

# The Opportunities for Sustainable Urban Transportation in Medium-Sized Cities in Latin American and the Caribbean

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*This working paper is being published with the objective of contributing to the debate on a topic of importance to the region, and to elicit comments and suggestions from interested parties. This paper has not undergone consideration by the SDS Management Team. As such, it does not reflect the official position of the Inter-American Development Bank.*

*The report can be downloaded at: <http://www.iadb.org/sds/env>*

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## **Preface**

The purpose of this report is to carry out for the Inter-American Development Bank (IDB) a strategic analysis of specific medium-sized cities in the Latin America and Caribbean (LAC) region that could present opportunities for linking greenhouse gas mitigation and sustainable urban transportation improvement. Cities included in this study range in size from populations of approximately 100,000 to those with populations of about 2 million. The information provided by this report is expected to help identify cities for project development in sustainable transportation. Among the types of projects that could be developed are those for the Global Environmental Facility (GEF) and possibly the Clean Development Mechanism (CDM).

This report does not address the mega-cities of the region—including São Paulo and Rio de Janeiro, Brazil; Buenos Aires, Argentina; Santiago, Chile; Mexico City, Mexico; Bogotá, Colombia and Lima, Peru—because they have received and continue to receive substantially more attention and assistance than the medium-sized cities of the region. Furthermore, the report does not address Curitiba, Brazil as a candidate city in this report since it, along with Bogotá, is seen as a model for other cities to follow.

To develop this report, the BBG Group:

- Conducted an extensive literature search, including many of the documents of the IDB;
- Undertook an intensive review of relevant websites; and
- Conducted far-reaching interviews, generally by email, with over fifteen known experts and players in the sustainable transportation field in Latin America and the Caribbean.

The Resources section of this report contains a full listing of the literature and websites used and the interviews conducted.

After analyzing the information gathered, the BBG Group:

- Developed the proposed criteria for evaluating cities, and ranked the most important;
- Identified a “first tier” of cities most prepared to advance in implementing sustainable transportation, using the criteria;
- Identified a “second tier” of cities that are not as well-prepared to advance but are still ahead of the majority of similarly-sized cities in the region; and
- Proposed a set of recommendations for the Inter-American Development Bank to advance sustainable transportation in these medium-sized cities in Latin America and the Caribbean.

## Executive Summary

Transportation and mobility needs present a variety of challenges for Latin America and the Caribbean. The movement of goods and people is critical both for economic growth and social well-being. But the growth in transportation demand that has occurred in the region in recent years has also produced a plethora of problems: rising local air and noise pollution, increasing greenhouse gas emissions, a growing dependence on oil, rising traffic congestion, and decreasing access to transportation services by the poor.

With the experience of such innovative cities in the region as Curitiba, Brazil and Bogotá, Colombia, an alternative strategy is emerging of how to meet transportation and mobility needs more sustainably, without the concomitant rise in pollution, congestion, and diminishing access for the poor that has characterized transportation sector growth in this region to date. This strategy emphasizes provision of high-quality, efficient and clean public transportation along with incentives for consumers to use this mode of transportation, establishment of incentives and capacities for good non-motorized transportation options (walking and bicycling), the discouragement of the use of private motorized vehicles in urban settings when other modes are available, and good land-use planning to reduce congestion and promote demand for the alternative transportation modes.

### Criteria

In addition to Bogotá and Curitiba, other cities are beginning to emerge in the region with strategies for achieving sustainable transportation. To evaluate which of these are most prepared to advance, this report proposes a set of criteria to be used, the most important in the short term of which are shown in boldface:

- **Strong support and leadership from political leaders, especially at the local level**
- Ample awareness and support by the public of efforts to change the transportation system;
- Decentralization of governance so that local institutional capacity-building is relatively strong and local capacity to collect revenues is well under way;
- **Substantial progress in establishing and beginning to implement an effective Master Transportation Plan, consisting at least of a public transportation plan and preferably including components that discourage private vehicle use and encourage non-motorized transportation;**
- Substantial progress in establishing and beginning to implement an effective Master Urban Development Plan that encourages mixed use development, zoning to encourage development near public transportation corridors, and strategies to restrict parking, and encourage pedestrian and non-motorized spaces;
- **Strong local planning capability in transportation and urban planning, preferably in a local government institution;**
- **Establishment of a local regulatory authority to design and implement public transportation concessions and oversee the transportation sector;**
- Sufficient financial resources for local planning and regulatory agencies to enable them to complete their roles;
- Strategy designed for and progress made in evolving existing public transport operators and owners into sophisticated, professional companies;
- Strategy developed for attracting financial resources into newly created public transportation companies; and

- **Financial capacity by the local government to invest directly or to be able to borrow to invest in transportation infrastructure .**

The strategic analysis identified the five criteria shown in bold as the most important *in the short term* for cities to be able to advance in sustainable transportation. Political leadership is key to moving forward. Equally important is the creation of an effective Transportation Master Plan; it provides the road map for the municipality to follow. Implementation of the Transportation Plan cannot occur without the creation of local regulatory and planning institutions to oversee the process, correct problems, and continue to devise new solutions. And finally, without the capability of the municipality to invest in the transportation system infrastructure developed in the Master Plan, the process comes to a grinding halt

### Cities Most Prepared to Advance

Using these criteria, this report identifies cities that are the most prepared to advance in the region, the so-called “first tier” cities.<sup>+</sup> They have made substantial progress in most of the criterion areas, and particularly in the most important five. Moreover, with targeted assistance, they could become the next generation of models in sustainable transportation. The cities include:

- Concepción, Chile,
- Córdoba, Argentina,
- Cuenca, Ecuador,
- Fortaleza, Brazil,
- Guatemala City, Guatemala,
- Querétaro, Mexico, and
- Quito, Ecuador.<sup>++</sup>

Table A illustrates explicitly how each first tier city ranks with regard to each criterion (the criteria previously identified as most important in the short term are shown first in a gray background).

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<sup>+</sup> Cities were not considered for either the first or second tier if they were receiving significant assistance in sustainable transportation from other development banks. Hence, this report did not evaluate Guayaquil, Ecuador, due to its relationship with the Andean Development Corporation (CAF), nor a group of Colombian cities, including Barranquilla, Bucaramanga, Cartagena, Medellín, Pereira and Soacha, due to the \$250 transportation loan the World Bank has recently approved. For more information on the activities being supported by these cities by the two banks, see Annex 2.

<sup>++</sup> An eighth city—Trujillo, Peru—looks promising as a possible first tier city. However, at the time of the completion of this report, not enough information could be gathered to make a full evaluation. The IDB has a technical assistance project assessing the state of transportation in this city, but the draft report for the technical assistance was not yet available.

*Table A*  
*Ranking of First Tier Cities by Criterion*

City	Political Commitment	Transportation Master Plan	Local Planning Capability	Local Regulatory Capability	Government Financial Investment Capability
Concepción, Chile	vv	vvv	?	?	vvv
Córdoba, Argentina	v	vv	v	v	?
Cuenca, Ecuador	vvv	vv	vvv	vvv	v
Fortaleza, Brazil	v	vv	vvv	vvv	v
Guatemala City, Guatemala	vvv	vv	vv	vv	v
Querétaro, Mexico	vv	v	vv	vv	v
Quito, Ecuador	v	v	v	v	?

City	Public Support	Decentralization of Government	Urban Development Master Plan	Sufficient Resources for Local Institutions	Development of Public Transport Companies	Financial Climate for Transport Companies
Concepción, Chile	v	?	vvv	?	vv	v
Córdoba, Argentina	v	vv	v	?	-	-
Cuenca, Ecuador	vv	vv	vv	vv	vvv	?
Fortaleza, Brazil	?	vvv	vv	vv	vvv	v
Guatemala City, Guatemala	?	vv	vv	v	v	v
Querétaro, Mexico	vvv	v	v	?	v	?
Quito, Ecuador	?	vv	?	-	v	?

Legend	
v	Positive
-	Negative
?	Not known
vv	More positive
vvv	Most positive

Furthermore, the BBG Group identified a “second tier” of cities that are not as prepared to advance as the first tier but merit identification as cities that, with some assistance, could proceed to the first tier. They include:

- Arequipa, Peru,
- Cali, Colombia
- La Paz, Bolivia,
- Panamá City, Panama,
- San Salvador, El Salvador,
- São Bernardo do Campo, Brazil, and
- Rosario, Argentina.

Table B illustrates explicitly how each second tier city ranks with regard to each criterion (again, the criteria identified as most important in the short term are shown first in a gray background).

*Table B*

*Ranking of Second Tier Cities by Criterion*

City	Political Commitment	Transportation Master Plan	Local Planning Capability	Local Regulatory Capability	Government Financial Investment Capability
Arequipa, Peru	vv	-	v	v	-
Cali, Colombia	vv	v	?	?	v
La Paz, Bolivia	v	-	?	?	?
Panamá City, Panama	?	v	?	?	v
Rosario, Argentina	?	vv	v	v	-
San Salvador, El Salvador	-	v	?	?	v
São Bernardo do Campo, Brazil	vv	-	v	v	v

City	Public Support	Decentralization of Government	Urban Development Master Plan	Sufficient Resources for Local Institutions	Development of Public Transport Companies	Financial Climate for Transport Companies
Arequipa, Peru	?	v	-	?	?	?
Cali, Colombia	?	v	?	?	?	?
La Paz, Bolivia	?	v	v	?	-	?
Panamá City, Panama	?	-	?	?	v	v
Rosario, Argentina	?	vv	?	?	-	-
San Salvador, El Salvador	?	-	?	?	v	v
São Bernardo do Campo, Brazil	?	vv	?	?	v	?

Legend	
v	Positive
-	Negative
?	Not known
vv	More positive
vvv	Most positive

*Recommendations for the Inter-American Development Bank*

Recognizing the benefits that accrue locally, nationally, and globally in successfully achieving an integrated approach to sustainable transportation, the Inter-American Development Bank (IDB) can play a catalytic role in helping cities in Latin American and the Caribbean (LAC) make progress in defining and then implementing their next steps in sustainable transportation. This assistance falls into three categories: general assistance, particularly where the IDB already has an investment, either a loan or technical assistance, in a LAC city; targeted assistance to first tier cities as part of a strategy for spurring the next generation of models in sustainable transportation; and assistance to second-tier and other cities in the region who are struggling with making the first steps.

The specific recommendations are:

**GENERAL RECOMMENDATIONS**

- Where the IDB is already making or plans to make an investment in urban transportation and related improvements, provide complementary assistance to analyze



the greenhouse gas emissions and other environmental, social and economic benefits for LAC cities;

- Work with other institutions, including the World Bank and the Andean Development Corporation (CAF), to develop common methodologies for evaluating carbon emissions baseline measurements and savings from sustainable transportation projects that may eventually qualify for CDM credits;
- Catalyze more attention to the linkage between Urban Development Master Plans and Urban Transportation Master Plans by explicitly requiring the issue to be addressed when IDB investments are supporting the development of either of these types of plans, and, possibly, by undertaking a regional technical assistance to identify strategies that may be used at the national and local levels to ensure this linkage.

#### *RECOMMENDATIONS FOR FIRST TIER CITIES*

##### Concepción

- Provide technical assistance to support the development of the local institution or institutions responsible for planning and regulation in an appropriate context for Chile where strong planning capacity already exists at the national level;

##### Córdoba

- Update the urban transportation program in the city, adapting individual components of the old program to present needs, and adding necessary additional components that were not in the original program, including land-use options and an ongoing evaluation of the environmental effects of the program;
- Strengthen the municipal institution responsible for program planning, regulation and oversight;

##### Cuenca

- Support the municipal government in defining and implementing the “next generation” of transportation sector options, including land-use options;
- Building on the example provided by Cuenca, invest and encourage other donors to invest in the creation of an institution to build capacity and help define initial transportation plans in other medium-sized cities in Ecuador;

##### Fortaleza

- Assure the ongoing public transportation reform is linked to and coordinated with development of policies that encourage alternative transportation modes, appropriate land-use, and disincentives for the use of private vehicles through oversight of the IDB’s recently approved urban transportation loan and potentially through complementary technical assistance, including possibly by the GEF;

##### Guatemala City

- Provide assistance to aid the city in transforming its public transportation providers from individual, small “transportistas” to sophisticated public transportation companies;
- Support analysis on how to complement the city’s public transportation reform with other policies including encouragement of non-motorized transportation, parking regulation, and land-use strategies to densify development near public transportation and encourage mixed use development;

Querétaro

- Offer ongoing technical assistance at key milestones in the public transportation reform process, particularly in the development of the concessions procedure and the conversion from transportista- to company-provided public transportation;

Quito

- Provide capacity-building for the regulatory and planning agency;
- Offer technical assistance in making the transition to public transportation companies, including support to the government in how it constructs the concessions process and to the companies themselves;
- Provide assistance in developing an operational Urban Transportation Master Plan whose implementation will reduce air pollution and relieve traffic congestion;

All First Tier Cities

- Using the information in this report, undertake a more detailed analysis of the first tier cities, including site visits, to verify the conclusions drawn and the interest of the cities;
- Identify one or more first tier cities where targeted assistance may be provided;

*RECOMMENDATIONS FOR SECOND TIER AND OTHER CITIES*

- Offer assistance to cities—particularly those already receiving assistance from the IDB—in defining the role, and building the capacity, of local planning and regulatory agencies; and establishing Urban Transportation Master Plans;
- Support an assessment of administrative options to address the challenges in many small countries in LAC and in Mexico in which two levels of government have jurisdiction over urban transportation governance, making coordination difficult; and
- Support an analysis of alternative sources of funding for local planning and regulatory agencies, along with examples of cities that have successfully used these alternatives, in order to assure adequate and secure budgets for the agencies and a reduction of political pressures.

# 1. Overview

Transportation and mobility needs present a variety of challenges for Latin America and the Caribbean (LAC). The movement of goods and people is critical both for economic growth and social well-being. And, indeed, in recent years, the transportation sector in Latin American cities has been characterized by substantial growth in the number of trips generated, and the number of vehicles—especially privately-owned vehicles—on the road.

But the consequences of this growth have not all been positive. Air pollution and noise pollution have increased markedly. Emissions from road vehicles account for more than 70 percent of the pollutants in the largest cities of the LAC region. Public transportation has deteriorated as competition for infrastructure funds have increasingly emphasized the needs of the emerging middle class and their desire to use privately-owned vehicles. With the existing roads unable to sustain the substantial rise in vehicle population, congestion has also risen dramatically, slowing traffic in many cities down to a crawl and, in so doing, adversely impacting the productivity of the workforce caught in the congestion. At the same time, the poor, who rely on public transportation and their own feet to meet their mobility needs, have found the access to transportation services sharply curtailed, in many cases reducing their capacity to find and sustain employment.

The transportation sector is also responsible for the growing oil appetite of the LAC region, which depends on this fuel for almost 50 percent of its energy needs. Almost entirely dependent on petroleum, the transportation sector is now the largest energy-consuming sector in Latin America (33.1 percent).<sup>1</sup> And not only is transportation a major source of local air pollution, it is also the largest source of greenhouse gas emissions generated by energy sources for the region, accounting for 37.95 percent of such emissions in 2001.<sup>2</sup> Rising traffic congestion only exacerbates these problems; fuel consumption and emissions of local pollutants and greenhouse gases rise as speeds drop and frequent stops occur.

Led by the experience of such innovative cities in the region as Curitiba, Brazil and Bogotá, Colombia, an alternative vision is emerging of how transportation and mobility needs can be met more sustainably, without the concomitant rise in pollution, congestion, and diminishing access for the poor that has characterized transportation sector growth in this region to date.

These experiences share common attributes. First, the core of the transportation system in these cities is a high-quality, clean and affordable public transportation system, with the goal that its users find the system meets their mobility needs more quickly and efficiently than any other mode of travel. These public transportation systems can be accessed easily from one's residence and used to travel to work, school and recreation. For reasons of cost, these systems tend to be based on buses, although components may include light rail (including subways) and trolleys or trams. The most successful systems have an integrated fare (in which one payment is made upon entering the system, and transfers to other lines can be easily made) and use high capacity trunk lines (often referred to as Bus Rapid Transit) along highly traveled routes (usually using articulated or bi-articulated buses), which then connect to feeder lines serving less densely traveled areas and, in many cases, subsequently connect to neighborhood lines that feed specific neighborhoods. In LAC, the most successful public transportation systems are those in which exclusive concessions are competitively awarded to private companies to operate the systems on

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<sup>1</sup> OLADE, *Informe Energetico de América Latina y el Caribe 2001*, p. 30-31.

