion of the city accelerated.

As the history of urbanization demonstrates, urban growth can result in enormous social and economic benefits, but it also brings significant challenges. New industrial cities engendered a staggering number of technical problems: existing sewage systems were overwhelmed, disease ravaged teeming slums, and residents choked on noxious air. The transportation challenges raised by this new city centered on congestion. Early forms of transit provided some relief, but as motor vehicles became common place, existing urban streets were overwhelmed. As roadways were enlarged and expressways constructed, the population of new suburbs expanded and the automobile became the dominant form of transportation in many developed cities.

Although congestion remains a major focus of transportation practice, modern planning in the developed world has evolved in the post WWII era in an attempt to address an expanded set of issues. Thirty to forty years ago transportation decision-making was regarded as state-of-the-art if it reflected the results of a rigorous economic analysis. Since the 1960s, systems operations, social equity concerns, intelligent transportation systems, road pricing, public private partnerships, and sustainability are but a few of the considerations metropolitan transportation planning practice has expanded to accommodate. Although no developed city can be said to have “solved” its transportation problems, there have been significant achievements in these areas in many metropolitan areas.

In addition to the technical challenges posed by this rapid urban expansion, addressing the transportation needs of the modern metropolis has required the creation of entirely new institutional structures. New, sprawling cities function as unified economic engines but grow across myriad local jurisdictions. To address issues at this scale, cities and countries around the world have developed new institutions that sit between the scale of local and higher order governments. The example of Boston, presented in the accompanying figure, is illustrative. The city of Boston has a population of 620,000, but its metropolitan area is commonly defined to include 101 cities and towns with 4.5 million total residents. An organization known as a Metropolitan Planning Organization (MPO) that covers the territory of all the cities and towns in the region has been created to coordinate planning of major transportation investments. This organization is designated by the state governor, includes representatives from local governments on its board of directors, and functions to program federal transportation dollars. Although the details vary widely, this complicated structure incorporating different levels of government is typical of the institutions that have arisen to address metropolitan transportation issues around the world. To manage transportation in greater Boston, the MPO needs to
work collaboratively with the federal government, which provides significant funding for capital investments and ongoing maintenance; state governments, who operate major roads and control the system of public transportation through a public authority; and local governments, who manage local roads and have final say on issues of urban development. In addition to these public actors, the metropolitan transportation governance system needs to adequately incorporate the needs and inputs of the private sector, civil society groups, and members of the public. Clearly, this is a herculean task.

The primary goal of this study is understanding the nature of systems of governance like the one found in Boston, how they are created, and how they achieve success.

Figure 1 The Boston MPO

This understanding has the potential to deliver significant benefits to cities in developing countries currently experiencing rapid economic and population growth. Many of these cities are facing some of the same issues that developed countries have been grappling with for decades. As cities expand beyond their traditional boundaries, new urban problems challenge existing institutions. A governance structure capable of responding to these new challenges is a vital prerequisite to the implementation of effective solutions, but cities in the developing world often do not have local precedents for the design of such institutions. In a very real sense, developing countries today have the opportunity to benefit from the experience and successes of some metropolitan areas in the developed world, while avoiding the mistakes of others.

This project was conceived by the World Bank to synthesize models of successful systems of metropolitan transportation governance from around the world. Under the direction of the World Bank, the consultant staff of the project reviewed transportation practices in Australia, Brazil, Canada, France, Germany and the United States. The case studies emphasize developed economies with a wide range of planning practices and planning institutions. They contain many examples of innovative practices that incorporate institutions, policies, analysis, investments and operational measures that are cost effective, support long term environmental sustainability, incorporate stakeholder input, and provide a foundation on which to build.

To help compare the different solutions developed in each country, the case studies cover a consistent set of issues. Topics include the structure of regional institutions; their responsibilities (whether they cover different modes, whether they manage day to day operations); the degree of integration between land use and transport planning; the method of funding new transportation infrastructure projects and ongoing operations; and the methods for stakeholder involvement.
Each case also focuses on unique or innovative aspects of the metropolitan transportation governance systems in question. As an example, France has enabled individual metropolitan areas to establish a payroll tax for transportation, providing a stable and substantial pool of revenue for public transport. The United States has focused on the creation of a new institution, the Metropolitan Planning Organization (MPO), which allows for cooperative strategic investment decision-making. Canada and Australia have state or province-led programs with federal funding of key projects on an ad hoc and discretionary basis. Brazil’s system of metropolitan transportation governance is dominated by city governments, who have control of the majority of public transport and roadway systems. Germany, and the Stuttgart region in particular, is marked by a high degree of inter-governmental cooperation in land use planning, transport planning and the operation of a highly sophisticated public transport system.

The following table provides some general context data for the case study countries.

<table>
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<tr>
<th>Table 1 A Comparison of Case Study Countries</th>
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<td>Population (millions)</td>
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<td></td>
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<tr>
<td>Population Growth Rate (%)</td>
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<tr>
<td>Urban Population, 2008 (%)</td>
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<td>Urbanization Rate, est. 2005-2010 (%)</td>
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<tr>
<td>GDP per capita (USD, 2007, PPP)</td>
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<td>Motorization Rate (veh/1000 people)</td>
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Comparisons among the case study countries reveal that almost all are developed countries with Brazil, a member of the rapidly developing BRIC countries, the lone exception. They have all already attained high and mostly stable levels of urbanization in the range of 80-90%. As a result, most have lengthy experience and mature institutions for dealing with the transport problems associated with urbanization. In addition, the table reveals that despite similar levels of development, motorization rates among developed countries vary significantly. These differences suggest that rising income and urbanization do not yield uniform transportation outcomes; policies and institutional structures can play a significant role in determining the shape and structure of the urban transportation system.

This study is organized as follows. The first section presents an overview of several themes that run through the cases. In the subsequent sections, each case is reviewed individually.
Synthesis & Themes

The primary purpose of the current study is to provide an overview of the ways in which systems of metropolitan transportation governance are organized in six different countries in order that these systems might provide models for World Bank client countries currently developing institutions for managing urban transport problems. The best method for understanding how each of these systems operates is consulting the county case studies provided in the final section.

In this section, in order to provide an overview of some of the key themes that appear frequently in the case studies as well as in conversations with client countries on this topic, five themes are presented and their contribution to the ultimate success of each system is analyzed. This naturally requires a clear definition of what constitutes a successful system. Although a quantifiable measure of institutional success is elusive, for the purposes of this paper, successful systems are defined as those that are able to develop and implement cost-effective and environmentally-friendly urban transport plans in a manner that includes substantive input from relevant stakeholders.

In the broadest sense, implementing cost effective urban transport strategies involves selecting alternatives that provide maximum economic benefit for the lowest input costs. In practice, achieving this goal requires sustained focus on economic evaluation that includes an upfront identification of current urban transport conditions, problems, potential solutions, and an honest appraisal of their costs and benefits.¹

The definition of environmentally-friendly transportation has expanded in recent years. In its earliest incarnations, evaluation of environmental impacts for urban transport projects was largely limited to analyzing air quality impacts in urban areas.² Over time, environmental regulations expanded to include the prevention and mitigation of all potential damages to the local environment. As climate change has moved to the forefront of the global agenda in recent years, an emphasis on mitigating greenhouse gas emissions has also become an increasingly important element of urban transport planning.

Involving all stakeholders in transportation planning and implementation has a long and evolving history. One of the milestones of inclusive planning in the United States came during the 1960s when federal law required the adoption of a 3C (continuing, cooperative and comprehensive) planning process. Today, transport planning practice in many case study countries has embraced the principles of inclusive planning. This includes not only direct contact with the public, but also engagement with different levels of government with overlapping authority, agencies tasked with specific responsibilities, and representatives of civil society. Successful stakeholder involvement means more than just the dissemination of information; stakeholders should be involved at the earliest possible stage of the project, all potentially affected parties must be afforded and opportunity to participate in the process, and community input should be reflected in the final product.³

¹ For an early example of the significant body of academic literature focused on this issue, see, eg Meyer, Kain and Wohl The Urban Transportation Problem, 1965.
² Meyer, Transport Planning for Urban Areas: A Retrospective Look and Future Prospects
³ FTA, Working Together on Transportation Planning: An Approach to Collaborative Decision Making
Naturally, the final element of success is that systems of governance are able to do more than simply develop effective plans; they must also be able to implement strategies that address these criteria for success.

To help analyze the factors that contribute to this definition of success, the following section is organized as follows. Five topics are compared across the case studies and their contribution to the above definition of success is examined: (1) Does an institution for metropolitan transport governance exist, and what are its roles?; (2) How have these institutions evolved over time; (3) To what extent are land use and transport planning integrated; (4) How are urban transportation capital projects and operations funded; and (5) What are the methods for stakeholder involvement;

1. An Overview of Urban Transport Governance Structures

In any given metropolitan area, different transport modes - limited access highways, local roads, commuter rail services, urban metro systems, municipal bus systems, and infrastructure for walking and cycling – overlap, and are frequently constructed, operated, and maintained by a large number of different public and private actors. Ideally, the various government structures that have authority over these systems would coordinate their actions to maximize potential benefit and avoid unnecessary or counterproductive actions.

Unfortunately, the coordination of metropolitan transportation institutions faces two obstacles. One is overlapping levels of authority within a hierarchical system. Federal, state, and local governments may all have jurisdiction over different elements of the transportation system in the same metropolitan area. In Brazil, for example, suburban railways were, until very recently, the responsibility of the federal government, intermunicipal buses the responsibility of the state government, and intramunicipal buses the responsibility of the municipalities. Another common problem is horizontal integration between the many local governments that often compose metropolitan areas. As noted in the introduction, metropolitan Boston contains 101 separate cities and towns. If each of these contiguous local governments attempted to provide urban transport services without coordinating with its neighbors, the outcome would be less than optimal.