<sup>2</sup> OLADE, *Op. Cit.*, p. 35.

specific routes for a specified length of time—generally more than 10 years; in some cities, concessions agreements provide for more than one company to operate on a given route, generally only along heavily traveled routes. The companies receiving public transportation concessions are then responsible for investing in the vehicles they use (the characteristics of which are set by governments). Governments, usually local, are in turn responsible for oversight and planning, and for investing in the necessary road infrastructure, including exclusive bus corridors, where they are used, and public transportation stops and terminals.

Second, to supplement the public transportation system and increase its flexibility, sustainable transportation systems utilize a network of safe pedestrian sidewalks, plazas and other spaces, as well as separate bicycle paths and routes, both of which are interconnected throughout the public transportation system. These networks allow individuals to meet many of their shorter trip requirements either by walking or using a bicycle. In so doing, they often empower a more vibrant urban environment to flourish in which a city's citizens can benefit from interactions with local artisans and artists.

Also critical to the development of sustainable transportation is a system that encourages appropriate land-use so that individuals can easily access public transportation from their homes, jobs, and schools and so that walking and bicycle use is feasible to meet some transportation needs. Land-use strategies to encourage sustainable transportation emphasize “mixed use” zoning, in which residences, stores and commercial space are mixed together in all areas of a city, as well as zoning to encourage the densest development in close proximity to major public transportation trunk lines.

Finally, as a high-quality public transportation system is constructed, policies and programs are also needed to reinforce the utilization of this system by all of the public by discouraging the use of private vehicles to meet travel needs, which might otherwise be met by public transportation. A variety of tools may be used to accomplish this, including increases in private vehicle fees (e.g., for registration) and in the fuel they use; restrictions on private vehicular traffic in certain parts of a city, either permanently or at certain times of the day; tolling entrance by private vehicles into certain areas of a city; and placing restrictions on parking or charging high fees for parking.

## 2. Proposed Criteria for Evaluating Cities on Sustainable Transportation

While Curitiba and Bogotá have distinguished themselves as role models for the region in sustainable urban transportation, other cities are beginning to emerge with their own vision for achieving sustainable transportation. To determine which of these are the most prepared to advance in achieving such a vision, a set of criteria for measuring each city's progress is proposed based upon experiences and lessons learned in other cities, both in LAC and outside of the region. Some of these criteria rank as more important than others, particularly in the short term, insofar as being able to identify cities *most prepared* to advance.

The proposed criteria are listed below, with those that are most important in the short term shown in boldface:

- **Strong support and leadership from political leaders, especially at the local level**
- Ample awareness and support by the public of efforts to change the transportation system;
- Decentralization of governance so that local institutional capacity-building is relatively strong and local capacity to collect revenues is well under way;
- **Substantial progress in establishing and beginning to implement an effective Master Transportation Plan, consisting at least of a public transportation plan and preferably including components that discourage private vehicle use and encourage non-motorized transportation;**
- Substantial progress in establishing and beginning to implement an effective Master Urban Development Plan that encourages mixed use development, zoning to encourage development near public transportation corridors, and strategies to restrict parking, and encourage pedestrian and non-motorized spaces;
- **Strong local planning capability in transportation and urban planning, preferably in a local government institution;**
- **Establishment of a local regulatory authority to design and implement public transportation concessions and oversee the transportation sector;**
- Sufficient financial resources for local planning and regulatory agencies to enable them to complete their roles;
- Strategy designed for and progress made in evolving existing public transport operators and owners into sophisticated, professional companies;
- Strategy developed for attracting financial resources into newly created public transportation companies; and
- **Financial capacity by the local government to invest directly or to be able to borrow to invest in transportation infrastructure .**

### Most Important Criteria

The most important criteria, particularly for the short term, are political leadership; establishment and implementation of an effective Transportation Master Plan; creation of local regulatory and planning capacity in transportation; and local financial capability to invest in the necessary infrastructure.

Political leadership is key to moving forward, especially at the beginning of the process. Quoting Jaime Lerner, former mayor of Curitiba, “It is always an initiative of a person, usually the mayor, who believes it is possible and works for it to happen.” Equally important is the creation of an effective Transportation Master Plan; it provides the road map for the municipality to follow. Moreover, implementation of the Transportation Plan cannot occur without the creation of local regulatory and planning institutions to oversee the process, correct problems, and continue to devise new solutions. And finally, without the capability of the municipal government to invest in the transportation system infrastructure proposed in the Master Plan, the process comes to a grinding halt.

The identification of the most important criteria does not minimize the importance of the other criteria. They are the characteristics for the preferred development of a sustainable transportation strategy. But many cities have begun down the path of transportation sector reform without necessarily embracing all of the criteria at the beginning. Needless to say, as these cities progress, they will increasingly have to embrace them all to achieve success.

The following sections will examine each of the proposed criteria in more detail. These will include successful, and, in some cases, unsuccessful examples of experiences to date.

### Political Commitment

Political leadership and commitment to change the existing transportation system is a critical component, if not *the* critical component, to achieving success in advancing a sustainable transportation strategy. The experiences of both Curitiba and Bogotá are cases in point. In both instances, the mayors of the cities established the initial vision for the cities, worked with the public to gain its acceptance, endeavored to create the local governmental capacity to plan for and regulate the reformed transportation sector, and “hung in there” with their vision even when problems occurred.

### *EXAMPLES OF EXPERIENCES TO DATE*

In Curitiba, the mayor that provided the initial vision and leadership was Jaime Lerner, who served as mayor in three non-consecutive terms, first ascending to the office in the 1970s. Not only did he put his imprimatur of a reformed transportation sector on the city, but he also transformed the planning agency for the city, IPPUC, which he had previously headed, into one with the talent and capability to implement that vision. In addition, he was able to continue to evolve the vision by adhering to the principles that results needed to be shown quickly, even if all the solutions had not been worked out, and that if programs were not working, they should be retooled quickly to respond to their weaknesses. An example of his leadership and the adherence to his goals was his strategy in opening the first pedestrian mall in the city. He approached shopkeepers on the street that he intended to close to vehicular traffic, promising them that if they did not see positive results within seven days, the shopping area would revert to its previous vehicular form. The pedestrian mall was implemented in 24 hours, and, indeed, shopkeepers saw increased foot traffic through their stores within seven days.

In Bogotá, the mayor that provided the vision and leadership was Enrique Peñalosa. For at least 20 years prior to Peñalosa’s taking office, many had complained about the quality of life, the noise, the pollution and the increasing congestion that characterized the city. But no alternative vision had been embraced, much less thought possible, especially for a city five times the size of Curitiba. Peñalosa entered office determined to change the conditions substantially in that city. Visiting Curitiba numerous times to learn about how it tackled its problems, he then adapted them to his city. And he was determined to stick it out for the long term, regardless of initial reactions to the program. In the early years of his term, there were calls for his recall, particularly as his “Pico y Placa” program was being implemented, which restricted private vehicle flow during peak hours. The value of Peñalosa’s vision was later confirmed when the citizens of the city voted to prohibit all private vehicular traffic during peak hours beginning in 2015, at which time an effective public transportation system is anticipated to be in place throughout the city to meet mobility needs during peak hours.

### Public Support

Also critical to achieving success in implementing a sustainable transportation strategy is building public support from all the major stakeholders that will be affected by the changes: existing bus owners (often referred to as transportistas) and operators and their associated support industries (e.g., mechanics, garage owners, etc.), public transportation users, and the general public. Both Curitiba and Bogotá kept their stakeholders informed during the process of reform, using such media as radio, strategically situated signs and panels, television, and the Internet. In addition, Curitiba aggressively incorporated the concepts of its transportation vision in the curricula of its schools, as well as its after-school day-care programs. By educating the students, the parents were also educated.

### *EXAMPLE OF EXPERIENCE IN CUENCA*

An interesting model for gaining public support and involving stakeholders was the one utilized by the mayor of Cuenca, Ecuador, Fernando Cordero. In the run-up to implementing transportation sector reform in his city, he frequently held open “town meetings”, often coinciding with visits from officials from the Inter-American Development Bank whom he involved in these meetings (the IDB funded the technical assistance work that supported the reform process). Transportistas were invited to these meetings, as were other interested parties, including university professors and an informal group of mothers of school children who were concerned about the safety and health impacts on their children in using the then-existing public transportation system to get to school. Cordero also brought in experts from other cities to these meetings, including from Quito and Curitiba, to discuss their experiences and the benefits that were reaped. Press coverage of these meetings was strongly encouraged and further served the purpose of gaining public support.



### *Decentralization of Governance*

Generally speaking, the decentralization of government is critical to establishing the local oversight and planning of transportation sector reform that renders these programs successful. It is very hard to manage this process as well remotely from a national capital, particularly in countries suffering from personnel and budget constraints within their national governments. Both Curitiba and Bogotá are examples of cities in which part of the reason for their success lay in their capacity to create local oversight and planning agencies to nurture the reform process along, and to access the resources through local mechanisms to support these agencies, rather than having to rely on their national governments for these resources. The creation of local agencies better enabled these cities to adopt policies and programs best suited to their unique needs and conditions. Needless to say, when local institutions are created and empowered with overseeing the process of reform, accountability is key; poorly operated agencies do not assist the reform process at all.

Decentralization of governance reforms is proceeding at different rates throughout Latin America and the Caribbean, with some countries such as Brazil and Argentina well advanced in the decentralization process and others like Peru only beginning. Nevertheless, LAC generally leads the rest of the developing world in progress on decentralization of governance.

### *POSSIBLE EXCEPTIONS TO LOCAL GOVERNANCE*

Among Latin American cities moving forward in transportation reforms, there are some notable exceptions to the model that planning and regulatory oversight be locally- based. For very small countries, particularly those in Central America and the Caribbean, in which a large fraction of each country's population resides in its largest city, and usually its capital, the national government often exercises the leadership in defining the sector's reforms. This applies to Panama, in which the national government, through the Autoridad de Transito y Transporte Terrestre, will be responsible for planning and regulation of the transportation system in Panamá City and to El Salvador, in which the leadership for programs in San Salvador is also planned to be by an incipient national agency. Since both of these programs are in their infancy, it is not yet clear that the model of a national agency exercising transport sector planning and regulatory authority at the local level will prove successful. Indeed, in another Central American country, Guatemala, the local government in Guatemala City is exercising planning and regulatory authority over its transportation sector. It is important to note that even in small countries, the structure of having the national government plan for and regulate local transportation systems can introduce conflicts between the national and local governments, particularly if they are run by different political parties.

Chile provides another model for a substantial role for the national government. With strong national entities responsible for the environment (CONAMA), transportation (SECTRA), and housing and urban development (MINVU), these agencies are the leaders in defining the transportation sector reform efforts in the capital of Santiago. Moreover, SECTRA has financed a detailed analysis in 20 medium-sized cities in the country (ranging in size from 66,000 to 866,000) of transportation needs, environmental impacts and projected growth in these cities, with the goal of arriving at Master Transportation Plans for these cities that the national government will then provide much of the public resources to implement. While the intention has been stated to support the development of local municipal agencies to implement these plans, it is too soon to assess the degree to which this goal will be realized. Clearly, though, Chile has not followed the path taken by other LAC countries of creating local planning and regulatory

agencies early in the transportation reform process where they can actively participate in and learn from the Transportation Master Plan development process.

Mexico presents yet another example of an exception to the model of having local government agencies oversee the transportation sector. This country's decentralization of governance legislation vests the authority for regulation and planning for local transportation systems in state government rather than local government. Local government is only accorded the role of establishing and maintaining a local police force. This structure can often create conflicts in moving forward, particularly if the political parties holding the mayoralty of the city and the governorship of the state are different.

### Effective Transportation Master Plan

One of most critical elements for achieving a sustainable transportation system is actually devising and then implementing a Transportation Master Plan. As noted earlier, while the core of such a plan needs to address reform of the public transportation system to make it more efficient, clean, and cost-effective, the most successful cities have added components to encourage non-motorized transportation (both walking and cycling) and to discourage the use of private vehicles. Needless to say, cities that are most advanced in creating sustainable transportation systems not only have devised a Transportation Master Plan, but are moving forward with implementing it. Also key is evaluating, with clear metrics, the success of the Plan as it moves forward; without such an evaluation process, problems cannot be identified and addressed.

### *EXAMPLES OF NON-MOTORIZED TRANSPORTATION*

Curitiba was one of the first cities to embrace the need to encourage pedestrians. It enjoys wide sidewalks, and pedestrian-only areas in which commercial streets are closed to vehicular traffic (patterned after similar areas in European cities). In addition, investment in such urban features of the city as the 24-hour street, the opera house, and the botanical gardens—all of which are highly accessible by foot—have served to reinforce pedestrian traffic, while increasing the sense of pride that Curitiba's citizens have in their city.

Bogotá has also embraced strategies to encourage pedestrians. Construction of sidewalks and alamedas (shaded sidewalks) are a priority throughout the city. In addition, a 15-meter-wide shaded walk, El Porvenir, is under construction that, when completed, will be the longest in the world—17 kilometers.

Curitiba has also embraced the use of bicycles, although originally only for recreational purposes rather than integrated with its public transportation system. Bikeways are built extensively throughout the city's green space areas. A recently approved second loan from the IDB to Curitiba includes a component that will expand the city's bikeways and pedestrian paths into a more integrated system.

Based upon the experience of Curitiba, Bogotá's planners incorporated bikeways into the public transportation system design from the start. Two hundred kilometers of bikeways have been integrated with the city's public transportation system, including support structure (e.g., for parking bicycles). As a result, the modal share of bikes among all the modes of transportation used in the city has risen from .5 percent prior to the changes to 4 percent in 2001.<sup>3</sup>

### *DISINCENTIVES FOR PRIVATE VEHICLES*

In addition to non-motorized transportation, a critical factor in devising an effective public transportation system is establishing disincentives for using private vehicles. As incomes increase in the cities of LAC, more and more individuals can afford to buy and use private vehicles, if not new, then used. In some cities, this trend has sharply changed the modal share enjoyed by public transportation. In Santiago, Chile, for example, the modal share of trips taken by cars has risen 60 percent between 1987 and 2001, to 23.7 percent, almost equal to the modal share of trips taken by bus, 25.9 percent, which has fallen 27 percent in the same period of time.<sup>4</sup>

<sup>3</sup> "Bogotá's Transportation Strategy", 2001, p. 1.

<sup>4</sup> Departamento de Ingeniería Industrial (DII), Universidad de Chile, "Abatimiento de Gases de Efecto Invernadero del Transporte Urbano: Opciones Innovadoras en Santiago, Chile, Informe Final", 2003.

Even in cities with poorer populations, the trend to ownership of private vehicles is clear, although modal shares may not yet be approaching the levels seen in Santiago. Hence, for public transportation systems to be effective, they need to be supplemented by policies to discourage the public from using their private vehicles to meet their mobility needs *within the city*.

As noted earlier, there are a variety of tools that can be used as disincentives. They include: fees on private vehicles and the fuel they use; restrictions on private vehicular traffic in certain parts of a city, either permanently or at certain times of the day; tolling entrance by private vehicles into certain areas of a city; and placing restrictions on parking or charging high fees for parking.

#### *EXAMPLES OF DISINCENTIVES FOR PRIVATE VEHICLES*

Curitiba, in contrast to its innovativeness in other areas, has utilized very few of these tools. Indeed, the only strategy it has adopted has been one of requiring a minimum level of parking for residential buildings, not a particularly effective strategy to discourage the use of private vehicles, although it does provide them a place to park that is not potentially blocking traffic on the street.