A truly coordinated system would involve the coming together of these actors for the purposes of planning future investment in new and upgraded infrastructure, as well as operational collaboration on day to day use of the facilities. The benefits of this collaboration extend across modes. For public transport, the coordination of bus and rail modes within and across jurisdictions allows each to be targeted where it is most efficient, and provides an opportunity to jointly develop needed infrastructure for interchange between the two. Roadways work best where they can be designed in a functional hierarchy that descends from limited access highways through arterials and local roads; where a road network extends across local boundaries and is controlled by different levels of government, this can only occur through effective collaboration. Reducing duplication of service across political boundaries can vastly increase the cost effectiveness and quality of urban transport service.

To present an overview of the institutions studied in each case study country, their roles and responsibilities are summarized in the following table under five headings: whether an institution has
been created, how and by whom it was created, whether the agency conducts multi-modal planning,
whether its role extends to the day to day operations and management of the systems in question, and
to what extent land use and transport are integrated (a topic explored in greater detail elsewhere in the
report). Further information on all institutions is available in the case studies summaries.
<table>
<thead>
<tr>
<th>Does a specialized metropolitan transportation institution exist?</th>
<th>Australia</th>
<th>Brazil</th>
<th>Canada</th>
<th>France</th>
<th>Germany</th>
<th>Unites States</th>
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<tr>
<td>No specific metropolitan agencies have been created. State government departments and authorities take the lead in different areas.</td>
<td>In general, no. But some exceptions exist. In Curitiba, the public transport operator (URBS) covers 14 cities and collaborates closely with land use planners. The case of URBS is described in the boxes below.</td>
<td>Yes. Metropolitan Transportation Agencies (MTAs) have been created in the 3 largest metropolitan areas in Canada.</td>
<td>Yes. The Agences Organisatrices (AOs) cover the area of several communes (local governments) and are empowered to collect a local employment tax.</td>
<td>Yes. Stadt-Umland Verband (a locally elected regional body) exist in 10 of Germany's largest cities.</td>
<td>Yes, Metropolitan Planning Organization (MPO), a federally mandated but state created body that programs federal transportation dollars, exist in every metropolitan area over 50,000 people.</td>
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<tr>
<td>By whom is it created?</td>
<td>With no specific body created, state departments and Statutory Authorities manage transportation issues directly.</td>
<td>City/state collaboration. Originally, only the city of Curitiba was covered by the URBS, the public transport operator. Over time, this has expanded to include 14 of 26 cities in the metropolitan area.</td>
<td>The Province has taken the lead in creating and defining the responsibilities of the MTAs, which vary by province.</td>
<td>AOs are enabled by national legislation, but local governments determine their extent and responsibilities.</td>
<td>Cities and their surrounding counties voluntarily join together under enabling legislation defined by the states.</td>
<td>MPOs are nationally mandated, but state governments decide on their structure with input from local government.</td>
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<td>Does it plan for major investments in both public transport and roadway infrastructure?</td>
<td>In New South Wales, the Department of Infrastructure plans for major investments in both road and public transport for the whole state.</td>
<td>The URBS only plans for public transportation investments.</td>
<td>In many cases, MTAs are empowered to plan for both public transport service and the major road network. This is the case with Vancouver’s Translink.</td>
<td>The AOs plan for major investments in both roads and public transport infrastructure through the Plan de Déplacement Urbain (PDUs).</td>
<td>Yes. The VRS is responsible for long range planning for both major roadways and public transport infrastructure.</td>
<td>MPOs plan for both major roads and public transport in the Long Range Transport Plan they are required by federal law to produce.</td>
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<tr>
<td>Does it oversee the operation of public transport service?</td>
<td>The state operates public transport service through state authorities like RailCorp, or contracts with the private sector for urban bus service.</td>
<td>Yes. The URBS is in charge of contracting for public transport service.</td>
<td>Yes. In some cases (Vancouver), it operates the entire network. In others (Toronto), the MTA operates regional rail service while city governments operate metro and bus service.</td>
<td>Yes. In most cases, AOs contract with private companies to operate the service, except in France’s largest cities.</td>
<td>The VRS in Stuttgart procures service on the regional rail (S-Bahn). Other levels of government also procure service, and they are coordinated through another agency (see the German case).</td>
<td>No. In the largest cities, this is generally handled by a state authority.</td>
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<tr>
<td>How are transport and land use planning integrated?</td>
<td>Local Governments manage land use, while higher level governments (state authorities and state ministries) manage large scale infrastructure planning and operations.</td>
<td>No formal integration occurs between institutions managing land use and transport. Despite this, informal collaboration over many years has led to a world class land use-transport management system.</td>
<td>Local governments manage land use, but provincially created bodies manage transportation. Regional land use plans are sometimes created by MTAs, but can be overrule by local authorities.</td>
<td>AOs have no formal responsibility for land use planning.</td>
<td>The VRS has strong land use responsibilities, with the capacity to overrule local land use plans. This leads to a high degree of land use-transport integration.</td>
<td>MPOs have no authority over land use, and local authorities have a full control of land use decisions.</td>
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Table 1: An Overview of Metropolitan Transport Governance Institutions in Case Study Countries
2. Institutional history

The story of how these institutions have evolved over time helps provide context to their present day structure and responsibilities. This understanding is particularly valuable for developing countries that may be in the process of designing the structure of their institutions. The case study countries have developed metropolitan institutions by several different historical trajectories: Australia and Canada, where matters of urban transport have been left largely to subnational governments; France and the United States, where the national government has played an important role in enabling the creation of metropolitan institutions; and Brazil, where a turbulent political history has left no strong legacy of metropolitan institutions, but where some urban regions have nonetheless developed world class governance systems. These histories are described below.

Australia and Canada - Subnational Governments Dominate

Australia was founded as a federal system with significant powers given to the constituent states. There has never been a specific power assigned to the national government for urban transportation, so states have taken the lead in this domain. The federal government does have authority over the majority of revenue collection (states receive half their budget from federal transfers), but states retain great flexibility in how they spend their money.

Over the years, the federal government has sometimes taken an active interest in urban transportation. The Labor government in 1972 attempted wide ranging reform of urban planning and urban transport and used targeted grants to influence state and local policy. This involvement has ebbed and flowed with the change of government, with the Labor party generally more keen to involve itself in these matters than its Liberal counterpart. Unlike in other countries, this intermittent federal involvement has never coalesced into a continued, clearly articulated federal role in the urban transportation funding system. This is not to say that federal policies have not had an important role in how transport service is delivered (an example is the competition policy, described in the Australian case study), but states have retained the power to structure the institutions for metropolitan transportation planning and service delivery, with cities in most cases playing a relatively minor role.

The Canadian situation is in many ways analogous. The Federal government has sometimes provided significant funding to various urban transportation projects, but the Provinces (the equivalent of the state in the Australian case) have retained primary control over the issue, albeit with a greater role played by municipalities (local governments) than in the Australian analogue. But in broad outlines, the stories are the same. The federal government has not played a strong role in structuring the institutions of metropolitan transportation governance. One major difference is that provinces in Canada have devolved some of their power to Metropolitan Transportation Agencies for major cities. These agencies are described in greater detail in the Canada case study.

France and the United States – clear national government role

Unlike in Australia or Canada, national governments in both France and the United States have played important roles in structuring the institutions of metropolitan transportation governance.
By the late 1960s, the public perception in France was that both public and private transport modes were no longer offering quality service. In 1971, France’s central government instituted a major reform that allowed for the enactment of a local payroll tax whose proceeds would fund public transport operations and capital projects. The reform and its later revisions mandated that in order to collect this tax, local governments (communes) had to establish an organizing authority, known as an Autorite Organisatrice (AO). The AOs could be composed of one or more local governments, and provide one or several different types of service, including public transport. The composition and extent of these authorities was left to local governments to decide.

This reform and the tax it created have allowed for major improvements in bus fleets, new metros, and new light rail transit systems, leaving French cities among the best served by public transport in the world. Overtime, the scope of the AOs has broadened to include socio-economic, environmental, energy, and land development concerns. The French structure created in the 1970s has survived and prospered to this day. This success has been enabled by a clear national legal framework for collaboration on urban transportation issues combined with the flexibility for local governments to set the boundaries of their collaboration. Success has also been ensured by the federal financing requirement: the local employment tax can only be collected if an authority has been established.

The Federal role in the United States evolved through a different mechanism. The Interstate Highway System, enacted in 1956, was originally proposed as a national rural road network to speed connections between cities. After significant lobbying by mayors in large cities, the program grew to include a significant program of urban highways. To speed completion, the federal government provided 90% of the construction costs of the system using funds provided by a national tax on fuel. This decision set the stage for a significant federal role in major urban transportation projects that persists to this day.

The rapid construction of highways through densely populated urban areas aroused considerable controversy. To help address these concerns, a series of laws was enacted to implement improved planning procedures that came to be known as the 3C requirement (Continuing, Cooperative, and Comprehensive planning). Ultimately, federal laws required that decisions on how state and local governments program federal highway funds be made by an institution known as a Metropolitan Planning Organization (MPO). MPOs were to be created for all urban areas with more than 50,000 people. Although required by federal law, the structure of the institution is decided by the state governor, and thus varies widely.