Bogotá, on the other hand, has adopted a variety of approaches to discourage private vehicle use. Fees for public parking have been increased 100 percent and the regulation of fees in private parking facilities, which had tended to keep prices low, has been removed. The gasoline tax has been increased 20 percent. A Car-Free Day is implemented once a year on the first Thursday in February, during which no private vehicles are allowed to be used in the city. Finally, a program to restrict private vehicle use during peak congestion hours has been implemented since 1998. Known as “Pico y Placa”, the program restricts private vehicle use by 40 percent between 6 and 9 a.m. and 4 and 7 p.m. The specific vehicles prohibited on any given day are determined by the last number on the license plate of each car; traffic police throughout the city enforce the program, which, when it was first implemented, accounted for the second-highest number of traffic tickets in the city. While initially unpopular, the city’s population has come to see the benefits of the program, with congestion decreasing and road speeds improving during peak traffic hours<sup>5</sup>. Indeed, in a referendum held in 2000, Bogotans endorsed a proposal to permanently restrict private vehicle use beginning in 2015, at which point the public transportation system is expected to be able to handle the mobility needs of the city’s population. As of that date, no private vehicles, except for taxis, will be allowed to circulate on work days between 6 and 9 a.m. and between 4:30 and 7:30 p.m.

Other cities in LAC, including Mexico City, have tried to implement a variation of the program used in Bogotá, without a similar level of success. Rather than use the last number on license plates to determine which vehicles are allowed to drive *during peak hours* on any given day, this program used the number to *prohibit any driving* by the affected vehicles on the given day. Without feasible alternative transportation programs in place and good enforcement, the program spawned an active market in inexpensive used cars, in which the number of vehicles per household grew so that household members could be assured of having a car to drive every day of the week. Instead of reducing the number of vehicles on the road and hence fuel consumption

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<sup>5</sup> Road speeds improved from 14 km/hr in 1998 to 25 km/hr in 2002. The program has been modified several times since its inception. In 2001, the mayor expanded the program to public transportation vehicles (including taxis) not within the Transmilenio system, with the goal of reducing needless circulating; for these vehicles the program extends to Saturdays and there is a rolling prohibition every hour for depending on the last number of their license plate. Vehicle occupancy has risen as a result. Also, the city has extended the peak prohibitions for private vehicles registered outside of Bogotá to be longer than those for residents of the city.

and air pollution, the program therefore frequently had the perverse effect of prompting greater congestion—as these older vehicles frequently broke down—as well as greater fuel consumption and vehicle emissions typical of older vehicles.

Other strategies have also been adopted, both within and outside of LAC, to discourage private vehicle use. Cuenca, Ecuador has initiated a program of vehicle-free streets in the center of the city every Sunday. In addition, it instituted a paid street parking program in the central city to reduce congestion induced by double parking and other unsafe parking habits. Car owners can purchase a “parking card” from which the specific parking charge is deducted. Parking enforcement was initially provided by a private concession based in Montevideo, Uruguay—Autoparque; the company collected fines for infractions and utilized a “Denver boot” to incapacitate cars that failed to pay their fines. Recently, the municipal government assumed this enforcement function.<sup>6</sup>

Outside of LAC, Singapore is well-recognized for its programs to discourage private vehicle use. These include an electronic road pricing program, a vehicle quota system, and a road tax. The electronic road pricing system, which replaced the earlier Area Licensing System, is an electronic tolling system for entering the most congested parts of the city. All vehicles entering the “restricted areas” utilize an “in-vehicle or IU electronic unit” with a smart “Cash-Card” that functions as a debit card; the cost for entering the restricted areas is automatically deducted from pre-payments made to the Cash-Card. If there is a violation in the transaction, a camera takes a photograph of the license plate of the relevant vehicle. The cost of entry varies over the course of the day, with the highest costs occurring at peak traffic hours. For cars, fares range from US\$ .30 to US\$1.50 to enter a particular restricted area; the fares are higher for trucks and cargo vehicles and lower for motorcycles. The fares are established with the goal of maintaining speeds of 45 to 65 kilometers per hour (km/hr) for expressways within these areas and 20 to 30 km/hr for arterial roads within these areas. Speeds are monitored continuously and the fares adjusted to maintain these goals.

Singapore’s Vehicle Quota System began implementation in 1990. Each year, the government determines the maximum number of new vehicles that may be registered, based upon the state of existing traffic conditions and the number of vehicles that are being removed from the road. An open bid system, set by the market, then ensues for a pre-determined number of Certificates of Entitlement (COEs, each issued for a term of 10 years) for each vehicle type, which are released monthly by the government. In 2004, the market price for a COE for a car has averaged between US\$13,000 and US\$15,000.

The road tax was initiated in 2002, is assessed annually and is calculated based upon the size of the vehicle engine. The amount of this tax rises sharply with the size of the engine, ranging from US\$200 to greater than US\$2000. Partial rebates are provided for natural gas, electric or hybrid vehicles. There is an additional road surcharge for all vehicles older than 10 years.

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<sup>6</sup> The Supreme Court of Ecuador recently ruled that the municipal government of Cuenca had exceeded its authority under the country’s “Decentralization of Governance” Law in establishing its concession with Autoparque. While the specific elements of the concession agreement that are not valid remain unclear, in the short term, the municipal government has assumed the enforcement responsibility for the parking program, while exploring such options in the longer term as creating a public company to oversee parking or possibly a combination public/private company to do so. The “Denver boot”, which was not at all popular with the city’s population, is not being used in the interim program.

Besides Singapore, London, England; Oslo, Norway; and Trondheim, Norway also utilize a type of congestion or road tariff to enter parts of their cities in order to discourage private vehicle use in their cities. In 2003, London became the latest city to use this technique. A flat fee (£5 or US\$9) is charged electronically from 7 a.m. to 6:30 p.m. during weekdays for entry into the central city. Results, evaluated after the first year of implementation, have been significant: bus journeys to the central city have increased by 45 percent, 27 percent fewer private vehicles enter central London daily, and traffic speeds have increased 37 percent.<sup>7</sup> Moreover, businesses in the central district, which had expressed fears of falling profits if the number of cars traveling to the city center is reduced, have found this not to be the case; only 12 percent indicate that congestion pricing had an influence on their recent business performance.<sup>8</sup>

Within LAC countries, Santiago, Chile has seriously considered congestion pricing as an option to reduce traffic congestion and air pollution. To date, such a program has not been implemented, but it is being considered again as part of a sustainable transportation project in the city supported by the Global Environmental Facility (GEF).

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<sup>7</sup> Green BudgetNews 7, "London Congestion Charge Celebrates its First Birthday", 17/03/2004.

<sup>8</sup> Transport for London, "Congestion Charging: February 2004 Update, p. 1.

### Effective Urban Development Master Plan

Another important element for devising a long term sustainable transportation system is formulating and implementing a complementary Urban Development Master Plan that is structured to encourage public transportation and non-motorized transportation and discourage private vehicle use. As noted earlier, features of such a plan emphasize mixed use development and denser development near public transportation corridors.

In addition, many cities are beginning to look at alternatives to continued densification of their centers as they struggle with the negative ramifications of having a relatively small portion of their city serve as the economic engine for the entire area. Fearful of the broader urban sprawl patterns that particularly characterize growing cities in the U.S. as they move out from their centers, these LAC cities are enunciating strategies of fostering “sub-centers” within their city to become additional focal points for economic activity. Needless to say, to the extent that such sub-centers are promoted, a critical issue that needs to be addressed is the transportation infrastructure that services these sub-centers. Finally, as in the case of the Transportation Master Plan, an Urban Development Master Plan is only as good as its results; hence, evaluation with clear metrics is critical

### *MIXED-USE DEVELOPMENT*

Mixed-use development has generally characterized the development of Latin American cities, principally because they have had a traditional neighborhood focus that emphasizes co-location of homes, work, and schools. These characteristics have *rarely* been incorporated into a formal urban development zoning strategy, however. Moreover, as cities have grown, adherence to the mixed-use principal has varied. Perhaps the most extreme example of a city that lies at the opposite end of the spectrum from a mixed-use strategy is Brasilia, Brazil, which was designed in the days where the consequences of growth in private vehicles were not well understood. Designers of the city had a vision of concentrating different types of development in different areas. Hence, residences were concentrated in one area, hotels in another, restaurants in a third, the commercial areas in another, and so on. Needless to say, this type of structure demands that motorized transportation be used in the normal conduct of the population’s lives; the opportunities for walking or biking to meet specific trip needs are minimal. Not surprisingly, Brasilia has one of the highest rates of per capita gasoline use compared with other Brazilian cities of similar size.

As urban populations grow in LAC, it becomes increasingly important to *formalize* zoning for mixed-use development, rather than leave it to be an informal policy. Otherwise, these cities could well find themselves in the situation where opportunities to incorporate walking and bicycling to meet some mobility needs are minimal. Curitiba has tried to incorporate some of this principle in its more recent zoning modifications. For example, the dense development that is compulsory near public transportation corridors is now required to include a mix of residential, commercial, and business uses. While it is too soon to evaluate the effectiveness of the latest requirement by Curitiba’s municipal government, there is no doubt that the city’s previous requirements for dense development along public transportation corridors have been highly effective, transforming both the skyline and development patterns of the city.

Santiago, Chile, as part of its GEF project, will also be addressing the formalization of mixed-use development. In particular, it will be studying policy tools to encourage ‘location efficiency’, that is, to locate housing and other developments in close proximity to each other; these may well be applied to a portion of the center city that is slated for redevelopment.

### *DEVELOPMENT NEAR PUBLIC TRANSPORTATION*

As noted previously, Curitiba also remains the only LAC city that has developed and implemented an Urban Development Master Plan intended to encourage dense development along major public transport corridors. The densest development, in fact, is only allowed near public transportation trunk corridors. The further away the development is located from the trunk lines the lower the density that is permitted. Curitiba's Urban Development Master Plan also contains other features that complement its Transportation Master Plan, including provision for pedestrian malls and the preservation of urban green spaces (through which the city's bikeway system was initially fashioned).

### *DECENTRALIZATION INTO SUB-CENTERS*

As interest rises in LAC cities in decentralizing economic activities into sub-centers, the issues of how to create a transportation infrastructure to support these sub-centers have to be addressed. Cuenca, Quito, and Guayaquil, Ecuador are examples of cities that have begun to enunciate decentralization as one of their urban development goals. Since these developments are only in their earliest stages, little thought has yet been given to the transportation needs of a reconfigured urban area.

However, the issue is further along in some U.S. cities. For example, the metropolitan Denver region in Colorado, through an extensive public consultation process, developed a regional growth and development plan in 1997 known as Metro Vision 2020, which established the region's goals for 2020. These goals include the establishment of numerous urban centers within the region that will support employment, and provide retail services and housing, thereby enjoying a higher density than surrounding areas. These centers have been required to be pedestrian-oriented, mixed-use locations and focal points for the region's public transportation system.

Cities and counties in the region have already begun to define the implementation of this plan. In 2000, they signed the "Mile High Compact" committing themselves to enforce the urban growth boundaries defined in the plan through their individual Master Plans. An Interim Regional Transportation Plan for 2025 has also been adopted.



### Local Planning and Regulatory Capacity

A critical element to achieving sustainable transportation successfully lies in the governmental institution or institutions that are planning, guiding, and overseeing the process. Curitiba and Bogotá owe a good measure of their success in sustainable transportation to the establishment of such institutions and the nurturing that enabled them to grow into professional, well-funded organizations. As already noted, *locally-based* institutions are more likely to understand the situation first-hand than are national institutions and they are better geared to craft solutions that fit the unique needs of the locality.

Furthermore, the most successful of these types of institutions are characterized by their capacity to address a multitude of issues related to transportation, rather than just being constrained to address public transportation, or parking, or traffic management. In other words, the more interdisciplinary these institutions are structured to be, the more likely they are to be able to address issues that straddle more than one category or whose solution straddles more than one category. And to the extent that these institutions are also charged with land-use management responsibility, their ability to craft multidisciplinary solutions is further enhanced. To ensure the capability of the individuals working within these institutions, both Brazil and Chile have established programs in its universities to train urban transportation professionals for both public and private sector institutions.

Equally important is the need to resist the creation of a multitude of institutions to plan and oversee the implementation of sustainable transportation. As the number of such institutions increase, their individual focus becomes increasingly “stovepiped”, thereby hindering the capacity to devise multidisciplinary solutions; furthermore, rivalries tend to increase with the number of institutions, making it all the more difficult for them to work together to define integrated solutions. Indeed, the proliferation of transport sector institutions is often a major reason why a public transportation policy lacks any integration with other necessary components of a successful sustainable transportation strategy, such as parking policy or traffic management policy.

### *EXAMPLES OF SUCCESSFUL LOCAL INSTITUTIONS*

Different cities have employed different strategies to plan and oversee the implementation of their transportation plans. Curitiba chose to invest this responsibility in two institutions. Instituto de Pesquisa e Planejamento Urbano de Curitiba, the Institute for Urban Planning and Research for Curitiba or IPPUC, is the municipal planning agency for Curitiba, whose jurisdiction includes both transportation planning and land-use planning. Urbanização de Curitiba, S.A. (Urbanization of Curitiba) or URBS is a quasi-public company that is charged with the oversight and regulation of the transportation sector in Curitiba. IPPUC devises the policies regarding transportation and URBS implements them. Among URBS’ responsibilities is the awarding of concessions to private transport companies to operate exclusively on designated routes and the oversight of the services provided by these companies.

In Bogotá, the city chose to invest all the transportation sector functions in one institution, Transmilenio S.A., a public company charged with the planning, administration and regulation of the city’s transportation system. In contrast to the case in Curitiba, Transmilenio’s planning responsibilities do not include land-use management.

## *THE CHALLENGE OF METROPOLITAN GOVERNANCE*

As urban populations rise, with populations in an urban area spilling across city borders, a growing challenge is devising local planning and regulatory agencies with a metropolitan focus rather than a city-by-city or municipality-by-municipality focus. Otherwise, these urban regions suffer from a proliferation of local agencies with a focus on transportation only in their municipalities, rather than the more efficient and productive focus of addressing transportation needs across the urban area.

In the U.S., this challenge was addressed through the creation of metropolitan planning organizations (MPOs), made up of representatives of the individual cities and municipalities that make up a specific metropolitan area. The Metro Vision 2020 Plan by the Denver metropolitan area was the product of such an MPO.

In the State of Paraná, of which Curitiba is the capital, the state government created the Curitiba Metropolitan Region Coordination Commission (COMEC) to coordinate urban planning for the metropolitan region; 26 municipalities, including Curitiba, are represented by this commission. Since 1992, COMEC has been responsible for transportation planning and regulation for this area. COMEC entered into an agreement with URBS to which it delegated management, planning, and compliance monitoring of the metropolitan public transportation system. In addition, COMEC works closely with IPPUC on planning for the broader transportation sector, as well as land-use management.

### *Sufficient Resources for Local Governmental Institutions*

Important to the success of local government institutions is their ability to access sufficient and secure financial resources annually to carry out their missions. Moreover, to the extent that these resources can be “guaranteed” each year, rather than subjected to the annual municipal budgeting process, these institutions can achieve greater autonomy from political pressures that inevitably rise if such organizations must turn to local government annually for its funding. Borrowing from the experiences of regulatory and planning agencies overseeing the electric sector in LAC, the allocation of different types of fees or revenues from the transportation sector to the budgets of these organizations can go far in providing these agencies with fiscal and management autonomy. These types of revenues can include vehicle registration and inspection fees, road and fuel fees, payments of traffic infractions, and a percentage of the total tariffs collected by the public transportation system. Generally speaking, cities in countries that have undertaken decentralization of governance reforms may establish such allocations to the budgets of their local agencies through the passage of municipal laws.

### *EXAMPLES OF EXPERIENCES TO DATE*

In Curitiba, IPPUC’s budget is supported heavily by the annual municipal budget; however, since it is well established, with a professional team of architects, engineers, economists, sociologists, and public administrators, it is relatively impervious to the political pressures that can be manifested on an infant institution dependent on funds from municipal budget. In contrast to IPPUC, URBS’ budget is not supported by the municipal budget; it defrays its annual costs by keeping four percent of the tariffs collected by the public transportation system (the remaining 96 percent going to the public transportation companies).

In Bogotá, Transmilenio’s budget is also supported out of the tariffs collected by the public transportation system. Three percent of the tariffs collected by the public transportation system are used to defray the annual costs of this public company.

### *PROBLEMS WITH INSUFFICIENT FUNDING*

The challenges that face an infant agency that does not have an independent source of revenue are exemplified in the planning and regulatory agency established for Quito, Ecuador, the Dirección Metropolitana de Transporte y Vialidad or DMT. DMT depends completely on the yearly municipal budget for its operating funds; the result has been an annual budget for the agency well below its requirements, severely hampering DMT’s planning function at a critical time in the evolution of its public transportation reform. Among the challenges the agency does not have sufficient resources to address are how to re-concession the public transportation system and how to nurture the development of professional public transportation companies. In contrast, the public company created by Quito to administer the public transportation system, Empresa Metropolitana de Servicios y Administración del Transporte or EMSAT, does not suffer from these problems. Following the example of URBS and Transmilenio, it draws its budget from a percentage of the public transportation tariffs collected annually.

### Successful Development of Public Transport Companies

In most LAC cities, one of the greater challenges in successfully implementing reform of the public transportation system over the medium term is realizing the transition between the present operators of the system, the transportistas—who tend to own only one or two buses, and have almost no credit history, limited financial assets, and little managerial experience or experience in operating a business—and the operators of the future—who are intended to be professional companies with the know-how to run a company well and the financial assets and credit ratings to be able to invest in the new buses and other equipment that is required in the process of establishing new concessions.

#### *EXAMPLES OF EXPERIENCES TO DATE*

Brazilian and Argentinean cities have had the most experience to date with developing professional public transportation companies, principally because they began the reform process earlier than other countries. This underscores a major lesson learned from the process of creating professional public transportation companies: it takes time to transform transportistas into such companies. Indeed, the process that appears to be followed most frequently is one of first creating a company from consortia of transportistas, who “pool” their assets.<sup>9</sup> Over time they evolve into more traditional companies, with clear accounting and management structures and sufficient equity to be able to take on additional investments.

A critical issue that is beginning to be addressed in some cities has to do with retraining those who lose their jobs in the process of the transition from transportistas to professional companies. The transportista structure tends to employ more individuals on each operating bus than the company structure; often there are as many as three employees on each bus to drive and collect the fares. In the new company structures, however, only one employee—the driver—is required since the fare collection is outside of the bus. Moreover, since larger buses are used along the trunk lines, drivers, too, may lose their jobs. The cities of Santiago, Chile and Lima, Peru will both be addressing re-employment and retraining options in their future sustainable transportation projects supported by the GEF.

A specific lesson learned from the Argentinean experience is the importance of the regulatory function, of having government oversee the companies providing public transportation to ensure that they are fulfilling the terms of their contract. Equally essential is a consistent public policy towards public transportation. One of the problems encountered in Argentina over the decades that public transportation has existed has been an inconsistency in the regulatory preferences of the country, from support for publicly-provided public transportation to support for privately-provided public transportation, and from laissez faire oversight, during which the public transportation infrastructure deteriorated badly, to serious oversight meant to assure that the concessions are operating as they were contracted.

An additional challenge for regulators has to do with monopolistic nature of the concessions. While they are re-competed every 10 to 20 years, the terms of the concessions are sufficiently long to engender behavior characteristic of monopolies, namely, in the relative absence of competitive

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<sup>9</sup> Public sector transportation administrators indicate that the idea of “pooling” resources by individual transportistas within a newly -formed larger company is a difficult process to implement. Transportistas tend to see the company much as they had seen the associations or cooperatives to which they had previously been affiliated—a loose collection of individual entrepreneurs who at the end of each day expect to take their daily earnings home.

pressures, a relaxation of the efficiency and quality with which services are provided. One strategy to address this problem that is used by some cities is to create more than one concession on the most heavily traveled routes; this enables competition between the concessionaires to foster a commitment to maintain and improve the quality of service. Both Buenos Aires, Argentina and Curitiba employ such a strategy, at least on some routes. In addition, Curitiba points to an aggressive and well-funded monitoring program by URBS as another tactic used to ensure that the quality measures originally contracted for in each concession agreement are indeed adhered to.

While both of these strategies can induce better quality of service by concessionaires *as defined in their concession contracts*, it is more difficult to fashion tools for incorporating *new* innovations in the service provided by these companies over the term of the contract; examples range from new technologies (e.g., smart fare cards) to new approaches to providing public transportation services (e.g., providing new targeted services such as a higher-costing service aimed at business people provided by smaller vehicles offering more comfortable and electronically-friendly environments). Of course, such new approaches may be embedded in new concession agreements created after that terms of the existing concessions expire, but this involves a substantial time lag for public transportation users to see the benefits of such innovations. And since improvement of public transportation is occurring at the same time ownership and use of private vehicles is rising, it is important that public transportation continue to be seen by the public as continually striving to offer superior benefits. Experts in Argentina suggest that strategies to encourage innovation could include regular stakeholder consultation with both the companies and the regulators about potential ways to improve the quality of service, and the establishment of innovation “incentives” in the concessions agreements. In the latter case, such incentives might include allowing higher returns on investment (see paragraph below) in the short term or extending the term of the concession agreement. At this time, neither of these strategies has yet been employed.

An important element in supporting the development of mature public transportation companies is constructing the concession so that the companies make a reasonable return on investment. In Curitiba, for example, the system and tariffs are structured so that each concessionaire gets a 12 percent return on investment, assuming they comply with the terms of their contract. Not only does such a structure enable the infant company to garner a reasonable profit and hence enhance its equity and enable it to invest in higher quality equipment in the future, but it also boosts the company’s attractiveness to external investors and bankers.

Another important feature of the concession structure that can enhance the development of public transportation companies is the establishment of clarity about how the company will be paid. If the company has a monopoly along a given route, its ridership is known, and its method of payment (e.g., per kilometer) is established, then the company can easily define its expected revenues. With this information, the company is in a better position to be able to negotiate a loan for new buses that may be required along that route, even if it has no prior credit history. The company can demonstrate a regular income against which the payments for the loan can be charged. Indeed, the major Brazilian bus manufacturing companies offer a lease-to-buy arrangement with public transportation companies based upon this arrangement.

While cities that are moving forward with reform of public transportation recognize that the maturation of public transportation companies takes time, many are looking for mechanisms to expedite the process. Training for the newly created companies offers one means for expediting the process; this can range from business instruction in the basics of running a company, such as fiscal and personnel management methods, to more technical guidance in the new vehicle and

vehicle maintenance procedures required within the concessions process. Since the 1990s, when Buenos Aires assumed a strategy of supporting publicly-regulated private sector provision of public transportation, courses have been offered for public transportation companies within the Engineering School at the University of Argentina. As noted previously, universities in both Brazil and Chile have historically offered extensive ongoing training in urban transportation and public transportation for both public and private sector institutions. In the future, cities such as Lima, Peru and Quito, Ecuador are contemplating offering training to their infant public transportation companies in such basics as management structure and financial supervision.

Bogotá applied an additional strategy to expedite the maturation of its public transportation companies. Concessions awarded only went to consortia of local transportation companies and either other established Colombian companies from other industrial sectors or international public transportation companies. Not only was this strategy intended to help infuse the resulting companies with greater managerial experience, but it was also anticipated to expand the equity base of these companies.

### *Financial Climate for Public Transportation Companies*

As noted previously, a major challenge for fledgling public transportation companies is being able to attract financial resources, both debt and equity. These resources are critical to enabling the companies to invest in the new equipment that is required in their concessions agreement and to continue to invest in the future. They are also indispensable in enabling the companies to invest in themselves, setting up the necessary managerial and bookkeeping structures that will enable them to grow as companies, as well as the necessary maintenance facilities (and associated employees) for their vehicles.

#### *EXAMPLES OF EXPERIENCES TO DATE*

Several national governments offer concessional financing to public transportation companies with the goal of helping them mature and grow. Since 1997, Brazil has had a program in place entitled “Federal Program for Renovation and Adaptation of the Urban Bus Fleet”. It provides concessional financing to public transportation companies for upgrading of their buses either by reducing the interest rate of the loan (generally provided by the National Development Bank or BNDES) or by extending the term of the loan. The program is administered through the National Association of Urban Transportation Companies.

El Salvador began offering a financing program for its public transportation companies in 2001. Provided by the government’s Multisectoral Investment Bank (BMI), the program known as FONTRA (Fideicomiso de Apoyo a la Renovación del Transporte Publico) also offers concessional financing to public transportation companies. Specifically, it offers a reduction of three points in the interest rate charged for loans to invest in new or upgraded buses or the associated infrastructure (e.g. maintenance facilities) required of reformed public transportation companies.

Panama also made a commitment in 2001 to provide concessional financing for its public transportation companies, although the program has not yet become operational. The National Bank of Panama, in particular, approved the allocation of 30 million balboas (approximately USD\$ 30 million) for the modernization of urban transportation in Panamá City.

Other types of programs also enhance the financial viability of public transportation companies. The Bogotá concessions process mentioned previously—which required local transportation companies to pair with existing Colombian companies in other sectors or with international companies—is one example of a technique used to expedite the flow of financial resources to public transportation companies. Not only did it accomplish that goal, but the structure demonstrated to Colombian companies and banks the profitability that can arise from public transportation concessions. These companies are now looking for similar investments inside and out of the country. Hence, employing the model used in Bogotá in a specific city in another country could well spur investments into public transportation companies in other cities in that country.

Finally, the concessions structure, also mentioned previously, is another important mechanism for attracting investment in public transportation companies. Constructed well, the structure can ensure the companies a reasonable rate of return, a clear income against which loans can be secured, and a consistent regulatory framework demonstrating the government’s commitment to the concessions process. These are all critical features for attracting investment resources into such companies.

### Local Financial Capability to Investment in Infrastructure

Ultimately, the success of a sustainable transportation strategy depends on a municipality's capacity to invest in the necessary infrastructure, either by borrowing or through internal resources. Examples of such infrastructure include busways, bus stops, and bus terminals; pedestrian walkways and malls; traffic signals and signs, and bicycle paths.

Failure to make progress in the decentralization of governance can obviously be a major obstacle to a municipality's capacity to invest. In this case, the municipality lacks the authority either to raise its revenues through local taxes and fees or through an allocation of revenue-sharing funds from the national government. These are essential revenues for investing in infrastructure. Furthermore without such authority, the municipality is also hampered in its ability to borrow for infrastructure investments since it cannot clearly demonstrate a means of paying back the loan.<sup>10</sup>

Investments can instead be covered by the national government or, in the case of Mexico, the state governments. However, these governments often do not have the same priorities as local governments. Moreover, if the parties ruling these governments are different from the parties ruling the local government, cooperation in establishing mutual priorities can be even more difficult to achieve.

Finally, even when decentralization of governance provides local governments with a clear revenue-raising mechanism, some municipalities may still not be good candidates for moving forward in investing in transportation infrastructure. For example, municipalities suffering from an already-existing high debt load are not good initial candidates for moving forward.

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<sup>10</sup> As one of the criteria for evaluating cities in LAC, only the financial capacity of local governments was analyzed. The financial capacity of national governments was not evaluated. Hence, it is possible that a city could meet the financial capacity criterion, but, due to financial constraints at the national government level, it may not be able to secure international donor financing or financing from private capital markets.



### 3. Cities Ranking as Most Prepared to Advance in Sustainable Transportation

As detailed in Annex 1, this study has found more than 50 medium-sized cities in LAC that are making progress in implementing sustainable transportation strategies. Applying the criteria described in the previous chapter, the BBG Group has identified seven cities that fall into the top “tier” of cities in the region most prepared to advance in sustainable transportation. Furthermore, an additional seven cities have been identified as falling into a second “tier” of cities, which, while not quite as prepared to advance, remain well ahead of other cities in their countries and in the region.<sup>11</sup>

#### First Tier Cities

To make the list of first tier cities, the selected cities had to demonstrate clear progress in most of the criteria, especially the most important criteria. The cities making this list include:

- Córdoba, Argentina,
- Concepción, Chile,
- Cuenca, Ecuador,
- Fortaleza, Brazil,
- Guatemala City, Guatemala,
- Querétaro, Mexico, and
- Quito, Ecuador.<sup>12</sup>

Each of these cities has its own unique approaches to solving its transportation problems, defined by culture, economic factors and national policies (including on decentralization of governance). Furthermore, the state of progress in these cities varies as well. Some were early entrants into transportation reform but underwent a period of stasis before continuing the process, while others are much more recent entrants. Table 1 illustrates explicitly how each city ranks with regard to each criterion (the criteria previously identified as most important in the short term are shown first in a gray background).

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<sup>11</sup> There are two caveats to these lists. First, the BBG Group evaluated these cities based upon information that it was able to gather to date. The IDB would need to conduct a more detailed, on-site evaluation to verify and expand on the information in this report should it choose to move forward with any of the identified cities. Second, BBG did not consider for these lists cities that were receiving significant assistance in sustainable transportation from other development banks. Hence, this report did not evaluate Guayaquil, Ecuador, due to its relationship with the Andean Development Corporation (CAF), or a group of Colombian cities, including Barranquilla, Bucaramanga, Cartagena, Medellín, Pereira and Soacha, due to the \$250 transportation loan the World Bank has recently approved. Annex 2 describes the activities of these banks in these cities, as well as activities of other international donors.

<sup>12</sup> An eighth city—Trujillo, Peru—looks promising as a possible first tier city. However, at the time of the completion of this report, not enough information could be gathered to make a full evaluation. The IDB has a technical assistance project assessing the state of transportation in this city, but a draft report for the technical assistance was not yet available.

*Table 1*  
*Ranking of First Tier Cities by Criterion*

City	Political Commitment	Transportation Master Plan	Local Planning Capability	Local Regulatory Capability	Government Financial Investment Capability
Concepción, Chile	vv	vvv	? <sup>a</sup>	? <sup>a</sup>	vvv
Córdoba, Argentina	v	vv <sup>b</sup>	v	v	?
Cuenca, Ecuador	vvv	vv	vvv	vvv	v
Fortaleza, Brazil	v	vv	vvv	vvv	v
Guatemala City, Guatemala	vvv	vv	vv	vv	v
Querétaro, Mexico	vv	v	vv <sup>c</sup>	vv <sup>c</sup>	v
Quito, Ecuador	v	v	v	v	?

City	Public Support	Decentralization of Government	Urban Development Master Plan	Sufficient Resources for Local Institutions	Development of Public Transport Companies	Financial Climate for Transport Companies
Concepción, Chile	v	? <sup>a</sup>	vvv	?	vv	v
Córdoba, Argentina	v	vv	v <sup>b</sup>	?	-	-
Cuenca, Ecuador	vv	vv	vv	vv	vvv	?
Fortaleza, Brazil	?	vvv	vv	vv	vvv	v
Guatemala City, Guatemala	?	vv	vv	v	v	v
Querétaro, Mexico	vvv	v	v <sup>c</sup>	?	v	?
Quito, Ecuador	?	vv	?	-	v	?

Legend	
v	Positive
-	Negative
?	Not known
vv	More positive
vvv	Most positive

a – Lead on planning and regulation has so far been at the national level  
b – Plan is somewhat dated at this time  
c – Lead is at the state government level

### *DESCRIPTION OF FIRST TIER CITIES*

Concepción, Chile began its activities with a study that was completed in 2002 under the leadership of SECTRA, as part of a broader effort by SECTRA to analyze and then spur sustainable transportation investments in more than 20 medium-sized cities throughout the country. The study for Concepción diagnosed the problems faced by the city and developed potential alternatives in a Transportation Master Plan. The first stage of that plan is ready to implement. It consists of a new solicitation for concessions for the bus system, with extensive use of bus-only corridors; revamped service for suburban trains along three corridors that integrate with buses at three stations; establishment of a traffic-control center to regulate 100 intersections; and the formation of an extensive bikeway system throughout the metropolitan area. In addition, MINVU is carrying out a parallel study on how to achieve efficient growth in the city and hence minimize the need for cars. Resources have apparently been committed by the national government to cover some of the cost for the first stage implementation. While initial planning has been led by the national government, the process is expected to include the development of local planning and regulatory institutions as well.

Córdoba, Argentina undertook extensive transport sector reform in 1996, the results of which were: a public transportation system run by seven private concessionaires; a concession for a system of mini-buses providing faster and higher quality service, principally for the middle class; a system of bikeways that was extensively used; and parking facilities, which were initially concessioned out. The 2000-2 economic crisis in Argentina led to the demise of most of this. Only two private companies and one public company now provide bus service. The mini-bus and parking systems no longer exist and the bikeway is used, but has deteriorated badly. The mayor is apparently interested in restoring the city's transportation system, but lacks the capacity in the local Subsecretaría de Transporte Municipal, responsible for planning and regulation, where institutional capability has deteriorated badly.