Over this same time frame, federal assistance to public transport had begun to grow. Through the early 1960s, most public transport was left largely in private hands, except in some major cities (Boston and New York) where state and local authorities had already assumed control of large systems. In the 1960s the United States Congress enacted the first federal assistance for urban transit. The 1973 Highway Act integrated the planning requirements of the separate federal highway and transit programs and strengthened the role of MPOs. MPOs now played the key role in programming funding decisions for both transit and highway investments, a situation that persists to the present day.
Essentially, a federal program for a national interstate highway system provided the initial entrée of the federal government into the urban transportation planning field. Over time, the institutions spawned by this program have developed into mature, collaborative, metropolitan institutions that also have planning responsibility for public transportation infrastructure. Absent the initial impetus of the federal government through the Interstate Highway System, this governance structure might never have emerged and local and subnational governments might remain the principal agents in charge of funding and planning transportation infrastructure (as, for example, in Canada and Australia).

**Brazil**

Brazil has seen more dramatic changes in the structure of government in the postwar period than any other case study country, having been ruled by a military dictatorship from 1964-1985, and enacting its most recent constitution in 1988. Overall, the federal government has not been effective in creating institutions for metropolitan transportation governance. A serious attempt was made in the 1970s, with the national government requiring the creation of such institutions. Without a clearly defined role, however, they never gained a strong foothold.

With a change in the constitution in 1988, cities were formally recognized for the first time and were granted greater power to manage public transport under the direction of STU (secretariats of urban transportation) whose powers they defined. Unfortunately, cities are generally not capable of handling this task – they only have authority within their city boundary, and generally do not produce integrated land use and transport plans.

Curitiba, one of Brazil’s largest and most affluent cities, represents a counter example to this history. Curitiba’s high quality public transport and its integration with a high density transit oriented land use plan have served as a model for planners all over the world.

The genesis of Curitiba’s institutional arrangements took place in the 1960s. At the time, the city of Curitiba was still relatively small and had not undergone a period of rapid growth. The URBS (Urban Development Agency of Curitiba) was created in 1963, and tasked with managing transportation in the city, including public transportation. The IPPUC, the institute for Research and Urban Planning of Curitiba, was created in 1965 and was charged with implementing Curitiba’s visionary urban plan. These institutions have collaborated closely on implementation since their inception. In 1990 a series of legal arrangements between the State of Paraná and the City of Curitiba empowered URBS to plan and manage all the transportation modes within 14 of the 26 of cities in the metropolitan area of Curitiba, effectively making it a metropolitan institution.

**Summary**

The case studies fall into three different broad historical trajectories: those where subnational governments are left with a strong hand in structuring the institutions of metropolitan governance and the federal government does not have a consistent role (Australia and Canada); those with a clear, institutionalized federal role that creates a structure for local collaboration (France and the United
States); and Brazil, where successful metropolitan structures have emerged through local government initiative despite upheaval at the federal level.

The different historical trajectories demonstrate the degree to which history shapes the institutional structures of metropolitan regions. It also demonstrates that even in instances where the federal government has not played a role in structuring metropolitan collaboration, successful structures have emerged, notably in Canada and Brazil.

3. Integration of Urban Transport and Land Use Planning

It is by now a standard maxim that the integration between land use and transport planning is a fundamental characteristic of successful urban governance institutions. As described in the most recent World Bank Urban Transport strategy, “coordination between land-use and transport development is fundamental to efficient city development.”

At its most basic level, control over land use involves the use of legal mechanisms to regulate urban development densities (for example, the maximum number of permitted housing units/hectare), land use (residential, industrial, commercial, with varying degrees of specificity), and design (parking requirements, building heights and setbacks, etc). Recently, the planning profession has focused on the idea of Transit-Oriented Development (TOD), whereby effective transit is enabled by complementary urban development including higher density, a mix of land use, and high quality infrastructure for biking and walking.

It is clear that having land use regulations that are unconnected to the development of transport services can result in drastic reductions in the cost effectiveness of urban transportation. One popular example is the United States, where land use regulation is the responsibility of local governments whose incentives do not necessarily align with those of the metropolitan region. Local governments that develop low density, segregated land uses under this system have made it either infeasible or prohibitively expensive to provide a competitive level of public transportation service, and have also helped create large scale congestion problems. The disconnect also runs the other way; where state governments and metropolitan institutions construct transportation infrastructure without knowledge or control of future urban development, results are less than optimal.

In terms of promoting environmentally friendly urban transport outcomes, studies have demonstrated that low density living arrangements that often result from divided control of land use and transport can lead to large increases in per capita transportation energy consumption and greenhouse gas emissions. Coordination between land use and transportation can be considered a necessary precondition to creating development patterns that enable low energy travel through walking, cycling and public transport.

An Overview of Land Use and Transport Planning Integration in the Case Study Countries

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5 See, for example, Newman and Kenworthy, 1989, for a prominent, although criticized, presentation of this thesis.
Despite the demonstrated benefits of coordinated land use and transport planning, integrating them at the operational level has proven difficult. A review of the cases demonstrates wide variation in the degree to which it has been achieved, across and sometimes even within countries. They range from cases where the authority to regulate the use of land is not integrated with the power to implement transport plans – most of Canada, Australia, France, and the vast majority of the United States – to urban areas where metropolitan transport institutions are tightly integrated with land use planning including greater Stuttgart in Germany and Curitiba in Brazil.

**Australia, Canada and the United States**

In terms of land use planning, Australia, Canada and the United States have, in broad outlines, very similar systems: local governments carry the legal responsibility for preparing urban land use plans for their jurisdictions. Regional plans are sometimes created for metropolitan regions, but the power to regulate the use of land almost always remains with the smallest unit of government. Implementation of these ‘regional visions’ often depends on the voluntary collaboration of these governments. This fractured landscape of land use planning at the local level contrasts with the fact that large scale transport planning is controlled in all three countries by higher level governments: MPOs and state governments in the United States, state governments in Australia, and Metropolitan Transportation Agencies in Canada’s largest conurbations.

There are exceptions to these rules. In some cases, civil society groups take the lead in fostering metropolitan cooperation. A notable example in the United States is the Regional Plan Association (RPA), a nonprofit founded in 1922. The RPA has played an important advocacy role in influencing growth patterns in the New York metropolitan region, which spreads over three states. Despite not having legal authority over any aspect of metropolitan planning, the RPA has helped shape the region through its ties to business and political leaders, the support of leading professionals, successful media campaigns, and local outreach.

In other cases, unique government bodies with stronger legal powers have arisen to address these issues. Metro, an elected regional body in Portland, Oregon (and the only one of its kind in the United States) is tasked both with planning the regional public transport system and with establishing and modifying an Urban Growth Boundary (UGB) and reviewing it every five years. These boundaries are enforced through strong state land use planning laws. Metro also adopts a regional framework plan that lays out a vision for the region in 2040 that includes both land use and transportation.

In Canada, an exception to the general trend of full local control of land use is the greater Vancouver region, which has both a regional planning agency, Metro Vancouver, and a regional public transport authority, Translink, both covering the 22 municipalities of the metro area. Metro Vancouver is responsible for land use planning (and some other services) while Translink covers roughly the same geographical area and plans, coordinates and operates the region’s public transportation; has authority over the Major Road Network; and implements the regional transportation demand management (TDM) strategy. The link between the two agencies is strong, with the board of governors of each being composed of the same body of local elected officials. Despite these examples, the general rule in
Australia, Canada and the United States is that land use and transport planning are not often implemented by the same agency. Even in the exceptional cases, the strength of the integration is generally superseded by the power of local authorities to plan for their own interests.

*Land Use Planning in Curitiba, Brazil and Stuttgart, Germany*

There are, however, two examples from the cases where land use and transport have been integrated to a degree not found elsewhere. They are Curitiba in Brazil and greater Stuttgart in Germany.

Curitiba is well known for its pioneering system of high capacity busways, which have provided a model for BRT systems around the world. The other defining element of the Curitiba system is the degree to which land use planning and transport objectives were pursued in tandem, right from the system’s inception in the 1970s. Growth over the last 30 years has largely followed this pattern, allowing a large portion of trips to be served by convenient public transport, even in a city with high car ownership.

Two institutions have together guided this development, both originally confined within the city limits of Curitiba. IPPUC is the designated agency in charge of implementing the land use plan, while URBS is tasked with planning and operating the public transit system. Over time, these two agencies have collaborated closely to implement the shared transport and land use vision for the city. Most importantly, over time, the transit system has expanded to cover 14 of the 26 municipalities in the Curitiba metropolitan area through a series of legal agreements with the state. This geographic coverage allows it to effectively tackle metropolitan transport issues.

Stuttgart is the largest city in the German state of Baden-Württemberg. The most notable element of its institutional arrangement is the Verband Region Stuttgart (VRS), an elected regional body that contains the City of Stuttgart and five adjacent districts, encompassing a population of 2.67 m inhabitants. These districts voluntarily banded together to create this regional government under enabling legislation defined by the state of Baden-Württemberg.⁶

The VRS is responsible for long range regional planning for both land use and transportation infrastructure. Like Portland’s metro, it is a directly elected body, which helps give it a strong mandate for land use planning. The VRS has the right to approve local land use plans and restrict all activities contradicting the regional plan.

The cases do help confirm the idea that the integration of land use and transportation planning is possible, and that it can be a valuable element of successful metropolitan transportation institutions. The cases also demonstrate the difficulty of achieving this integration, particularly through imposition at the national level. In fact, all cases of successful land use and transport integration have come about through bottom up innovation, either at the city or state level. This may reflect the degree to which land use is intrinsically viewed as a local prerogative (this occurs in many different locations across the globe with wide ranging cultural, economic and political contexts). Regional bodies that are either elected (as in Portland and Stuttgart) or composed of locally elected officials (as in Translink) seem to

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⁶ The laws that allow for the creation of these regional bodies vary from state to state, and ten exist across the country.
have greater legitimacy in planning for land use than equivalent bodies created by higher level
governments. This suggests that countries that seek to integrate these two functions need to think
carefully about the representation of the local population within the decision making structure of the
metropolitan institution.