Cuenca, Ecuador began its path down transportation sector reform in 1999 with technical assistance from the Japan Special Fund at the IDB. It is also a tentative target for a future municipal transportation loan to Ecuador from the IDB. The mayor provided strong leadership in the reforms undertaken by the city, leading a stakeholder consultation process that has involved the public and transportistas; he also actively sought support from the municipality's legislative council.<sup>13</sup> The initial technical assistance provided by the IDB formed the basis for the city's Transportation Master Plan, with a focus on reform of public transportation. Oversight and planning for the plan is provided by the Unidad Municipal de Tránsito y Transporte (UMT), which receives part of its budget from vehicle registration and inspection fees, as well as fees assessed for violation of vehicular requirements. Seven companies with exclusive concessions have completely replaced the city's previous transportista-based system. The bus system uses conventional buses sharing space with other vehicles, but a pilot Integrated Transportation Network is now being tested with exclusive bus lanes. In addition, the city has established a downtown parking program using pre-paid cards. It also has programs in place to widen sidewalks in order to encourage greater pedestrian traffic, as well as to refurbish an area of the city for use by bicycles. Urban development components that complement the city's transportation activities include a stated goal to encourage development near the public transportation corridors and to encourage decentralization of activities away from the central city to new sub-centers. Furthermore, in October 2004, the city began a program of closing off roads in the center of the city to motorized vehicles every Sunday.

Fortaleza, Brazil is the recipient of a recently approved \$85 million IDB loan, which will include investment in three bus trunk lines and their supporting infrastructure, and institutional strengthening. Most of the existing system already uses an integrated fare. The system includes a light rail component, and a portion of the loan will also be invested in rehabilitation of this component, with the goal of physically integrating it into the bus system and eventually integrating the tariff as well. The city is in the final stages of approving a Master Transportation Plan (through 2020), which includes allocations for pedestrian and bike paths. It also has an urban development plan that was approved in 1992. Local planning and regulatory oversight is provided by the Empresa Técnica de Transporte Urbano, S.A. or ETTUSA, a public company majority owned by the municipal government (98.7 percent), with the remainder privately held. Ninety-four percent of ETTUSA's budget is from the tariffs collected within the public transportation system.

Guatemala City, Guatemala is in the process of implementing the first phase of a BRT system, Transmetro, as part of its reform of its transportation sector. The Transmetro system will consist

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<sup>13</sup> It should be noted that in recent elections, the mayor was not re-elected. It is too soon to determine whether the same type of leadership will characterize the new mayor.

of exclusive concessions to public transportation companies, and a hierarchy of routes from trunk lines through neighborhood lines; ten trunk lines are anticipated. The mayor of the city has played a major leadership role in this program, and, unlike other Central American countries, the governmental leadership has been locally based and the local planning and regulatory institution, EMETRA, has had good institutional capacity, playing an active role in shepherding the process along. Furthermore, the city has already established a legal framework under which it receives revenues from a fuel tax and a “vehicle circulation” tax; these have been dedicated for investment in the necessary infrastructure for Transmetro. The company, Bessier, financed the buses for the original BRT pilot. When the pilot was initiated, the transportistas in the city demanded a doubling of the bus tariff. The ensuing unrest led to street riots and the burning of many of the buses. The initial loan has now been renegotiated minus the buses that were lost in the riots. The city has supplemented its BRT program with a once-a-year car-free day modeled on the program in Bogotá. In addition, it has regulations on freight traffic, prohibiting it from circulating during morning peak traffic hours, and plans for developing parking and bicycle programs. Furthermore, the city has an ongoing program to rehabilitate public plazas and sidewalks to encourage greater pedestrian traffic and a plan to densify development near public transportation corridors.

Querétaro, Mexico is a relatively new entrant into transportation sector reform. It originally contracted a diagnostic study of its public transportation system in 2000, concluding that a major restructuring of the system was required. A study has now been commissioned to design an “Integrated Collective Transport System”, with results expected in January 2005. These are expected to include not only major reform of public transportation, but also strategies to encourage alternative transportation modes and policies regarding private vehicle use. It is anticipated that actual investments in this new system will begin in 2005 and the first phase will run through 2009. An active public consultation was undertaken as part of the reform process, and the input received from that consultation served as part of the conceptualization for the study now underway. Under the decentralization program in Mexico, planning and regulatory responsibility for the transportation sector, particularly public transportation, lies with the state, specifically the Dirección de Transporte, while the municipal government is responsible for municipal police and traffic management. To this point, collaboration and coordination between these two governments has been positive in moving forward on transport sector reform. Lastly, complementing the transportation reform process is a proposal by the state to develop an urban regional planning process, with a specific endorsement of the creation of urban sub-centers away from the downtown area of the city, which is presently the major economic engine for the region.

Finally, Quito, Ecuador gained international renown in the 1990s with the establishment of its trolley system, El Trolé, which is operated by the municipality. Since then it has added bus-based feeder lines to the trolley system, operated by private concessionaires. With El Trolé functioning as a trunk line of sorts, the city has decided to expand to additional trunk lines, but using private concessionaires and buses. Ecovia, the first of these trunk lines, has recently been launched, and is in the process of being fully operationalized; a feeder line now exists off of this trunk. A second trunk line, Ecovia II, is also being planned. The rest of the public transportation system is still provided by transportistas with conventional buses and overlapping routes. Complementing these changes is a general Transportation Master Plan calling for changes in land-use to decentralize activities away from the center of the city, development of bikeways, design of better pedestrian facilities, and discouragement of the use of private vehicles through traffic restrictions; resources have only been allocated to date, however, for public transportation reform and traffic management. Local planning and regulatory capacity exists within the Dirección Metropolitana de Transporte y Vialidad (DMT), which suffers from inadequate resources to undertake the responsibilities it has. In addition, the Empresa Metropolitana de Servicios y Administración del Transporte (EMSAT), a public company, is charged with administration and management of the

public transportation system; unlike DMT, EMSAT draws its budget from a percentage of the tariffs collected by public transportation companies.

### Second Tier Cities

The BBG Group also identified another set of cities in the LAC region that are prepared to advance in implementing sustainable transportation, but did not make the initial first tier because they are lagging further behind in the process. Transportation plans may not have been completed, the transportation plans may be completed but there has been no movement forward in implementing them, mayoral leadership may be lacking, or planning and regulatory capacity may be lacking. These cities fall into a second tier of cities that have made promising advances but face more substantial barriers in being prepared to further advance. Cities making this list include:

- Arequipa, Peru,
- Cali, Colombia
- La Paz, Bolivia,
- Panamá City, Panama,
- Rosario, Argentina,
- San Salvador, El Salvador, and
- São Bernardo do Campo, Brazil,

Table 2 illustrates explicitly how each city ranks with regard to each criterion (again, the criteria identified as most important in the short term are shown first in a gray background).

*Table 2*  
*Ranking of Second Tier Cities by Criterion*

City	Political Commitment	Transportation Master Plan	Local Planning Capability	Local Regulatory Capability	Government Financial Investment Capability
Arequipa, Peru	<b>VV</b>	- <sup>a</sup>	<b>V</b> <sup>b</sup>	<b>V</b> <sup>b</sup>	-
Cali, Colombia	<b>VV</b>	<b>V</b> <sup>c</sup>	? <sup>d</sup>	? <sup>d</sup>	<b>V</b>
La Paz, Bolivia	<b>V</b>	- <sup>e</sup>	? <sup>e</sup>	? <sup>e</sup>	?
Panamá City, Panama	?	<b>V</b> <sup>g</sup>	? <sup>h</sup>	? <sup>h</sup>	<b>V</b>
Rosario, Argentina	?	<b>VV</b>	<b>V</b> <sup>i</sup>	<b>V</b> <sup>i</sup>	-
San Salvador, El Salvador	- <sup>k</sup>	<b>V</b> <sup>g</sup>	? <sup>h</sup>	? <sup>h</sup>	<b>V</b>
São Bernardo do Campo, Brazil	<b>VV</b>	- <sup>l</sup>	<b>V</b> <sup>m</sup>	<b>V</b> <sup>m</sup>	<b>V</b>

City	Public Support	Decentralization of Government	Urban Development Master Plan	Sufficient Resources for Local Institutions	Development of Public Transport Companies	Financial Climate for Transport Companies
Arequipa, Peru	?	<b>V</b>	- <sup>a</sup>	?	?	?
Cali, Colombia	?	<b>V</b> <sup>d</sup>	?	? <sup>d</sup>	?	?
La Paz, Bolivia	?	<b>V</b>	<b>V</b> <sup>f</sup>	?	- <sup>e</sup>	?
Panamá City, Panama	?	- <sup>h</sup>	?	? <sup>h</sup>	<b>V</b>	<b>V</b>
Rosario, Argentina	?	<b>VV</b>	? <sup>j</sup>	?	-	-
San Salvador, El Salvador	?	- <sup>h</sup>	?	? <sup>h</sup>	<b>V</b>	<b>V</b>
São Bernardo do Campo, Brazil	?	<b>VV</b>	?	?	<b>V</b>	?

Legend	
<b>V</b> Positive	<b>VV</b> More positive
- Negative	<b>VVV</b> Most positive
? Not known	

- a – Results of the IDB technical assistance expected to be used in development of Transport and Urban Development Plans
- b – Reform of the planning and regulatory agency in Arequipa is one of the foci of the IDB technical assistance
- c – Focused only on public transportation sector; no other complementary programs planned
- d – Relative roles unclear of existing local institutions in all aspects of transportation sector
- e – Likely to be addressed as part of a planned future IDB urban transportation loan
- f – Components will be addressed as part of recently approved IDB urban revitalization loan
- g – Components developed as part of ongoing IDB technical assistance
- h – National government retains authority over municipal governance
- i – Additional capacity - building is necessary
- j – Components subsumed within 1999 study
- k – Opposition by mayor has caused national government's plans for BRT system to be put on hold
- l – To be addressed as part of recently approved urban transportation loan
- m – Functions distributed among different municipal agencies will be consolidated in a new Department of Transportation

### *DESCRIPTION OF SECOND TIER CITIES*

Arequipa, Peru is a historic city that has seen traffic congestion grow markedly in recent years, adversely affecting its efforts to increase tourism. In 2001, it was the recipient of technical assistance from the IDB to improve its public transportation system. The assistance included identifying strategies to: improve the municipal government's institutional structure in planning

and regulating this sector—vested in the Dirección de Transporte Urbano y Circulación Vial, reform regulations for the sector, and foster the transition from public transportation being provided by transportistas to one provided by public transportation companies. Results from the technical assistance are expected to feed into the development of the city's Master Urban Transportation Plan and into the next Urban Development Plan for the city; in addition a short-term three-year transportation improvement program is expected to emerge from the technical assistance. Mayoral interest in this process has been significant. However, a major challenge facing this city is its substantial debt load, making it problematic that it can gain the necessary resources in the short term to invest in infrastructure improvements that need to accompany reform of the public transportation system.

Cali, Colombia, with a population of 2.29 million, is one of the larger medium-sized cities in LAC. It is the focus of a loan presently being developed by the IDB for reform of the public transportation sector; 65 percent of the motorized trips in the city are presently provided by public transportation. In an example of the capacity of the city to invest in the necessary infrastructure, Cali will bear a larger portion of the debt burden for the loan than will the national government. With the example of Bogotá so near, Cali has modeled its plans for reforming public transportation on the Transmilenio system. However, unlike Bogotá, at this point it has not developed any complementary activities in the transportation sector to encourage non-motorized transportation, discourage the use of private vehicles or restructure land-use to encourage sustainable transportation. In addition, the institutional structure of its local institutions is unclear, particularly regarding their roles in planning for and regulating the entire transportation sector.

La Paz, Bolivia is the recipient of a recently approved loan for \$28.5 million from the IDB for urban revitalization and development. One element contributing to the urban woes of the city is the weakness of its transportation sector; hence, the loan will include short term investments to improve road and pedestrian circulation (including sidewalks and plazas) in the center of the city. Complementing these activities is a technical assistance grant from the IDB to support studies to modernize public transportation in the city, with the expectation that these will feed into the definition of an urban transportation loan. The latter loan is expected to include investments in the upgrading of the public transportation sector, which presently consists of a largely informal system of low-capacity units such as mini-buses. The loan is also anticipated to include institutional strengthening for the municipal planning and regulatory institutions addressing the transport sector and the development of an Urban Transportation Master Plan.

Panamá City, Panama is presently characterized by a transportation sector where 60 percent of the trips made are by public transportation, with the remaining 40 percent by private vehicles. The city has been the recipient of technical assistance for urban transportation from the IDB and a grant from the Multilateral Investment Fund (MIF). These resulted in the definition of a structure for a reformed public transportation system that is bus-based, but possibly might have one or two trunk lines converted to light rail in the future. Implementation of the MIF grant began belatedly, but is intended to define the regulatory climate to support public transportation companies that receive exclusive concessions along clearly-defined routes. MIF funds are also intended to establish a clear legal framework for the regulatory and planning agency, the Autoridad de Tránsito y Transporte Terrestre (ATTT), which operates at the national governmental level. A challenge facing Panamá City is getting the attention of the national government in moving ahead on implementing transportation reform. The previous national government had pursued the IDB grants to define the structure of reform and it had prompted the National Bank of Panama to commit approximate \$30 million to subsidize bank loans to public transport companies for new

buses (a program that was never operationalized). Presently, the city is awaiting an indication of interest from the incoming President to determine if additional progress will be made.

Rosario, Argentina is an example of a city that was a relatively early entrant into looking at transportation reform. A study was commissioned in 1999 to respond to the poor quality of public transportation provided by very small companies. The resulting plan called for instituting over the next 10 to 15 years an integrated public transportation system with exclusive corridors for larger capacity buses supplemented by feeder lines and neighborhoods lines. Plans were also made for a mini-bus system targeted to businessmen (similar to the system in Córdoba), a parking strategy that included concessioned parking facilities and the continuation and integration of the existing trolleybus system into the rest of the public transportation system. Planning and regulation of the sector was proposed to be in the municipal government's Subsecretaría de Transporte Municipal. In the longer term, the plan recommended conversion of some of the bus trunk lines to trolleybuses or trains. Opposition to the plan was intense from the transportistas, causing changes in the plan that affected the financial viability of the proposed public transportation companies. With the onset of the Argentine economic crisis in 2000, this plan was shelved and has never been implemented. While the comprehensive nature of the plan renders it attractive to address and update for implementation, the long term effects of the economic crisis pose a challenge to its execution. The crisis affects both the financial capacity of the government to invest in the necessary infrastructure and the financial climate for any emergent public transportation companies.

San Salvador, El Salvador is the recipient, like Panamá City, of an IDB MIF grant to define the regulatory and legal structure for reforming its public transportation sector and to strengthen the institutional capacity of the relevant regulatory and planning agencies. In addition, like Panama, the national government of El Salvador retains the legal authority for municipal governance, including over the transportation sector. The national government had also entered into negotiations with the IDB on a potential \$10 million loan for a pilot BRT project to be accompanied by a concessions process for public transportation companies and a reduction of the number of buses on the road. Two trunk lines had tentatively been identified for the pilot program and the government had introduced some financial tools to ease the transition from transportista-provided public transportation to that provided by public transportation companies. These included a subsidized loan program for public transportation companies through the national Banco Multisectorial de Inversiones (BMI) to invest in new buses and other associated infrastructure (e.g., maintenance garages) and a commitment to pay \$6000 per vehicle for old bus scrappage. Recent municipal elections brought in a new mayor for El Salvador, whose opposition to the project has put it on hold. These recent events also demonstrate the ongoing challenge for the city in which governance is exercised at the national level, but municipal complicity and support is still required for transportation sector reform to move forward.

Finally, São Bernardo do Campo is the recipient of a recently approved \$72 million IDB loan to address urban transportation, a component of which will address public transportation. The latter is characterized by two separate non-integrated systems at present, an intercity system over which the municipality does not have regulatory authority, and a municipal system over which it does; no integration of these systems is anticipated in the short term. No overall transportation master plan exists for the city, but it will be developed as part of the loan. An ongoing challenge facing the city has been that municipal authority over the transportation sector has been fragmented among several departments. To address this problem, the loan will support the creation and capacity-building of a new Department of Transportation within the municipal government.