3. Metropolitan Transportation Funding

Rapidly expanding urban areas in developing countries often have extensive systems of public
transportation that carry a significant portion of urban travel. As these cities develop, mass
motorization and the strain of increasing ridership in congested conditions often push these systems to
the limits of their capacity. One major issue they face is financial. These systems need to balance
affordability to users with affordability to the city (or other levels of government) who may be obliged to
provide operating subsidies.

To help provide models of success, as part of this study, the mechanism through which urban public
transportation is funded was compared across case study countries. To understand where funds
originate, they are grouped into 5 categories: fares; other revenue including fees and taxes collected by
the public transport operator; and direct subsidies from local, state/provincial or national governments.7

7 The organizations listed are not necessarily the same as the Metropolitan Institutions described in the Table 1. For Australia,
RailCorp, a state authority that operates train service in metropolitan Sydney, is examined. For the United States, MPOs do not
operate public transport service directly so TriMet, the transit operating authority in Portland, Oregon is examined. Canada and
France have metropolitan institutions that both conduct planning and operate service; Translink and Sytral and Lyon are
therefore examined here. For Germany, several different operators provide service under the aegis of the VVS (described in
more detail in the German case study summary.) The largest of those service providers, the SSB, a tram company owned by the
City of Stuttgart, is examined here. Sources of data were generally the annual report published by each agency.
While this is far from a comprehensive survey of public transport funding mechanisms, some patterns are immediately obvious. TriMet in Portland, Translink in Vancouver, and Sytral in Lyon collect more than 75% of their revenue from a combination of fares and dedicated tax revenues. These are streams of revenue which they collect directly, and over which they exert some degree of control. In France, a crucial local tax that provides almost half of public transport operating funding (described in detail in the French case study) is enabled by the national government but is dedicated specifically to public transport and collected by local authorities. In Portland and Vancouver, dedicated tax revenues have been allocated by the relevant subnational government (the state in Oregon, the province in British Columbia) and are not transferrable to other purposes. Overall, the sample demonstrates the degree to which many of these organizations have been empowered to collect their own revenues. RailCorp, as a state authority in Australia, is the major exception, and is reliant on the state for almost three quarters of its revenue.

Some of these streams of revenue have proven more reliable than others in recent years. The financial crisis of 2007-2008 has had a dramatic impact on the provision of a number of public services. One area that has felt the impact of new fiscal realities is public transport providers, notably in the United States. Many public transport authorities are funded through a combination of fares, dedicated taxes, and direct subsidies from states and local governments, all of which have been severely impacted by the recent crisis. New York’s Metropolitan Transportation Authority (MTA) for example, is funded through a mix of taxes on real estate transactions, a fee on local mortgages, sales tax revenue, fares, and subsidies from the state government. In the wake of the real estate bubble, revenue from sales and real estate...
taxes plummeted. In addition, the state budget allocations are now also being slashed as the state of New York itself faces a serious budget crunch.

After these dramatic losses in revenue, the MTA is now having to contemplate drastic short term cuts in service or dramatic increases in fares. Clearly, wild year-to-year swings in funds for public transport are not desirable. In contrast to the MTA’s situation, France’s employment based taxed has proven a more stable source of revenue for public transport operators because of the relative stability of jobs in France. Clearly, the mechanism by which institutions are funded can play a critical role in their success or failure. This is a vast topic on which much has been written – here, our purpose is to note that for metropolitan transportation to operate in a sustainable and cost effective way there needs to be a relatively stable base of revenue that can provide inputs into a realistic long term planning process. For more detail on the individual methods by which public transport is funded in each case study countries, see the individual case study summaries in the next section.

In addition to sustainable operating funds, capital planning for transportation must be carried out in a coordinated, transparent way. In addition, the plans produced through this process must not simply sit on a shelf. To help ensure that regional transport plans are implemented, the system of funding transportation projects must be explicitly tied to the outcome of the planning process. As an additional benefit, having capital funds tied to a plan makes the planning process more transparent and helps encourage stakeholder involvement by ensuring that it has a meaningful connection to eventual outcomes. Two models from the case study countries demonstrate how this can be done.

The first is the United States. Planning and programming federal transportation funds was the initial purpose of the Metropolitan Planning Organizations (MPOs), described in the previous section. To program these funds, MPOs produce long term transport plans that analyze demographic, travel, and employment trends for their regions and lay out a series of transportation improvements to meet projected needs. The planning for these transportation improvements must be fiscally constrained – i.e., it must be based on a realistic assessment of the available funding over the planning period. In addition, each decision on major investments planned for the region must be evaluated against a set of alternatives. Ensuring that the widest possible range of plausible alternatives is considered is a major way that these plans attempt to ensure that cost effective solutions are implemented. These long term plans are then translated into rolling five year Transport Improvement Programs (TIP) which list all projects to be funded in the MPO’s jurisdiction over the next five years, and identify the sources of funding that have been allocated to each. Crucially, the entire MPO planning process is mandated by federal law and is required to obtain federal funds, ensuring that all urban regions in the United States comply. An example of the investments planned in Boston’s most recent long range plan, Journey to 2030, is presented below.
Figure 3 The Boston MPO Long Range Transportation Plan

France has a system that is in many ways similar. Urban Transport Plans (“Plans de Déplacements Urbains”, PDU) are the key strategic, multi-modal planning instruments made mandatory by national law and produced by the AOs. They roughly correspond to the urban transport plans produced by MPOs in the United States, but in the French case, the AO that produces the plan is also the institution that has the resources and jurisdiction to implement it. All major transport investments are required to be listed in the PDU, and they are normally prepared by AOs every 10 years, with 5-year updates.

The connection of planning and funding embodied in both France’s PDUs and the transport plans produced by MPOs help ensure that the planning process is more clearly tied to actual project implementation. Both systems are potential models for metropolitan regions now designing their institutions who are interested in ensuring that the planning process is meaningful, helps build stakeholder interest and involvement, and leads to eventual implementation of proposed projects.

4. Stakeholder Involvement

Transportation projects almost by definition cross the jurisdictional boundaries of many different levels of government, affect the lives of local residents, and may have significant impact on local businesses. Because of this, they necessarily require the input of numerous of stakeholders. As transportation planning practice has developed, ensuring the meaningful participation of all stakeholders in the process

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8 In the case of MPOs, although they help produce the plans, the implementing agencies are generally either the State Department of Transportation (DOT) or a state authority for public transport projects.
at a stage where they can have an impact on project outcomes has become increasingly accepted as an essential element to project success.

Although challenging, involving stakeholders early on and in substantial ways has the potential to create benefits for urban transportation planning and implementation. Citizen involvement can help tailor service to what people expect. Moreover, citizen involvement can allow planners to approximate “willingness to pay” for the different alternatives under consideration in the planning process. In other words, successful involvement of stakeholders can help increase the cost-effectiveness of urban transport plans, both by improving the planning process and identifying potential obstacles early on to avoid costly delays further on down the road.

Stakeholder contact can and does take different forms. It can, of course, include direct citizen engagement in formal public meetings, but may also take a variety of other forms including the institutionalization of local input through the presence of local government figures on the boards of metropolitan institutions.

This is, for example, one way that stakeholders are involved in Translink, in Metropolitan Vancouver. The greater Vancouver region contains two related agencies, a regional planning agency and regional public transport authority. The link between the two agencies is strong - the board of governors of each being composed of the same body of 22 locally elected officials, representing all the municipalities in the region. Through this board, the interests of all local governments are included in regional decision making.

MPOs in the United States were some of the early pioneers of direct citizen participation as part of the planning process. Many of the urban freeways constructed in the United States in the 1950s and 60s aroused significant controversy due to displaced residents, urban blight and the destruction of long standing neighborhood fabric. In response to these controversies, federal law mandated the creation of Metropolitan Planning Organizations (MPOs), one of the most distinctive features of American urban transportation planning. These bodies were designed to facilitate a continuing, cooperative and comprehensive (3C) approach to transportation planning by providing a forum for local governments, states, and the public at large to mutually decide on transportation spending priorities. Any metropolitan area with more than 50,000 residents is required to have an MPO and is also mandated to include citizen involvement for all major decisions. Federal legislation provides details on how this public participation should occur. It requires MPOs to have "a proactive public involvement process that provides complete information, timely public notice, full public access to key decisions, and supports early and continuing involvement of the public". Since the enactment of the metropolitan planning process in 1962, the U.S. Congress has repeatedly strengthened and enhanced the process in subsequent legislation up to and including the last program reauthorization in 2003.

Summary

Successful metropolitan transport governance institutions are defined in this study as those that are able to develop and implement urban transport plans in a cost-effective and environmentally-friendly manner that includes substantive input from all relevant stakeholders. Highly formal planning
mandates established by national governments are not always present or even necessary to achieve these goals. Every country and metropolitan area studied has established a system of metropolitan transportation governance that is the result of its own particular goals, priorities, and institutional history. In some cases, notably Australia and Canada, sub national governments (i.e., states or provinces) have wide leeway in establishing the governance structure for metropolitan transportation systems. Others, such as the United States, have a federally mandated process that applies equally to every metropolitan area in the country. This variation is typical: the cases revealed that there are no easy or simple solutions.

Nevertheless, the analysis above has helped identify some elements that are common to successful systems.

1. **Existence of a mechanism for coordination among different levels of government with transportation functions; agencies with specific modal responsibilities; and between those in charge of long term planning and those in charge of day to day operations.** This can occur through a variety of mechanisms. Examples of the cooperation of different levels of government include the creation of a forum for existing governments to interact (the MPO in the United States) or the creation of entirely new regional bodies (for example, the Verband Region Stuttgart (VRS), a regionally elected body in Germany). The VRS is also an example of integration across modes; it plans for investment in both public transport and major roadways. Examples where planning and operations are integrated in the same body include Translink in Vancouver, Canada and French “Autorités organisatrices” (AOs).

2. **Integration of transportation and land use planning to ensure that policies in both areas are directed towards the same goals.** The regionally elected VRS in Stuttgart, Germany, responsible for both long-term transportation investments as well as overseeing land use planning in local communities, is an example of the integration of these two functions. The fact that it is a directly elected regional body helps provide the political legitimacy for its exceptionally strong regional land use planning mandate.

3. **Stable funding for metropolitan public transportation operations, and capital funding that is tied to a long range transport plan.** Having a dedicated source of revenue collected by a transport agency is one method of achieving this. The French Versement Transport (VT), a local payroll tax whose revenues are dedicated to the provision of public transport, is an excellent example that allows for rational, comprehensive, long term urban public transport planning. For capital expenditures, the MPO in the United States and the AO in France have systems that give plans force by explicitly linking them to funding requirements.

4. **Involvement of key stakeholders.** Stakeholder contact can and does take different forms; it ranges from direct citizen engagement through formal public meetings, to the institutionalization of local input through the presence of local government figures on the boards of metropolitan institutions. The MPO in the United States is mandated by federal law to include significant public involvement in all planning efforts.
Despite these general lessons, it would be difficult to say that any particular metropolitan area has ‘solved’ its transportation problems or that institution is perfectly attuned to the problems it faces. Nevertheless, the analysis has revealed a number of innovative solutions that provide models for developing countries currently considering the design of their own metropolitan transportation institutions. The case study summaries presented below explore these solutions in more detail.
Case Study Summaries

Australia

Australia consisted of six British colonies until January 1, 1901 when the Commonwealth of Australia was proclaimed and the colonies became six sovereign states. Under the Australian constitution, powers given to the Commonwealth need to be explicitly stated. The Commonwealth (the national government) is responsible for federal taxation and matters of national interest but the states are responsible for most service delivery. Since no mention is made of urban transportation in the constitution, the states have assumed jurisdiction of this domain. With the exception of funding for specific projects, the states have been reluctant to seek a greater role for the Commonwealth in urban matters.

The national government has never mandated a metropolitan planning process – whether for land use or urban transport - and there have been no requirements to establish urban transport governance arrangements in any particular way. The federal government has occasionally provided significant sums of money for specific short-term infrastructure programs, but involvement in matters of urban transport has been intermittent and not part of a clearly articulated long term strategy. Generally, only one political party, the Labor Party, has devoted serious attention to intervening in urban transport projects.

Occasionally, federal policies aimed at broader policy goals have had a significant impact on the provision of transportation. For example, the Competition Policy, introduced in 1995, required States to take action to introduce competition in public service delivery through privatization; corporatization of government entities to promote a business-like approach to the provision of public services; and competitive tendering. The creation of a clear distinction between the “regulator” or purchaser of services and the “provider” of those services is a feature of the policy. The Competition Policy has had a major effect on the way public transport is planned and the contractual basis under which it operates.

Because of this absence of a firm federal role, states have had relative freedom in designing their institutions for metropolitan transportation governance. The city of Sydney in the state of New South Wales will be used to illustrate this situation. The Sydney metropolitan area contains 4.3 million people living in 38 different local municipalities. Long term planning for regional road and rail infrastructure is conducted by the newly formed Ministry of Transport and Infrastructure for the state of New South Wales. The ministry is also responsible for multi-modal transport coordination; transport services planning and procurement; infrastructure and asset management; and policy, planning and budget funding submissions. Essentially, the state ministry plays the dominant role in virtually all aspects of metropolitan transportation, with municipalities being actively consulted but playing a lesser role in the planning and decision making process.

In Australia, local governments have the legal responsibility for preparing urban land use plans for their jurisdictions that set out planning intent and proposed zones in which land uses may be permitted, excluded or permissible subject to satisfying defined performance criteria. These plans provide the legal
basis for regulation of development applications for individual sites or large area land conversion proposals.

Some transportation services are procured directly by the Ministry of Transport and Infrastructure – this is the case for privately operated bus service in suburban Sydney, for example. Transportation services are also provided by state authorities. This is the case of RailCorp, which operates suburban rail services in Sydney and its periphery under the brand CityRail. RailCorp receives the majority of its operating funds from the state of New South Wales. In addition, the state provides most money for new expansions of the network (see call-out box, below).

**RailCorp - Sydney, New South Wales**

296 million annual unlinked passenger trips

![Pie chart showing revenue sources]

- **Annual Operating Expenses**
  
  RailCorp is a statutory authority created by the state government of New South Wales. It operates an extensive suburban rail system that centers on the city of Sydney. The vast majority of the funding comes from state general fund revenues, with smaller amounts coming from fares and revenue generated within the company. Cities, which play only a limited role in Australian metropolitan transportation, do not provide any of RailCorp’s operating funds.

- **A Sample Project: The Epping to Chatswood Rail Line**
  
  The 12.5 kilometer track, with new stations at Macquarie University, Macquarie Park and North Ryde, has cost $2.3 billion dollars to build – $900 million more than originally estimated. The track is entirely underground. The project is intended to be the first stage of a larger extension of the Sydney commuter rail network. As it stands, the new line provides a more rapid connection and the possibility for more efficient routings across the existing network. It was entirely planned and funded by the state of New South Wales.

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Despite the leeway provided to the states in setting the framework for transportation planning and operation, a great degree of similarity has evolved between states in their approach to: (a) urban
transportation planning including degree of consideration of land use and environmental matters and use of analytical models; (b) structuring of planning instruments from the strategic to short term and from the State-wide to regional and local perspectives; (c) programming and delivery of works, (d) procurement of public transport services; and (e) the broad distribution of transport functions among agencies and how they interrelate.

This similarity appears to arise from the close ties between the different state level transportation authorities in the country. There are only six states in Australia (and two territories) and there are long standing Commonwealth-led forums involving the states (such as the Australian Transport Council) on major national transport matters covering long distance rail and truck transport, but also preparation of guidelines for evaluation and corridor planning. There is also research on issues of national concern such as congestion and transport-related impacts on climate change via bodies such as the Commonwealth’s Bureau of Infrastructure, Transport and Regional Economics or Austroads (which is owned by all the Australasian road authorities). Similarities have been reinforced by extensive collaboration of staff via professional institutions and the influence of major national policy changes such as the competition policy.

Australia has followed other countries around the world in focusing on congestion management as an important priority for improving the efficiency of urban transport systems. In all states the primary responsibilities for traffic and congestion management rests with the state’s road authorities. For example, in Sydney, the responsibility rests with the Roads and Traffic Authority for medium term and tactical planning of high occupancy vehicles lanes, area-wide traffic management, but local governments have an active and “hands on” involvement in traffic calming to keep unwanted traffic out of residential areas. There is extensive coordination between the Roads and Traffic Authority and local governments to achieve a satisfactory balance between managing inter-regional flows and ensuring local access and amenity. Similar arrangements exist in all states.
Summary

- Federal role is limited but sometimes increases with government funding of specific projects. Nevertheless, federal funding is not part of a permanent long term strategy.
- Federal policies encouraging private sector competition in the provision of public services have played an important role in shaping transportation service procurement by the states.
- States play the dominant role in planning, funding and operating transport services.
- State strategies, although not structured by federal policy, are often similar due to shared research and expertise.
- Cities have virtually no formal, legally mandated role in metropolitan transportation (there are some exceptions).

Australia
Brazil

In the second half of last century Brazil experienced intensive industrialization and urbanization. In the 1950s, only 36% of the population was urban; today 85% of Brazilians live in urban areas. Before WW II, the Brazilian national transportation system was largely based on railways. In the years following the war the vast majority of transportation investments were directed to roadways, while railways were faced with a lack of maintenance and investment. Both rural and urban parts of Brazil are now heavily dependent on trucks and buses to transport goods and people. Urban transit is mostly provided by private bus operators regulated by the public sector. As car manufacturers in Brazil have continued to increase production and internal sales, the modal share of motorized metropolitan trips has changed from 85% transit and 15% private cars (1950) to 50% and 50% today.

The evolution of the urban transportation sector in Brazil has been closely associated with political and socio-economic changes. The federal government had little role in transport-related decisions until the early 1970s when the Ministry of Transport defined the first Transportation Master Plans for the metropolitan regions. These metropolitan regions were created for most of Brazil’s largest cities, and were under the jurisdiction of their respective state governments. At the time of their creation, the majority of the investments in urban transportation were being directed towards the improvement of traffic conditions for private vehicles. With the advent of the oil crisis – in the 1970s Brazil still relied on oil imports – and in view of myriad challenges being faced by the urban transportation sector, priorities began to change. By the late 1970s, investments were made in upgrading and implementing urban and suburban rail systems in five metropolitan areas (São Paulo, Rio de Janeiro, Belo Horizonte, Recife and Porto Alegre), and bus priority schemes were either implemented or were already operating in several cities.

This era marked something of a “golden age” of transportation planning in Brazil. At the federal level, knowledge transfer was encouraged among regions by the now defunct EBTU (Brazilian Agency for Urban Transportation). The most relevant actions devised by a highly skilled and motivated group of people working at different governmental organizations included, for example: (a) definition of a systematized procedure for calculating costs and establishing fares; (b) a standard design for urban buses that increased the quality of the services provided to users; (c) conception and implementation of bus ways and trunk-and-feeder services; and (d) introduction of vale-transporte – a travel voucher that represented an advance in financing systems and reducing social conflicts in a low wage and high inflation context. The world-renowned Curitiba BRT system was created during this era. The federal government also proposed the creation of Metropolitan Authorities for Urban Transportation (EMTUs) to manage metropolitan transportation. But only two were ever developed: one in Recife and the other in São Paulo. Although these institutions survive, they have struggled to gain traction. They were never granted authority over any particular aspect of urban transport and have thus been viewed as weak institutions.