## 4. Recommendations

This study has uncovered a sizeable number of medium-sized cities in LAC that are seeking to meet rising transportation demand by moving in the direction pioneered by Curitiba and Bogotá. Most are beginning their activities by focusing on public transportation, since it is the mode of travel most used by their populations. Moreover, in many cases, the present public transportation system in the specific city is quite broken, providing poor-quality service, offering security and safety hazards and emitting unacceptably high levels of pollution. Significantly fewer cities are taking the subsequent steps to address transportation needs more broadly with the development of non-motorized transportation networks, the discouragement of the use of private vehicles and good land-use planning.

Recognizing the benefits that accrue locally, nationally and globally in successfully achieving an integrated approach to sustainable transportation, the challenge for policymakers in general and the IDB specifically is to define strategies to help the process along. Part of the solution certainly is providing assistance to the next generation of leaders among the cities, the so-called “first tier” of cities. Equally important, however, is defining strategies for bringing the others along, not only those falling into the “second tier”, but also those that have failed even to make that tier.

### Recommendations Applicable to All Cities

Among the cities that have been identified as undertaking activities in sustainable transportation, it is important to note that many are receiving some type of assistance from the IDB. These may be loans, either approved or in process, or they may be technical assistance. Most of this activity is being undertaken by the infrastructure departments and hence is focused upon improving the quality of the transportation systems. Some is being provided through other departments, but none is approaching the issue from the perspective of reducing greenhouse gas emissions. Moreover, while the associated documents accompanying the assistance often state that the investments will have local environmental benefits, as well as other social and economic benefits, no detailed analysis seems to be undertaken in these cases to estimate the specifics of these effects—be they on local pollution, traffic congestion, or affordability or accessibility to the system’s users—much less to monitor these effects. Given the level of investment already being committed by the IDB to these projects, it makes sense to consider parallel and complementary activities by the Sustainable Development Department (SDS) and, where relevant, the environmental departments of the IDB, to analyze the potential impacts on greenhouse gas emissions, local emissions, and other social and economic factors that would accrue from the IDB loans and technical assistance.

With respect to greenhouse gas emissions, such analysis could have multiple benefits. First, it could provide a tool for educating countries in LAC, almost all of which are signatories to the UN Framework Convention on Climate Change, about potential greenhouse gas mitigation options, especially options that provide multiple benefits; this is important because to the extent that these countries have addressed greenhouse gas emissions mitigation, they have tended to look at forestry and land-use options, rather than energy and transportation options. Second, if in-country research institutions are involved in the work, such analysis could also be an important mechanism for increasing in-country capacity in climate change analysis and policy development, a stated goal of the Framework Convention. Finally, while mechanisms such as the Clean Development Mechanism (CDM) are not yet operational, the proposed analysis could contribute to a data base for the IDB, which would enable it to better determine good candidates for the GEF or the CDM in the future.

Indeed, in this last context it makes sense for the IDB to engage other institutions undertaking greenhouse gas emissions analysis in their sustainable transportation projects—including the World Bank and the Andean Development Corporation (CAF)—with the goal of resolving methodological issues in the emissions reduction analysis, issues that were all too recently demonstrated in the rejection by the CDM Executive Committee of the methodology proposed to be used for a project to extend the Transmilenio system in Bogotá. By working collaboratively with other institutions, the IDB can expedite the process of accrediting an acceptable greenhouse gas emissions reduction methodology for sustainable transportation projects that may eventually be applied to the CDM.

With regard to other benefits—including reduced local emissions, reduced traffic congestion, and greater accessibility and affordability for the public—the proposed analysis could help strengthen the IDB’s oversight of prospective Bank investments, providing concrete assessments that potentially could reinforce the case for doing more of these types of projects. Equally valuable would be the provision for actual emissions monitoring as these projects move forward, either from the loan resources themselves or from complementary resources. Again, such monitoring is likely to strengthen the case for doing more of these types of projects.

In addition, in reviewing the cities that are undertaking sustainable transportation activities, an increasing number clearly understand the importance of putting together an Urban Transportation Master Plan to guide their transportation sector investment strategies in the future. Many are also assembling Urban Development Master Plans to guide their overall urban investment strategies. What appears to be missing, however, is the linkage between the two. This is a serious gap. Unless land use and development is explicitly addressed in Urban Transportation Master Plans, cities risk seeing their efforts to rehabilitate their public transportation systems fall short as cities sprawl and the cost of public transportation systems to serve those sprawled populations skyrocket. Equally important, unless transportation needs are explicitly addressed in Urban Development Master Plans, then city planners could find that such goals as creating urban sub-centers away from their downtowns do not succeed because the needed transportation system, in all modes, is not present.

The IDB can play a substantial role in helping to catalyze more attention to the linkage between Urban Development Master Plans and Urban Transportation Master Plans by explicitly requiring the issue to be addressed when IDB investments are supporting the development of either of these types of plans. As part of this process, at the regional level (within the Integration Department), the IDB could also support technical assistance to identify mechanisms that may be used at both the national and local levels to link urban planning with transportation planning. These might include specific requirements by the national governments for integrated urban and transport planning, as well as innovative financing mechanisms—such as road user fees or land-use fees—that could establish the necessary incentives and disincentives to link these processes explicitly as well as provide a source of funding at the local level to continue work on these linkages.

### *Recommendations for First Tier Cities*

The first tier cities identified in this report have the potential to be the next generation of leaders in and models of sustainable transportation. By providing strategic assistance, then, in helping these cities succeed, the IDB could play a catalytic role in spurring the new generation along. For each of the identified cities, there are specific activities, described below, that the IDB could support. It is important, however, that the IDB also build upon the conclusions of this report and undertake a more detailed assessment of the first tier cities, including site visits, to verify

firsthand the information uncovered and the interest of the governments. This activity can and should then prepare the path for identification of one or more specific first tier cities for initial targeted assistance.

**Concepción**, Chile offers an important opportunity for the IDB. In many ways, it is the test case for the Chilean government for spurring sustainable transportation investments in medium-sized cities away from the national capital, Santiago. Its success, therefore, could help foster the interest of and successes by other medium-sized cities in the country. Equally important, the paradigm of working with medium-sized cities and helping to spur their successful development of sustainable transportation systems is unique to Chile within LAC. If Chile succeeds, it could provide an important model to emulate for other LAC countries.

SECTRA and MINVU appear to be doing an excellent job in their support of the analysis of transportation and land-use options and their anticipated results for each of the medium-sized cities. Equally important, their support *includes* analysis of the expected environmental impacts of these options. What are not very well-defined to this point are the local institutions, planning and regulatory, that will oversee the local implementation of options. While SECTRA, MINVU, and CONAMA have great analytic strength that can continue to bolster the development of plans in the medium-sized cities, they cannot substitute for local institutions to oversee the process. Their physical distance from each of these cities, alone, offers a major obstacle, not to mention their separation from local issues, priorities and culture. Hence, in Concepción, the IDB can play an important role in helping to define and develop a local planning and regulatory institution or institutions with functions that are appropriate for the Chilean context; given the strength and involvement of the national ministries, this institution(s) might not need to have the analytic sophistication of IPPUC and URBS in Curitiba or Transmilenio in Bogotá, but it still needs to have critical regulatory and enforcement functions as well as functions to regularly consult local stakeholders.

**Córdoba**, Argentina offers another opportunity for the IDB. It is a city that once had a premiere transportation program containing most, if not all, the desired components of an integrated approach to providing transportation services. The system fell into disarray, however, during the recent Argentine economic crisis, and today is only a pale shadow of its former self. Critical first steps to restoring this program are updating the program, and strengthening the institutions responsible for program planning, regulation and oversight. Both of these are activities the IDB can support. With regard to updating the program, in addition to looking at the individual components of the old program and adapting them to present needs, there are other components that were not addressed in the original program but should be now. They include land-use options and an ongoing evaluation of the environmental effects of the program. With extra components potentially being added to the revitalized program, it also makes sense to evaluate additional oversight and planning functions that are needed in the city; assess whether it makes sense to keep them all in the existing institution, the Subsecretaría de Transporte Municipal, or restructure the institutional framework; and, finally, define a clear program of capacity-building for the overseeing institution. Of course, a remaining unknown with regard to Córdoba is its capacity to invest in the infrastructure needed to revitalize its transportation program, given Argentina's slow emergence from its economic crisis. Nevertheless, by updating the city's old program and reinvigorating its institutional capacity, the city would be empowered to move forward at whatever pace it can afford.

**Cuenca**, Ecuador is an example of a success story for the IDB. With a relatively small investment of a technical assistance grant, the Bank leveraged a process of reform in the city that has included the creation of a transportation planning and regulatory institution, the reform of its

public transportation system and the introduction of other transportation sector programs (e.g. parking control, a no-car zone every Sunday). Given Cuenca's relatively small size, an important role that the IDB could play in this city is to support it in defining and implementing the "next generation" of transportation sector options; these options are likely to be very different than those of a larger city such as Bogotá, and hence could provide an important model for the smaller medium-sized cities in the LAC region. Included in these should be land-use options; the city has already indicated a policy commitment to land-use management to encourage development near public transportation corridors and decentralization of activities from the central city to sub-centers as part of the goals accompanying its Pilot Integrated Transportation Network.

Cuenca offers another opportunity for the IDB. It is one of three cities (the others being Quito and Guayaquil) in Ecuador—and by far the smallest—embarking along a path of sustainable transportation. Yet, there remains little capacity in the country for transferring the lessons learned in any of these three cities to other medium-sized cities in the country. This is a critical gap for the IDB, which, depending on the political and economic conditions facing Ecuador, has explored off-and-on the development of a loan for urban transportation investments for medium-sized cities in that country. Rather than having other medium-sized cities in the country resort to the techniques Cuenca used to build its institutional capacity—namely, "borrowing" the director of Quito's planning and regulatory institution—the IDB could invest in and catalyze other donors to invest in the creation of an institution to build capacity and help define initial transportation plans in other medium-sized cities in the country, in essence creating for Ecuador what SECTRA is seeking to do in Chile.

**Fortaleza**, Brazil represents an \$85 million loan investment by the IDB into improvement of its public transportation system. On a parallel track, the city is in the final stages of defining its Urban Transportation Master Plan through 2020 and already has an Urban Development Master Plan, approved in 1992. As noted earlier, there is both a complementarity and a linkage among these three activities, although at this point it is not clear that the linkage has been made. With IDB's loan investment, it has a vested interest in seeing the linkages being established. Hence, it can play a catalytic role, through oversight of the loan and potentially through complementary technical assistance, in assuring the public transportation reform is linked to and coordinated with the development of policies that encourage alternative transportation modes, appropriate land-use, and disincentives for the use of private vehicles. Indeed, the introduction and integration of these additional policies could provide the basis for a GEF project in much the same manner as the CAF is considering a complementary GEF project to its BRT loan project for Guayaquil, Ecuador.

**Guatemala City**, Guatemala represents a city that has made some mistakes in moving forward on transportation sector reform, but appears to have emerged stronger and more focused. Unlike other Central American capitals, it has not received any funds to date from the IDB to support its efforts in transportation reform, although it has engaged in discussions to support its pilot BRT program. There are numerous areas where technical assistance from the IDB could assist it in moving forward. These include defining how it moves forward in reforming its public transportation providers from transportistas—who have historically been quite hostile to the reform—to public transportation companies, and complementing its public transportation reform with other needed policies to encourage pedestrians and bicycle use, to regulate parking, and to densify development near public transportation and encourage mixed use development (the last two of which are stated goals of the municipal government).

**Querétaro**, Mexico is relatively new to transportation reform, having just commissioned a study in the last year to define the specifics of its revised public transportation system in the last year. Nevertheless, unlike other Mexican cities outside of Mexico City that have tried to move forward with public transportation reform with heavy opposition from the transportistas, Querétaro has engaged in a serious stakeholder consultation process seeking to address the concerns of both transportistas and other stakeholders. If successful, this stakeholder consultation process could be an important model for other Mexican and LAC cities to emulate. The IDB could play a key role in helping ensure the success of the process by providing ongoing technical assistance at key milestones in the reform process, particularly in the development of the public transportation concessions and the conversion from transportista-provided public transportation to public transportation provided by companies.

Finally, **Quito**, Ecuador is another example of an early leader in implementing public transportation reform whose efforts subsequently stalled. Initially, it earned renown with the establishment of an electric trolley system operated by the city. At that time, the transportistas, who, like in other cities, were opposed to any transport sector reform, were kept separate from the trolley system. Now, in attempting to assemble an integrated public transportation system, Quito is struggling with the development of public transportation companies, made up of existing transportistas, in a bus rapid transit infrastructure that *integrates* with the trolley system. At the same time, it is facing a rapid increase in air pollution—by some measures making it the third most polluted city in Latin America—a significant contributor to which is the transportation system, including the older buses operated by the transportistas. The IDB can provide some important strategic assistance in helping this city regain its role as a regional leader and begin to tackle its transportation-sector pollution. This includes capacity-building for the regulatory and planning agency; technical assistance for fostering the transition to public transportation companies, including support both to the government in how it constructs the concessions process and to the companies themselves; and, lastly, assistance in developing an operational Urban Transportation Master Plan whose implementation will reduce air pollution and relieve traffic congestion.

#### *Recommendations for Second Tier and Other Cities*

Several of the second tier cities face obstacles, which, in the short term, the IDB can do little to address. These include obstacles of political commitment (e.g., Panamá City, Panama; Rosario, Argentina; and San Salvador, El Salvador) and of the capability of the government to make the necessary financial investments in infrastructure (e.g., Arequipa, Peru; La Paz, Bolivia; and Rosario, Argentina). Nevertheless, there remains assistance that the IDB can provide which can help cities not facing such barriers to progress and can help fortify cities that are facing these barriers so that when they have overcome them they can move forward. Critical areas for investment involve defining the role for and building the capacity of local planning and regulatory agencies—including their legal framework, if necessary—and establishing an Urban Transportation Master Plan. Subsumed within the Master Plan can be the specifics of public transportation reform (including the issue plaguing many cities of how to transition from transportistas to public transportation companies), but it is important to construct the public transportation reform *in the context of* an integrated urban transportation plan that also addresses the issues of alternative modes of transport, appropriate land-use management, and disincentives

for the use of private vehicles.<sup>14</sup> Simultaneous implementation of all four components is more likely to meet with success than pursuit of public transportation reform alone.

These two recommended areas of support are particularly important in cities where the IDB is already providing assistance. Among second tier cities, these include Arequipa (although the technical assistance is approaching its end), Cali, Panamá City, La Paz, San Salvador, and São Bernardo do Campo. In these cases, the cities are often receiving some component of the recommended assistance, but not all of it. Again, the integrated approach is more likely to achieve long term success than the piecemeal approach of just addressing public transportation reform. The rationale for only addressing public transportation reform is often that it is only a first step, and the other three components can be addressed in the future. But it is not clear that the IDB will be involved with these particular cities at that future “milestone” to leverage a more integrated approach to transportation planning.

Finally, the IDB can also provide some broader strategic assistance in addressing obstacles facing numerous LAC cities (including some first-tier cities), obstacles that are surmountable if options are clearly defined. Chief among these has to do with governance barriers. As noted earlier in the study, cities in small countries, particularly in Central America, often have their national governments retaining significant control over the local transportation sectors. Similarly, in Mexico, decentralization reforms have vested much of the control over the transportation sectors of cities in their state governments.<sup>15</sup> This creates the situation where two different levels of government are responsible for urban transportation governance, making coordination, and hence, progress, difficult, particularly if different political parties control these two levels. This obstacle has impeded movement in the second tier cities of Panamá City and San Salvador as well as other cities such as Puebla, Mexico and Juarez, Mexico. An assessment of administrative options to address these obstacles for both the small country and the Mexico contexts could help these cities define solutions to these problems.