After emerging from a military dictatorship that lasted from 1964-1985, a new national constitution was enacted in 1988. The national constitutional reform of 1988 led to large-scale changes in the Brazilian
transportation governance structure. The EBTU, which had been the locus of transportation developments for two decades, was disbanded. In addition, cities were granted constitutional status as the third official level of government. They were also given full authority in matters relating to urban transportation. To help shoulder the responsibility, the federal government doubled the amount of tax revenue it transferred to cities. States also increased the amount of tax revenue they returned to cities. In many respects, the urban transportation sector regressed to the situation several decades before: no federal public policies, no intergovernmental arrangements at the institutional levels, and no mechanisms for financing. Most cities now choose to manage urban transit through secretariats of urban transportation (STUs), arms of the city government whose roles and responsibilities they define.

Cities have since gained even greater responsibility in matters of urban transport. In 1997 Brazil approved the Brazilian Traffic Regulation that transferred urban road traffic responsibility from states to cities and initiated the decentralization of traffic and transit. Cities increased their responsibility in planning, managing and controlling urban traffic and transit and were granted the possibility of generating financial resources from: (a) parking; (b) traffic fines; and (c) urban bus fares.

Cities and states remain dependent on the federal government to: (a) obtain federal funding for transit investments; and (b) obtain approval of loans from multilateral agencies as, by law, the federal government has to assume the responsibility for any debt contracted by cities or states.

In general, the Brazilian urban governance situation is one in which cities control virtually all urban transport domains and receive occasional support from the federal government for specific projects. As in other countries, metropolitan regions have sprawled over the territory of several city governments. The Brazilian situation, with cities controlling all urban functions and weak or non-existent metropolitan planning institutions, is ill equipped to handle problems at this scale.

However, two case studies have emerged where urban areas have developed systems to address these issues. The first, Curitiba, is world-renowned for its innovative bus rapid transit (BRT) system. The second, Recife, is perhaps the most successful example of the two federally mandated metropolitan planning structures from the 1970s.

Curitiba is one of the most affluent cities in Brazil with a high level of car ownership. Despite this, its high quality BRT system carries a large portion of urban travel. Particularly relevant for this study is that the URBS, which started out as an enterprise of the Curitiba municipal government, now operates in 14 of the 26 cities in the Curitiba metropolitan area. Despite the absence of an effective regional governance body, this public transport operating company has developed a system able to handle travel at the metropolitan scale.

Another interesting element of the Curitiba case is the degree to which land use planning and transport objectives were pursued in tandem. Before its period of rapid growth, the city laid out a land use plan that would concentrate growth along corridors that could more readily be served by public transport. Using funds available from the federal government in the 1970s, the city directed its investment in high capacity bus service into these corridors. Growth over the last 30 years has largely followed this
pattern, allowing a large portion of trips to be served by convenient public transport, even in a city with high car ownership.

Recife, in contrast, was one of only two cities to institute EMTUs under federal enabling legislation in the 1970s. The EMTU in Recife managed the metropolitan transit system until 2008, when the system was reorganized. Building on the metropolitan legacy of EMTU Recife, the new Transport Consortium brings together the state of Pernambuco, and the cities of the Recife Metro Area. The board is 50% controlled by the state, 30% by the city of Recife, and 20% by the remaining cities in the metro area. The Transport Consortium also already provided important advances, amongst them: (a) a new electronic fare collection model; b) the re-establishment of the construction of integration terminals (that remained stopped over a period of more than a decade); (c) the beginning of a bidding process for the provision of bus services.
Summary

- Cities play the dominant role in managing urban roads and public transport systems, which creates difficulties for urban regions that sprawl over the territory of many city governments.
- Federal role is limited to providing funding for occasional specific projects.
- States play a small role, although there are exceptions.
- Curitiba has managed to generate a regional transportation system through the collaboration of a number of cities in its metropolitan area.

Brazil
Canada

Canada has a complex history with roots in French and British colonial settlements. After consolidation under British rule in 1763, the colony was granted the right to self-government in 1840. In 1867 the British North American Act, now known as the Constitution Act, established the federal government structure of a newly independent Canada on the model of the British Parliament. This diverse history resulted in a multi-layered federal structure of governance. Certain functions are reserved for each respective layer as laid out in the Constitution Act.

At the federal level, Canada lacks a formal, multi-year dedicated transportation assistance program—modal, multi-modal or otherwise—specifically targeted to metropolitan areas. Although the federal government has authority for national highways, ports, airports and railroads, its involvement in urban transportation is limited. Depending on the national party in power and its priorities, the federal government can sometimes fund significant levels of urban transportation infrastructure. However, this involvement is mostly ad hoc and does not exist within the confines of a well-defined, continuing, and consistent federal program structure.

In a situation roughly analogous to Australia, the constitutional authority for all matters related to metropolitan transportation rests with the ten provinces. Each province has wide leeway to set the framework for metropolitan transportation planning. Because of this freedom, Canada has witnessed significant experimentation with the structure, responsibilities and authority of sub-provincial metropolitan transportation bodies.

Provinces have the authority to create and define the governance structure, responsibilities, authority, and financing of so-called Metropolitan Transportation Planning Agencies. These agencies, which exist in each of Canada’s largest cities, have varying levels of power and responsibility that result in part from their different history, local geography, and political economy.

A study of these metropolitan transportation arrangements demonstrates that there has been significant experimentation with their structure, responsibilities, and authority. In the past 10 years, a combination of fiscal and political reforms at the federal, provincial, and metropolitan level have been aimed at creating more integrated, multi-modal transportation networks, more coordinated management, and more sustainable revenue sources. Despite these efforts, there are still limits to Canada’s metropolitan transportation planning and implementation approach, which places much of the transportation funding burden on municipalities.

To help illustrate some of the Canadian system’s attributes, a case of study of Vancouver is presented. From 1961 to 2007, the metropolitan region experienced rapid growth, growing from a population of 890,000 to 2.3 million. To help address this expansion, a regional planning agency and regional public transport authority were created. These two agencies together constitute one of the most comprehensive transportation planning systems in the country. Metro Vancouver, the regional planning agency, is responsible for providing services such as parks, land use planning, regional hospitals, water and sewage across the region. The organization encompasses 22 municipalities. Translink, the transportation body, covers roughly the same geographical area and plans, coordinates and operates
the region’s public transportation; has authority over the Major Road Network; and implements the regional transportation demand management (TDM) strategy. Perhaps most importantly, Translink has been granted the authority to collect a series of dedicated revenue streams including a payroll tax, a gasoline tax and a parking levy within its territory (see call-out box, below).

The link between the two agencies is strong, with the board of governors of each being composed of the same body of local elected officials. In addition, long term models used for transportation planning must use the land use planning models employed at Metro Vancouver as inputs. Despite this high degree of cooperation among agencies, land use controls remain jealously guarded local responsibilities and regional land use plans depend on local cooperation for implementation.

Translink - Vancouver, BC

![Chart showing revenue sources for Translink](chart.png)

Annual Operating Expenses

Translink generates the vast majority of its operating revenue through a combination of fares and dedicated streams of revenue the agency has been empowered to collect. A fuel tax of 12 cents per liter on gasoline sold in the Translink region as well as a property tax in the area generate the bulk of this revenue. Smaller streams of revenue accrue from a parking tax and a levy on electricity consumption. Together, these dedicated funding streams provide a relatively stable base for operating expenses, although Translink has been suffering from a significant operating deficit in recent years.

A Sample Project: The Canada Line

The Canada Line opened ahead of schedule in August of 2009. It is an 11km, fully automated heavy rail system composed of elevated, at grade and underground segments that connects Richmond (a suburb of Vancouver) and the airport to the CBD. The line is being operated as a 30 year concession by the private partner, Canadian firm SNC Lavalin, who also provided $200 million to the up-front costs. In return, the concessionaire has been guaranteed 100,000 daily traffic on weekdays. The project was in planning for many years but its completion was spurred on by the selection of Vancouver as the site of the 2010 Winter Olympics. Canadian projects are typically funded by a combination of federal, provincial and local money.

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<thead>
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<th>Source</th>
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<td>Province/State</td>
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<td>Local</td>
<td>663 million</td>
<td>38%</td>
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<tr>
<td>Private Partner</td>
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The combination of Metro Vancouver and Translink is in many ways the “best case” in the Canadian context. Not all urban areas benefit from the same degree of coordination among planning and implementing bodies. In Toronto, for example, several municipalities operate their own public
transport services, with the Toronto Transit Commission being by far the largest. The regional transport planning agency for the Greater Toronto area, Metrolinx, has recently been given authority to operate the suburban rail network, “GO Transit,” but still depends on other agencies to implement a coordinated transportation planning vision.
Summary

- There is no mandated federal structure for metropolitan transportation planning.
- Provinces play the dominant role by creating and defining the responsibilities of Metropolitan Transportation Agencies.
- These Agencies show a wide degree of experimentation in responsibilities, funding sources, integration with land use, etc.
- Successful examples have emerged, like Vancouver, where stable funding sources exist, governing boards are integrated with local bodies, and land use and transport plans are developed together.
- Transit agencies can either be tied to a municipality (as in Toronto) or run through the Metropolitan Transportation Agency (as with Translink, in Vancouver).

Canada

The national government leaves broad leeway to the provinces
Involvement limited to specific funding programs

Provinces

Can raise revenues and serve a coordinating role amongst local municipalities and transit operators
Vary greatly in their ability to effectively implement regional plans

Metropolitan Transportation Agencies

Municipalities

Transit Authority
France

It worth noting that unlike the other countries considered in this study, France’s government is not constituted as a federation. In fact, until 1982, France had only two levels of elected government: the national government and municipalities (communes), with about 100 departments being a form of “deconcentrated” national government responsible for education and social assistance. Recent years have seen the rebirth of regions (22 in number), responsible mainly for economic development and spatial planning, but they play only a minor role in the topic at hand.

Overall, there are about 36,500 communes throughout the entire country. Any given city is composed of multiple communes. Lyon, for example, has about 60 communes. The Paris metropolitan region includes about 1,280 communes. The City of Marseille, uniquely, is a single commune of around 1 million people. As in other countries, urban areas with multiple communes have a generic problem regarding the organization, regulation and financing of services that, like transport, transcend commune boundaries.

Starting in the early 1970s, France made a series of major decisions regarding the organization, regulation and finance of public transport services. As a result of these decisions, the public transport sector in France flourished and French cities currently boast some of the most extensive public transport networks in the world.

In 1971 the national government decided to introduce a local payroll tax, first in the Paris region then extended to other cities, whose proceeds would be dedicated to financing capital and operating shortfalls of public transport operators. This tax varies from a high of 2.6% in Paris to a floor of .55% in cities smaller than 100,000 people. It was this move that made possible major investments in bus fleets and facilities, new metros (Lyon, Marseilles and Lille) and at-grade, intermediate rapid transit systems (light rail and bus-based) in many cities. The next step, in 1982, was to pass a major framework law on the organization of urban public transport services, setting institutional responsibilities regarding government levels, specifying relative roles of the public and private sectors, and defining the corresponding instruments for regulation and planning. Yet another series of laws built upon the framework law in the 1990s and expanded the scope of urban transport planning to include important socio-economic concerns, environmental issues, energy conservation, and (most recently) an attempt to more tightly link urban transport planning with land use planning and urban development.

These laws empower communes to band together to form “autorités organisatrices” (AO), a government structure bringing together several local governments to provide a specific service. AOs may provide urban public transport services directly or contract them out to private sector operators on a competitive basis, while retaining ownership of fleets and facilities. Funding comes from essentially four sources: local transport payroll taxes, budget transfers from associated communes, farebox revenue, and contributions from the national government. The most important source is the local employment-based tax described above whose proceeds are dedicated to public transportation services. An individual AO can, at its discretion, increase or decrease the rate up to a maximum based on the size of the city. This may occur, for example, when an urban area is considering a major public transportation investment. Initially, the revenue from the tax could only be used for financing capital
expenditures and to compensate for revenue lost from fares reduced on social policy grounds. Later on, its usage was extended to include the financing of operating deficits of public transport operators.

This system of federal legislation enabling local governments to band together for better service delivery is the defining characteristic of French metropolitan transportation planning. Unlike the Australian and Canadian cases where the federal role is ad hoc and ever-changing, the role of the central government in the French case is clearly defined. Its most important duty is to advance systemic laws. These are binding, but still provide considerable leeway to the communes in terms of implementation.

Urban Transport Plans (“Plans de Déplacements Urbains”, PDU) are the key strategic, multi-modal planning instruments made mandatory by national law and produced by the AO. They correspond to comprehensive urban transport plans in the U.S. practice, although with rather different objectives and with their parent institutions having the resources and jurisdiction to implement them. PDUs are normally prepared by public transport AOs every 10 years, with 5-year updates.

The history of PDUs, from their inception onward, reflects the evolution of French urban transport policy. Its scope has expanded from technical concerns related to the functioning of public transportation services to include traffic and parking management, social equity concerns like poverty and physical handicaps, and most recently local and global environmental aspects under the umbrella of sustainability. Alongside this widening agenda, there has been a parallel attempt to link urban transport planning with territorially broader planning processes for air quality, land use, and economic development.

To help illustrate the functioning of an AO, the example of Sytral in Lyon is presented below.
Although AOs have virtually total responsibility for urban public transport, the situation for roads is somewhat more complex. Roads are divided into four categories. Three are publicly-owned: national, departmental, and municipal. The fourth category includes private toll-roads, absent in urban areas but preponderant in the national motorway network. Unlike the case with public transport services, there are no inter-municipal authorities set up for roads and there is no locally generated and road-dedicated tax to finance road maintenance, operation and expansion. Nor do PDUs cover road infrastructure. By and large this does not appear to have hampered urban road maintenance and operations, but it may soon be a handicap for managing congested urban road networks.

Toll roads operate by public-private partnership have become a major factor in France, but predominantly outside of major metropolitan areas. In 1986, a law was passed to allow local authorities (with or without private partners) to use road tolls in cities, but only for bridges and tunnels. Introducing network-wide road use charges in cities would require entirely new legislation. This precludes, at least
under the current legal framework, the introduction of a congestion pricing scheme modeled on London’s.
Summary

- Clearly defined roles laid out by Federal structuring laws set the framework for the creation of Autorités Organisatrices (AO).

- Local bodies (communes) given the authority to join together and finance, plan and deliver their own transport service through AOs.

- This financing includes an employee based tax that provides a significant share of public transport funding.

- Federal involvement limited to grants for specific projects, and capital funding has virtually disappeared since 2003.

France
Germany

Although the modern Federal Republic of Germany is a relatively recent creation, its constituent states have roots in independent kingdoms that stretch back through the Middle Ages. This history contributes to its status as a decentralized, federal nation. The government is composed of four levels: the national or federal government, the states, the districts and the communities. Some areas of states lie in independent cities rather than districts, and in such cases the smallest unit of government is the borough.

All levels of government play a role in the provision of transportation in Germany. The central principle is a so-called mixed planning process, where top-down plans from the central government are counterbalanced with bottom-up processes from lower planning hierarchies. The national rail network, operated by Deutsche Bahn, operates intercity service for trips longer than 50km or one hour. Trips on the national rail network for shorter distances have been decentralized to the states. The national government provides subsidies to the states to procure this service, in the hope of generating competition. In reality, only about 14% of service is operated by private operators, with the rest run by subsidiaries of Deutsche Bahn (DB), the national carrier. For example, a subsidiary of DB operates the regional services in Stuttgart, described below. Districts and communes also procure public transport service. Rather than explore these in general terms, the Stuttgart region will be used to illustrate best practices in the German context.

Stuttgart is the largest city in the German state of Baden-Württemberg. As in other parts of Germany, the provision of transportation service in the region is marked by a complex overlapping of state and local responsibility. The state operates regional rail service as part of the decentralization of responsibility for regional passenger rail services from the federal government to the states. Although individual districts also play a role in providing transportation service, the most notable element of the institutional arrangement in this area is the Verband Region Stuttgart (VRS), an elected regional body. The territory of the VRS encompasses the City of Stuttgart and five adjacent districts, encompassing a population of 2.67 m inhabitants of which 585,000 live in the city of Stuttgart. These districts voluntarily banded together to create this regional government under enabling legislation defined by the state of Baden-Württemberg. This law allows for the creation of City-Hinterland Associations (“Stadt-Umland-Verband”) – government structures that can unite urban regions with their suburban neighbors for the provision of public services.

This process is somewhat analogous to a French AO, since regional planning associations are formed by districts willingly banding together to provide transportation services across district boundaries. In Germany, however, the laws governing the formation of these associations vary from state to state, unlike in the centralized French republic where such laws are made at the national level.

The VRS is responsible for long range regional planning involving land use, infrastructure provision and public transportation. Crucially, and unlike in virtually every other case explored in this study, this regional body has a strong mandate for land use planning. The VRS has the right to approve local land use plans and restrict all activities contradicting the regional plan.
Public transport service is procured and planned by no fewer than 12 different agencies in the Stuttgart region: the state, which procures service on the regional portion of the national rail network; the VRS, which procures service on the S-Bahn commuter rail network; the city of Stuttgart, which procures services for the Tram network and a large urban bus network; and several other smaller towns and districts which procure their own bus services. This might create a maddeningly complex situation for the user, but another structure exists to remedy this problem: The VVS, a so-called Transport and Tariff Association, which coordinates service and fares. The VVS, covering roughly the same territory as the VRS, ensures that a unified fare structure exists and that all services are operated in a way that maximizes their combined potential. The user essentially perceives the system as one unified whole, despite the complexities of the planning and procuring structure that occurs behind the scenes. In fact, while each government agency described above procures its own type of service, the service is planned by the VVS. The tendering procedure could be simpler if one agency was in charge of contracting out the entire network, but this has not been politically feasible to date. Despite this challenge, the VVS operates a highly successful integrated network. Public Transport patronage in Stuttgart has doubled in the last thirty years from 171.6 million to 321.4 million boardings/year. The VVS also has a very interesting board structure: half of the seats on the board are held by transit operators (SSB, Deutsche Bahn, private operators) and the other half are held by the public agencies that procure service (the state, the regional government, the city of Stuttgart and the surrounding districts).

The “Stuttgarter Straßenbahnen“ (SSB), a transit operator owned by the city of Stuttgart, operates the light rail system, tramways and bus network within the city. It carries about 187 million trips/year. Its operations are described in more detail below.
SSB is one of the operators coordinated by the VVS in the Stuttgart region. Its network consists of light rail operated on 17 lines on 177 km of track. It also operates a substantial bus network with a fleet of more than 400 buses. The SSB is owned by the City of Stuttgart, and generates more than half of its revenue through fares, with a further 21% coming from other revenue. The SSB considers the 7.5% subsidy it receives from the City of Stuttgart to be its only subsidy. The 35% it receives from a combination of state and national government is considered “compensation”, to be used only to provide lower fares to elderly, student and handicapped users.

Service is planned and fares are collected by the VVS on behalf of SSB.