Another area where broader strategic assistance can address an obstacle facing many LAC cities is that of having an adequate and secure budget for the local planning and regulatory transportation agency or agencies. To the extent that these agencies have to depend on municipal governments for funding, they often face budgets that are inadequate to carry out their work as well as substantial local political pressures that frequently interfere with their capacity to carry out their mission. An analysis of alternative sources of funding—such receipt of a portion of public transportation tariffs, road user fees, fuel taxes, and vehicle registration and inspection fees—along with case studies of cities that have already successfully used these techniques, can help other cities that are struggling with this challenge but lack information on alternatives.

### Conclusion

A growing number of cities in Latin America and the Caribbean are facing significant challenges in their transportation sectors that are threatening their economic development, livability, the viability of the poorest populations and their environmental integrity. The Inter-American Development Bank can play an important role in providing targeted assistance to address these challenges through expansion of the focus of assistance it is already providing many of these

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<sup>14</sup> In the case of Rosario, Argentina, which already has a Master Plan—although the land-use component is not addressed extensively—the assistance would need to be more of an update, except for the areas not previously addressed.

<sup>15</sup> León de Guanajuato is a notable exception to this, in which the state government transferred its powers to the municipal government.

cities; tactical support to first tier cities that could well become the next generation of models in sustainable transportation; and broader strategic assistance on problems facing multiple LAC cities in such areas as governance and development of local transportation agencies.

## Resources

### Printed Materials

Bleviss, Deborah, "Urban Transportation in Latin America and the Caribbean: The Example of Cuenca, Ecuador", Industry and Energy, Vol. 23, No. 4, October-December 2000.

Bleviss, Deborah, "Trip Report, Mission to Quito, Ecuador on Transportation and Climate Change", December 10-13, 2003.

"Bogotá's Transportation Strategy", 2001.

Brennan, Lic. Patricia, "Las Sociedades de Componentes en el Transporte Urbano de Buenos Aires".

Brennan, Lic. Patricia, et. al., "La Concentración Empresaria en el Transporte Urbano de la Región Metropolitana de Buenos Aires".

Ceneviva, Carlos, "Curitiba e sua Rede Integrada de Transporte".

Curitiba, Plano de Desenvolvimento Integrado, 2001.

Departamento de Ingeniería Industrial (DII), Universidad de Chile, "Abatimiento de Gases de Efecto Invernadero del Transporte Urbano: Opciones Innovadores en Santiago, Chile; Informe Final", 2003.

Gerencia General de Bogota, "Un Sistema de Transporte Masivo de Alta Capacidad y Bajo Costo", Powerpoint presentation, 2003.

Global Environmental Facility, Request for Pipeline Entry and PDF Block B Approval, "Sustainable Transport and Air Quality for Bogotá and Other Cities", October 5, 2004.

Green BudgetNews7, "London Congestion Charge Celebrates its First Birthday", 4/20/2004.

Hernandez Lopez, Javier, Secretario de Tránsito, "'Pico y placa' en Bogota: ejercicio de autorregulación ciudadana."

Hidalgo, Dario, "Bogotá and its Transportation System", 2001.

Inter-American Development Bank, "Brazil, Curitiba Urban Transport Program II Loan Proposal", BR-0375, December 2003.

Inter-American Development Bank, "Brasil, Programa de Transporte Urbano de Fortaleza; Informe de Proyecto", BR-0302, 2003.

Inter-American Development Bank, "Brasil, Programa de Transporte Urbano de São Bernardo do Campo: Documento Conceptual de Proyecto", BR-0400, Octubre 2003.

Inter-American Development Bank, "Perfil I, Perfil de Préstamo de Innovación: sistema Integrada de Transporte Publico de San Salvador", ES-0154, October 2002.



Inter-American Development Bank, “Perfil II: Revitalización y Desarrollo Urbano de La Paz”, BO-0216.

Inter-American Development Bank, “Peru, Plan of Operations (Draft): Development of a Sustainable Public Transportation System in a Pilot City, Arequipa”, TC00-12-008, 2001.

Inter-American Development Bank, “Peru: Development of a Sustainable Public Transport System in Trujillo, Plan of Operations”, TC-02-01-02-0-PE, July 2003.

Inter-American Development Bank, “Sistema Integrado de Transporte Masivo (SITM) en Cali”, Documento Conceptual de Proyecto, January 2004.

Inter-American Development Bank, “Términos de Referencia, Mejoramiento del Transporte Urbano del Área Metropolitana de Panamá: Fortalecimiento para la Industria de Buses Urbanos”, Anexo B.

ITDP, “Reducing Greenhouse Gas Emissions with Bus Rapid Transit: A GEF Medium-Sized Project Brief”, January 15, 2004.

Menon, A. P. Gopinath, “ERP in Singapore—A Perspective One Year On”, TEC, February 2000.

Menon, APG, and Dr. Chin Kian Keong, “The Making of the Singapore’s Electronic Road Pricing System”, Proceedings of the International Conference on Transportation in the Next Millenium, Singapore, 9-11 September 1998.

SECTRA, et. al., “Sistema Integrado de Transporte para el Gran Concepción”, Powerpoint presentation, Octubre 2003.

SAIC/TransCore & WG Consultores, “Guadalajara Public Transportation Integration and Modernization Project, Final Report”, July 1999.

“Transmilenio: Bogotá’s Bus Rapid Transit System”.

Transmilenio: El Transporte Masivo Para La Ciudad del Tercer Mundo”, Septiembre 2001.

Transport for London, “Congestion Charging: Update on Scheme Impact and Operations”, February 2004.

UNEP, “Application for a PDF-A Grant: Network for Environmentally Sustainable Transport in Latin America and the Caribbean (NESTLAC)”, May 2003.

Universidad de Colombia, “Plan de Manejo Ambiental del Corridor de la Carrera 1ª Entre Calles 44 y 70: Sistema Integrado de Transporte Masivo (SITM) en Cali”, Agosto 2003.

World Bank, “Project Appraisal Document on a Proposed Loan in the Amount of \$250.00 Million to the Republic of Colombia for the Integrated Mass Transit Systems Project”, May 14, 2004.

### Internet Resources

Autoridad del Tránsito y Transporte Terrestre de Panamá, <http://www.transito.gob.pa>

BMI, Banco Multisectorial de Inversiones (El Salvador), <http://www.bmi.gob.sv>

Bogotá D.C. Transport, <http://www.bogota-dc.com/trans/bog-tra.htm>

Clean Air Initiative for Cities around the World, <http://www.cleanairnet.org>

Dirección General de Transporte (León de Guanajuato),  
<http://www.leon.gob.mx/portal/modules/icontent/index.php?page=229>

Empresa Metropolitana de Servicios y Administración del Transporte, EMSAT (Quito),  
<http://www.emsat.gov.ec>

Denver Regional Council of Government, <http://www.drcog.org>

IPPUC, Instituto de Pesquisa e Planejamento de Curitiba, <http://www.ippuc.org.br>

Prototype Carbon Fund, <http://carbonfinance.org>

Land Transport Authority (Singapore), <http://www.lta.gov.sg>

NESTLAC, Red de Transporte Ambientalmente Sustentable para Latinoamérica y el Caribe,  
<http://nestlac.org>

NTU, Associação Nacional das Empresas de Transportes Urbanos (Brazil), <http://www.ntu.org.br>

SECTRA (Chile), <http://www.sectra.cl>

Transmetro (Guatemala), <http://transmetro.municipalidaddeguatemala.gob.gt>

Transmilenio, S.A. (Bogotá), <http://www.transmilenio.gov.co/transmilenio>

Unidad de Transito y Transporte Terrestre (Cuenca),  
<http://www.cuenca.gov.ec/bdasp/Empresas/Sitios/umt/default.htm>

### Contacts

Arias, César, consultant, first director of first transportation agency for Quito, UPGT

Baranda, Bernardo, EMBARQ, Mexico City

Brennan, Lic. Patricia, consultant, former Director of Urban Transportation, National Commission of Automotive Transport, Argentina

Costa, Marcela, USP-SC

Golub, Aaron, Institute for Transportation and Development Policy (ITDP), Brazil Program

Herrera Montes, Salvador and Cobo Urquiza, Mauricio, Coordinación del Proyecto de Transporte Colectivo de la Zona Metropolitana de Querétaro

Huerta Couttolenc, Bernardo, Coordinador General de Transportes, Secretaría de Comunicaciones y Transporte, Gobierno del Estado de Puebla

Huici, Rodolfo, Inter-American Development Bank

Lerner, Jaime, former Mayor of Curitiba, former Governor of Paraná

Malbran, Henry, Director, SECTRA, Chile

Menckoff, Gerhard, World Bank

Otto, Martina, UNEP, Paris

Petrone, Leonardo, consultant, former Secretary of Transportation, Córdoba.

Procee, Paul, project manager, Clean Air Initiative

Rogat, Dr. Jorge, senior economist, UNEP Riso Center

Tank, Matthew, Inter-American Development Bank

Schipper, Dr. Lee, EMBARQ, Washington, D.C.

Thomas, Alan, SECTRA, Chile

Vergara, Walter, World Bank

## Annex 1: Status of Criteria for Candidate Cities\*

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
Argentina	Córdoba (1.3 million inhabitants)	Huici suggestion (IDB)	Extensive reform in 1996 yielded public transportation bus system run by 7 businesses, system of mini-buses providing faster and higher quality service, and system of bikeways and parking facilities (concessioned out and later taken back by city). 2000-2 crisis led to demise of most of this. Only 2 private companies and 1 public company provide bus service; mini-bus and parking system no longer exist. Bikeway is used, but not maintained and has deteriorated badly.	Mayor is interested in restoring city's transportation system, but not very knowledgeable on how to do so	Unhappiness with degradation of existing system	Yes, but capacity of local institutions has lapsed	Yes, but implementation has lapsed	Provision made for central parking facilities and parking away from the city center. Provision also made for bikeways. Since crisis, parking facilities have disappeared; bikeway exists but is not maintained.

\* Higher priority criteria are shown in columns with a gray background.

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
	Rosario (1.2 million)	Huici suggestion (IDB)	Reform study made in 1999 to respond to poor quality of public transportation provided by small companies. Program was never implemented.	Not clear—an inhibiting factor in moving forward with implementation of reform.	Opposition from some transportista groups caused changes in design of the program, which negatively impacted economic viability of concessions.	Yes, but limited local capacity	Yes. Plan proposed in short term (10-15 years) would institute integrated system with exclusive corridors for larger capacity buses supplemented by feeder lines and neighborhood lines. Plans also made for mini-bus system, parking facilities and continuation of existing trolleybus system. In longer term (more than 20 years), plan recommended conversion of some trunk lines to trolleybuses or trains.	Provision made in transportation plan for parking strategy.
Bolivia	Cochabamba (517,000)	Menckoff suggestion (World Bank)	Have built long segregated “trunk” bikeway.	Not known	Not known	Not known	Not known	Not known

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
	La Paz (790,000)	IDB loan	\$28.5 million IDB loan recently approved for revitalization and urban development for municipal government of La Paz. One focus is on transportation infrastructure. Loan would include short term investments to improve road and pedestrian circulation in center of the city. Complementing these activities is technical assistance grant from IDB for technical studies geared to modernize public transportation, which is expected to feed into an urban transportation loan for city, anticipated to be approved in 2005.	Not known	Stakeholder consultation built in to proposed loan.	Not known	To be developed under future transportation loan.	Components to be developed under present loan.
Brazil	Belém (1.33 million)	Menckoff suggestion (World Bank), Golub	Has BRT network in concert with downtown parking plan.	Not known	Not known	Yes	Parking plan involves pricing policy; bicycle path system also apparently under development	Not known, but many Brazilian cities have Urban Development Master Plan

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
	Fortaleza (2.26 million)	IDB loan	\$85 million IDB loan recently approved which will include investment in 3 bus trunk lines, in supporting infrastructure and in institutional strengthening. Have a bus system, most of which uses an integrated fare. Also are investing in renovation of light rail system, with goal of integrating it physically and eventually through the tariff into bus system. Presently, tariff does not cover costs of system.	Yes	Not known	Yes	Yes, Plan Maestro de Transporte Urbano (PMTU) for 2002-2020 in final stages of approval; includes allocation for pedestrian walks, bicycle paths, and integration of light rail and bus system.	Yes, Plan Maestro de Desarrollo Urbano de Fortaleza (PMDU) approved in 1992
	Goiânia (1.14 million)	Golub	Developing a BRT network.	Not known	Not known	Yes	Not known	Not known, but many Brazilian cities have Urban Development Master Plan.

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
	Juiz de Fora (475,000)	Menckoff suggestion (World Bank)	Urban development plan endorses improvement of public transportation and its integration, bicycle paths, creation of pedestrian spaces, no parking in city center.	Not known	Not known	Yes	Not known	Yes
	Jundai (310,000)	Costa (USP-SC)	In process of developing integrated public transportation system, SITU (Sistema Integrada de Transporte Urbano).	Not known	Not known	Not known	Public transportation component under development	Not known, but many Brazilian cities have Urban Development Master Plan.
	Piracicaba (332,000)	Costa	Revising Sustainable Development Master Plan, and constructing Mobility Master Plan. Coordinated by SEMUTTRAN (Traffic and Transport Municipal Authority).	Not known	Public involvement in the revision of both plans, both through public audiences and individual interviews.	Yes	In process of development.	Sustainable Development Master Plan under development.



Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
	São Bernardo do Campo (732,000)	IDB loan	\$72 million IDB loan recently approved to address urban transport, a component of which will address public transportation (~\$39 million); will not involve integration of intercity and municipal lines.	Mayoral support required to secure IDB loan.	Not known	Yes	No. Will be developed as part of loan.	Not known
Chile	Arica (182,000)	SECTRA project to develop sustainable transportation plans	Studies to identify characteristics of city, travel requirements, problems and potential solutions completed.	Not known at local level.	Public consultation part of process of creating Master Plans.	Much of analysis and process is directed by national institutions, especially SECTRA (Ministry of Transport).	Yes. Includes infrastructure development for public transport, especially in city center. Most of investment is for road extension and improvement.	Not known
	Antofagasta (248,000)		Studies to identify characteristics of city, travel requirements, problems and potential solutions completed. MODEM model to estimate mobile source emissions was to be ready in mid-June.				Yes	
	Calama (122,000)		Initial studies not yet completed.				Not yet	

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
	Chillán (168,000)		Studies to identify characteristics of city, travel requirements, problems and potential solutions completed. MODEM model to estimate mobile source emissions was to be ready in mid-June.				Yes	

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
	Gran Concepción (834,000)	Zegras, NESTLAC city, SECTRA city	In 2002, completed study to diagnose problems faced by city and develop potential alternatives in Master Transportation Plan. First stage of Master Plan ready to implement. Involves: new solicitation of concessions for bus system with extensive use of bus-only corridors; new service for suburban trains (along 3 corridors) that integrates in with buses at three stations; establishment of traffic-control center to regulate 100 intersections; establishment of extensive bikeway system throughout metropolitan area.	Not known, but local support assumed to get commitment of initial resources from national gov't.	Public consultation part of process of creating Master Plan.	Much of analysis supported by national government institutions, including CONAMA (environmental agency), SECTRA (Ministry of Transport) and MINVU (Ministry of Housing).	Yes. First phase in process of being implemented.	Ministry of Housing carrying out study to achieve "efficient" growth patterns and minimize need to use cars.