A Sample Project: the U16 light rail expansion

Detailed financing data have not yet been provided, but recent public transport infrastructure projects in Stuttgart that exceed 50 million Euros have been covered 80% by the federal government, and 20% by the SSB. Federal funding is distributed only to projects that meet certain cost effectiveness criteria, including a cost-benefit analysis.
Summary

- Virtually all levels of government are involved in the provision of transport services and infrastructure, but their involvement is mostly coordinated through the Vergers-und Tarifverbund Stuttgart (VVS) and the Verband Region Stuttgart (VRS).

- Strong regional land use planning mandate controlled by the Verband Region Stuttgart (VRS), an elected regional governance body. The VRS also organizes long range transportation planning.

- Despite being procured by many different agencies, public transport fares and service is coordinated by the VVS. This so-called traffic and tariff association has a board of governors evenly divided between procuring agencies (government agencies), and transport providers (a mix of public and private actors).

Germany (Stuttgart)

The State creates framework laws that enable regional associations, and procure regional service on the national rail network.

Cities and Districts band together to create Regional Associations that have elected representatives and perform both land use and transportation functions.

The VVS coordinates fares and service procured by no fewer than 12 public agencies including the State, the VRS and the districts and city of Stuttgart.
United States

The U.S. has a federal form of government, with the 50 states holding all powers not expressly assigned to the federal government under the Constitution. The Constitution is a broad policy document and it has only been amended 27 times in the 230 years since ratification. It does not mention local government, and the structure and organization of municipalities has been left to the states.

Although all levels of government participate in US transportation planning, the landscape is marked by a strong, continuing and consistent federal funding and policy role. The federal government, by virtue of controlling a large revenue stream based on gasoline and other highway user taxes, has been able to mandate the creation of a specific planning process and institution, the Metropolitan Planning Organization (MPO). The MPO process requires the collaborative involvement of state and local officials, embraces all modes, and is tied to existing and forecast future land use. Since 1962, all urbanized areas of over 50,000 people are required to have an MPO that administers this process. Over time, the role of these MPOs has been strengthened by new legislation.

In addition to this federal structure, states and local authorities manage their own road networks and have their own separate sources of revenues. Public transport operators are generally regional authorities created by state governments, although this is not always the case.

U.S. federal aid to the states for roads began in 1916, initially aimed at rural roads only. Until that time, road funding was largely a local government responsibility. The first federal program was designed to encourage those states that were not involved in road financing to establish financing programs. From the very beginning, federal funding was formula based, meaning that states received an amount of funding according to a simple formula – for example, in proportion to their road mileage. Urban roads were made eligible for federal assistance in 1944 and a major transformation occurred with the enactment of the law creating the National Interstate Highway System in 1956. This law provided for an annual federal appropriation to provide each state with 90% of the funds required to complete the sections of the Interstate Highway system under its jurisdiction.

Ultimately, many of the urban freeways constructed under this system aroused significant controversy due to displaced residents, urban blight and the destruction of long standing neighborhood fabric. To address these concerns, an enhanced planning requirement was added in 1962. Amendments to the 1962 planning requirement in 1973 mandated the creation of Metropolitan Planning Organizations (MPOs), perhaps the most distinctive feature of American urban transportation planning. These bodies are designed to facilitate a continuing, cooperative and comprehensive approach to transportation planning by providing a forum for local governments and the states to mutually decide on transportation spending priorities. Any metropolitan area with more than 50,000 people is required to have an MPO. Since the enactment of the metropolitan planning process in 1962, the U.S. Congress has repeatedly strengthened and enhanced the process in subsequent legislation up to and including the last program reauthorization in 2003.

Federal funding for public transportation has a different history. Until the early sixties, the majority of rail and public transit operations remained in private hands. Several large cities including New York,
Chicago and Boston already had publicly-owned systems, but government involvement, even where it existed, was exclusively the domain of state and local governments. In 1964 the U.S. Congress made transit systems eligible for federal assistance for the first time. The program was originally designed to “save” failing private suburban rail systems in the northeastern part of the country. Over time, U.S. federal transit assistance has expanded in scope and evolved into a program that parallels highway assistance. Federal funds are available for capital programs including bus purchases, rail transit capital expenditures, as well as related bus and rail support facilities. At one time, Federal subsidies were also available on a limited basis for operating costs.

In 1973 the U.S. Congress made the metropolitan planning process apply equally to federal highway and transit investments through a single, unified MPO designated by the State Governor in each metropolitan area. In addition, some funding delivered to states through federal highway programs was made eligible for public transport capital purposes at the discretion of the MPO. Some Federal transit funds can be used for highways at the discretion of the MPOs, but this rarely occurs. Federal transit funds for major new capital investments in rail and BRT projects can also be accessed through federal “New Starts” funding, where specific projects around the country are awarded discretionary funding on the basis of a rigorous planning and evaluation process. These funds are separate from the formula funds received by states.

In very general terms, strategies for urban congestion management in American cities are developed and implemented by state governments. This is true largely because states manage both state roads and the federal Interstate system, which together constitute the system of urban highways carrying the majority of travel. In general, tolls cannot be instituted on highways that are part of the “Interstate Highway System;” although demonstration projects have been permitted under limited circumstances. Some states (e.g., Texas, California) have taken the lead in recent years on instituting a number of novel tolling concepts where they are allowed to so.

At a smaller scale, local governments have been responsible for a wide array of traffic calming measures—reduced street widths, the introduction of two-way in place of one-way streets, widened sidewalks, pedestrian-only zones, etc. One of the most notable examples of this is the New York City Department of Transportation, which has made headlines with the conversion of several plazas to pedestrian only use, the introduction of many miles of bike lanes, and major street closures.

Unlike the previous case studies of Australia and Canada, the system of metropolitan transportation planning in the United States is marked by a strong policy role for the federal government. The federal government distributes a large funding stream to the states for transportation purposes on the basis of a specifically mandated planning process. The vehicle through which these funds are planned and programmed is the aforementioned MPO.

The MPOs have gained importance over the years as they have become responsible for planning both highway and public transportation projects. These organizations have an interesting dual nature: although they are mandated by the federal government, the actual makeup of the organization and the manner in which the organization is supported is left to the states. This has resulted in a wide variety of
structures for MPOs. Some MPOs are councils of government, an informal association of local governments whose elected officials constitute the board and whose staff provides the technical service required to prepare transport plans and programs (e.g., Washington, D.C.). Other MPOs are more ad hoc and may have local governments, state authorities and transit operators sitting on the decision-making board, with technical service provided by State DOTs or even public transport authorities. Other states have designated existing county governments as the MPO, and have staffed such governments accordingly. Portland, Oregon, is exceptional in that it is the only city in the United States with a formally elected regional government as its MPO.

Although Portland is distinct from the typical American situation, it serves as an interesting example of the possibilities of the MPO system and so is presented in greater detail here. The Portland Metropolitan area is home to approximately 2 million residents, with 575,000 living in the city of Portland itself. Metro, Portland’s regional governance body, was created by ballot initiative and began operation on January 1, 1979. It serves 25 different cities in the Portland area and is responsible for regional land use planning as well as regional transportation planning through its designation as the local MPO.

Regional control of land use planning in Portland is more established than virtually anywhere else in the United States. Metro is tasked with establishing and modifying an Urban Growth Boundary (UGB) and reviewing it every five years. This UGB delineates the area that can be used for urban development. Area outside the UGB must remain rural. These boundaries are enforced through strong state land use planning laws. The boundary is enlarged if insufficient land is available to accommodate projected employment and population growth for the next 20 years. Metro also adopts a regional framework plan that lays out a vision for the region in 2040 that includes an integrated vision for land use and transportation. Local authorities must amend their plans to conform to the regional framework plan, although the interpretation of this requirement leaves leeway for cities in their planning functions.

In terms of transportation, the Portland MPO has shown a strong preference for transit as the preferred solution for urban congestion. The “second best” option for the Portland MPO has been highway operational improvements, with additional highway capacity viewed as a last resort. The state of Oregon has shown a willingness to support the decisions of the MPO process.

Although Metro, as the MPO, has the primary planning responsibility, Trimet is the actual operator of the public transport system. This situation of the MPO being responsible for planning while another body is responsible for implementation and operations is common throughout the United States. It is a significant difference from the situation in either the AOs in France or Translink in Vancouver, where the implementing body also carries significant planning responsibilities. Trimet’s operations are described in the callout box, below.
TriMet - Portland, OR

100 million annual unlinked passenger trips

Annual Operating Expenses

TriMet operates a light rail network, a single commuter rail line, and an urban bus system. The light rail system opened in 1987 and has since been expanded several times, mostly recently with the green line extension in 2008 (described below). Local taxes that TriMet is empowered to collect, including a payroll tax on local employees, generate a large portion of its annual revenue (included in "other revenue"), with significant contributions also coming from fares and the national government.

A Sample Project

The Green Line, the newest component of TriMet’s Metropolitan Area Express (MAX) light rail line, opened in September of 2009. The most significant portion of the project is an 11 km section of dedicated right-of-way including 8 new stations.

The project earned a substantial contribution from the federal government’s New Starts program, a nationally competitive system of funding for transit systems. This grant provided $345 million dollars, with the bulk of the other contributions coming from local sources including Metro, TriMet, and the City of Portland.

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<td>Local</td>
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Summary

- Strong federal role has mandated a planning process and a planning institution, the MPO
- MPOs create plans for highways and public transport, incorporate air quality conformity provisions, and have the responsibility and ability to shift some federal funds apportioned to their area between highway and transit projects
- Significant portion of transportation funding contributed by federal government
- States have an historically strong role in highways and an increasingly strong role in transit
- Operating and Implementing agencies, typically state created transit agencies and state departments of transportations, are not the same body as the MPO
- Cities participate in the MPO process and have jurisdiction over local roads