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
	Copiapó (129,000)	SECTRA project to develop sustainable transporta- tion plans	Studies to identify characteristics of city, travel requirements, problems and potential solutions completed.	Not known	Public consultation part of process of creating Master Plan.	Much of analysis and process is directed by national institutions, especially SECTRA (Ministry of Transport).	Yes	Not known
	Coquimba-La Serena (260,000)		Studies to identify characteristics of city, travel requirements, problems and potential solutions completed. MODEM model to estimate mobile source emissions was to be ready in mid- June.				Yes	
	Curicó (66,000)		Studies to identify characteristics of city, travel requirements, problems and potential solutions completed.				Yes	
	Iquique (185,000)		Studies to identify characteristics of city, travel requirements, problems and potential solutions completed.				Yes. Includes infrastructure development for public transport, especially in city center. Most of investment is for road extension and improvement.	
	Linares (68,000)		Initial studies not yet completed.				Not yet	

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
	Los Ángeles (110,000)		Studies to identify characteristics of city, travel requirements, problems and potential solutions completed.				Yes	
	Osorno (131,000)		MODEM model to estimate mobile source emissions was to be ready in mid-June				Yes	
	Puerto Montt (131,000)		Studies to identify characteristics of city, travel requirements, problems and potential solutions completed.				Yes	
	Punta Arenas (112,000)		Studies to identify characteristics of city, travel requirements, problems and potential solutions completed.				Yes	
	Rancagua (244,000)		Initial studies not yet completed.				Not yet	
	Talca (154,000)		Studies to identify characteristics of city, travel requirements, problems and potential solutions completed.				Yes	
	Temuco (231,000)		Inventory of emissions exists; will expedite development of MODEM model				Yes	

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
	Valdivia (122,000)		Studies to identify characteristics of city, travel requirements, problems and potential solutions completed.				Yes	
	Gran Valparaíso (866,000)		Has a central traffic control system (SCAT). Studies on potential strategies underway.				Not yet	
Colombia	Barranquilla (1.33 million)	World Bank (WB) \$250 million loan covers Baranquilla, Bucaramanga, Cartagena, Medellín, Pereira, Soacha and Bogotá. Secondary cities also subject of GEF project emphasizing other components of sustainable transportation.	WB loan would include investment in busways, most likely 2 busways.	Political support assumed to get WB loan.	Not known	Yes. Law was established in 1998 transferring responsibilities in transportation and traffic management to local authorities.	Not known	Not known
	Bucaramanga (553,000)		WB loan would include investment in a busway, estimated to be about 8 km.					

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
	Cali (2.29 million)	Proposed IDB project. Also eligible for GEF project emphasizing other components of sustainable transportation	Investment is planned for 49 km of trunk lines, combined with almost 200 km of different types of feeder lines as part of construction of the Sistema Integrado de Transporte Masivo (SITM). Public transportation accounts for 65% of motorized trips.	Yes. City will assume most of the debt commitment	Plans are to have stakeholder consultation; not much done to date	Yes. Law was established in 1998 transferring responsibilities in transportation and traffic management to local authorities.	Focus has only been on public transportation reform; some plans for pedestrian spaces and bike lots close to public transportation corridors, but no comprehensive approach apparent.	Not known. References made to changing face of city to encourage greater sustainability but no document is apparent
	Cartagena (903,000)	Proposed GEF MSP through UNEP, also part of WB project and eligible for GEF project on sustainable transportation	WB loan would involve investment in busways, most likely 14 km and possibly including use of CNG. Also proposed to be recipient of Medium-Sized Project (MSP) grant through UNEP to develop a BRT planning guide.	Political support assumed to get WB loan.	Not known.	Yes. Law was established in 1998 transferring responsibilities in transportation and traffic management to local authorities.	Not known	Not known
	Medellín (1.96 million)	World Bank (WB) \$250 million loan covers Baranquilla, Bucaramanga, Cartagena, Medellín, Pereira, Soacha and Bogotá.	WB loan would involve investment in feeder busway, probably 8 km, to the Metro.					
	Pereira (420,000)		WB loan would involve investment in busway, most likely about 14 km.					

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
	Soacha (298,000)	Secondary cities also subject of GEF project emphasizing other components of sustainable transportation .	WB loan would involve investment in busway system.					
Costa Rica	San José (309,000)	Tank suggetsion (IDB), IDB TC	First exclusive bus corridor of 10 km to be built in 2004; will be operated by current concessionaire. Planning for corridor supported by IDB TC.	Yes	Not known	Not known	Not known	Not known



Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
Ecuador	Cuenca (277,000)	IDB TC	Technical assistance from Japan Special Fund at IDB supported initial public transportation strategy. Tentative target for a future municipal transportation loan from IDB.	Strong commitment from outgoing mayor; commitment of newly elected mayor not known.	Outgoing mayor engaged in stakeholder consultation process from beginning. Has also actively sought support from municipality council.	Yes	Initial IDB TC formed basis for Master Plan, which focuses on reform of public transportation. Pilot Integrated Transportation Network now being tested with exclusive bus lanes. Have established parking program for the center city (using pre-paid cards). Also have project to widen sidewalks for pedestrian and renovate a corridor for use of bicycles.	Pilot Integrated Transportation Network has goals for land-use management to encourage development near public transportation corridors and to encourage decentralization of activities away from central city and towards sub-centers. In October 2004, started program of closing off roads in central city to motorization on Sundays from 8-6.

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
	Guayaquil (1.99 million)	CAF loan	Target for receipt of CAF loan for construction of 3 trunk public transportation lines. Exploring feasibility of GEF grant to complement loan that would discourage private vehicle use and change land-use patterns .	Strong commitment by mayor	Not much consultation with public.	Yes	Yes. Plans call for a 7 trunk line public transportation system. Investments also occurring to encourage pedestrian use by widening sidewalks and renovating plazas.	Yes. Long-term plan calls for closing off center city to traffic, with circulating bus or tram meeting travel needs. Plan also calls for development of new “sub-centers” to diversify development outside of city center.
	Loja (118,000)	Huici (IDB)	Tentative target for future municipal transportation loan from IDB.	Not known	Not known	Yes	Not known	Not known

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
	Quito (1.4 million)	Possible focus of IDB TC through SDS	Has internationally-acclaimed trolley system, El Trolé, operated by municipality, with privately operated concessionaires for feeder lines at each end of the trolley line. Second trunk line, Ecovia, operated by private concessionaire, in the process of being implemented, and third, Ecovia II, is being planned. A feeder line exists for Ecovia. Rest of system is fractionated small bus service provided by transportistas.	Yes; mayoral approach has been incrementalist, however, in moving forward.	Not known	Yes. Quito was first test case in transportation sector for Ecuador.	Yes. Proposed components include: <ul style="list-style-type: none"> <li>• Changes in land-use to decentralize activities away from city center;</li> <li>• Improvement of public transportation system;</li> <li>• Development of bikeways;</li> <li>• Development of pedestrian facilities to support walking to meet mobility needs; and</li> <li>• Discouragement of use of private vehicles through traffic restrictions.</li> </ul> Focus at present is only on public transportation reform and traffic management.	Yes. Linkages with transportation plan not clear.

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
El Salvador	San Salvador (480,000)	IDB MIF grant, possible IDB future loan	MIF grant not yet in implementation; potential IDB pilot loan of \$10 million also on hold. Street vendors blocking roads significant barrier to BRT implementation. .	Apparently new municipal gov't in disagreement with nat'l gov't priorities.	Not known	Nat'l gov't retains authority.	2 trunk lines (N-S & E-W) identified by consultant; plan for BRT pilot w/ concessions, reduction of buses	Not known
Guatemala	Guatemala City (942,000)	NESTLAC city, Tank suggestion (IDB)	Plans call for integrated BRT system, Transmetro, with exclusive concessions and hierarchy of routes. 10 trunk lines contemplated. In process of implementing first phase on southern trunk line.	Strong mayoral involvement.	When pilot BRT began, transportistas demanded doubling of tariff; lack of action led to street riots and burning of buses.	Local gov't has authority.	Pilot BRT program in implementation, with one terminal under construction. In addition, have car- free days every Sunday (10-2) in certain parts of city, and restrictions on freight traffic, prohibiting it from circulating during morning peak. Plans to implement parking program and develop bicycle use plan with a demonstration.	Ongoing program to rehabilitate public plazas and sidewalks to encourage greater pedestrian traffic. Plan to densify development near public transportation and encourage mixed-use development, both through package of incentives and disincentives.
Guyana	Georgetown (227,000)	Huici suggestion	Institutional- strengthening	Not known	Not known	National gov't has authority.	No	Not likely

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
		(IDB)	component of proposed \$31.5 million road rehabilitation loan would include institutional strengthening for CTPU (Central Transport Planning Unit), responsible for planning and regulating public transportation.					

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
Mexico	Guadalajara (1.65 million)	Possible subject for an IDB TC through SDS	Study "Guadalajara Public Transportation Integration and Modernization Project", funded by USTDA, completed in 1998. Proposed to: rationalize bus system to improve efficiency and reduce duplication; strengthen role and management of light rail and trolley systems; integrate fare; support intermodal transfers; and reduce duplicative bus traffic in Central District. In 2002, strategy developed by CEIT (Centro Estatad de Investigación del Transporte del Gobierno de Jalisco), which endorsed priorities of first document, also emphasizing integration of non- motorized transportation. No progress has been made on implementation.	Key state institution, CEIT, supportive. Interest of mayor not known.	Not known	State government has authority	Elements exist in two studies. No overall master plan in place.	Not known.

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
	León de Guanajuato (1.02 million)	Menckoff suggestion (World Bank)	Inaugurated BRT- system in 2003, Sistema Integrado de Transporte, Optibus. Reportedly has had operational problems.	Mayoral support needed to launch BRT.	Not known	Unlike other Mexican cities, Guanajuato passed law to transfer responsibility for public transportation, inspection and enforcement of municipal service to municipal gov't.	Public transportation component defined.	Not known
	Puebla (1.27 million)	Addressed in Mexico/ SDS memo, Menckoff suggestion (World Bank)	Inaugurated BRT- system, but has been characterized by problems due to insufficient outreach to transportistas and public.	Mayor of city and governor of state are from different parties, with conflicting priorities.	Sharp opposition from transportistas. Unsuccessful effort made to implement pilot without consensus from transportistas. As a result, BRT implementa- tion has been postponed.	Responsibility for municipal transportation lies at state level.	Plan developed to establish extensive trunk/feeder line restructuring involving 49 trunk lines. Focus of pilot has been on one part of city where 7 trunk lines are proposed. No plans to address other transportation issues.	Not known

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
	Querétaro (1.4 million)	Baranda suggestion (EMBAR Q)	Planning transportation sector reform, including creation of BRT system. Process has expressly included public consultation.	Major authority lies with governor of state, where there is strong support. Also, mayoral support.	Active public consultation process in February 2004—input served as part of conceptua- lization for study on reform of transport sector now underway.	Responsibility for municipal transportation lies at state level, except for traffic management and municipal police, where responsibility is at municipal gov't level.	Diagnostic of public transport system undertaken in 2000, with recommendations in 2002 for restructuring of system. In 2004, study initiated on Integrated Collective Transport System, with results expected in January 2005. In addition to public transport reform, expected to address transportation alternatives and policies regarding private vehicle use.	Proposal to develop an urban regional planification process. Endorsement of creation of urban sub- centers.
Panama	Panamá City (469,000)	IDB TC	Has received Spanish TC and MIF funding for public transportation planning; possible future loan from IDB.	Awaiting interest of incoming nat'l gov't.	Not known	National gov't retains authority.	Origin/destination study led to major trunk lines being identified with 1-2 possibly being converted to light rail in future.	Not known



Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
Peru	Arequipa (710,000)	IDB TC	Japan Consultancy Fund provided \$1 million for technical assistance in improving public transportation system, including institutional structure for municipal government, regulatory reform, and strategies to foster public transportation firms. Original intent was to include Arequipa in a future municipal transportation loan, but municipality's debt load may preclude it from borrowing.	Strong mayoral interest.	Not known	Decentralization relatively recent.	Technical assistance was intended to feed into organization of comprehensive 10-year master plan for public transportation. Also, 3-year urban transportation improvement program is expected from the technical assistance.	Master plan for urban transportation intended to be core input for the city's next urban development plan.

<b>Country</b>	<b>City/ Population</b>	<b>How Made List</b>	<b>Status</b>	<b>Political Commitment</b>	<b>Public Support</b>	<b>Decentralization of Governance</b>	<b>Transportation Master Plan</b>	<b>Urban Development Master Plan</b>
	Chiclayo (469,000)	Planned IDB TC	Danish Trust funds slated to provide \$500,000 for technical assistance to develop urban transportation plans, with emphasis on public transportation and traffic reduction; scope expected to be similar to that of assessment in Trujillo	Apparent mayoral interest.	Not known	Decentralization relatively recent	To be developed.	Not known

Country	City/ Population	How Made List	Status	Political Commitment	Public Support	Decentralization of Governance	Transportation Master Plan	Urban Development Master Plan
	Trujillo (604,000)	IDB TC	Danish Trust funds provided \$500,000 for technical assistance to develop immediate (1 year) and short-term (3 years) urban transportation plan with special focus on public transportation. This project will be formulated within context of comprehensive medium-term (10 years) master plan for urban transportation, which will be used as core input to the area's next urban development plan.	Mayoral interest.	Not known	Decentralization relatively recent	Results of technical assistance will be inputs into Transportation Plan.	20-year Metropolitan Development Plan developed in 1995; being updated presently.

Country	City	Local Planning Capability	Local Regulatory Capacity	Sufficient Resources for Local Institutions	Development of Public Transport Companies	Financial Climate for Transport Companies	Local Financial Capability to Invest in Infrastructure
Argentina	Córdoba	Subsumed within Subsecretaría de Transporte Municipal; capacity of agency has deteriorated substantially.	Exists within Subsecretaría de Transporte Municipal.	Not known, receives resources from municipal budget	Originally had 7 companies, after crisis only have 2 private companies and 1 public company.	In wake of Argentinean economic crisis investment climate for all companies has been poor	Limited
	Rosario	Planned to be in Secretaría de Servicios Públicos	Planned to be in the Secretaría de Servicios Públicos.		Remains dominated by small companies.		
Bolivia	Cochabamba	Not known	Not known	Not known	Not known	Not known	Not known
	La Paz	Not known. Likely to be addressed in future urban transportation loan.	Not known. Likely to be addressed in future urban transportation loan.		Very informal system now exists. Likely to be addressed in future urban transportation loan.	Not known	Not known. Likely to be addressed in future urban transportation loan.
Brazil	Belém	Not known	Not known	Not known	Not known	Not known	Not known

Country	City	Local Planning Capability	Local Regulatory Capacity	Sufficient Resources for Local Institutions	Development of Public Transport Companies	Financial Climate for Transport Companies	Local Financial Capability to Invest in Infrastructure
	Fortaleza	Provided by ETTUSA (Empresa Tecnica de Transporte Urbano S.A.), majority-owned by municipal gov't (98.7%) with rest private ownership. Also the AMC (Autarquia Municipal de Transito, Ciudadania, y Servicios Publicos), within municipal government, responsible for planning for traffic, including non-motorized transport and freight transport.	Provided by ETTUSA.	ETTUSA receives percentage of tariffs collected; accounts for 94% of its budget.	Experience with concessions in place since 1993.	With experience with such companies widespread in Brazil, investment climate expected to be good.	Yes
	Goiania	Not known	Not known	Not known	Not known	Not known	Not known
	Juiz de Fora						
	Jundai						

Country	City	Local Planning Capability	Local Regulatory Capacity	Sufficient Resources for Local Institutions	Development of Public Transport Companies	Financial Climate for Transport Companies	Local Financial Capability to Invest in Infrastructure
	Piracicaba	Within Instituto de Pesquisas e Planejamento de Piracicaba (IPPLAP)	Within Secretaría Municipal de Trânsito e Transportes (SEMUTTRAN)				
	São Bernardo do Campo	Several different departments have responsibility for different aspects of transportation sector planning, leading to problems with coordination. IDB loan will establish new municipal Department of Transportation.	Not clear. Several different departments have responsibility for different aspects of transportation sector planning, leading to problems with coordination. Municipality also does not have administrative authority over intercity public transport. New department can address some of these issues.		Two concessions now exist—intercity (provided by EMTU) and municipal (provided by Concorcio SBCTRANS)	Not known. Generally, investment climate is good for public transport companies in Brazilian cities.	Yes
Chile	Arica	Planning largely has been from SECTRA.	Not known	Not known	Not known	Not known.	Not known. Nat'l gov't has broadly
	Antofagasta						
	Calama						

Country	City	Local Planning Capability	Local Regulatory Capacity	Sufficient Resources for Local Institutions	Development of Public Transport Companies	Financial Climate for Transport Companies	Local Financial Capability to Invest in Infrastructure
	Chillán						promised public resources when plans ready to implement.
	Gran Concepción	Planning largely has been from SECTRA	Local institution eventually expected		New solicitation for bus companies planned for June 2005; private concessions for trains may be considered in second phase of Master Plan implementation		Resources committed by national government
	Copiapó	Planning has largely been from SECTRA.	Not known		Not known		Not known. Nat'l gov't has broadly promised public resources when plans ready to implement.
	Coquimba-La Serena						
	Curicó						
	Iquique						
	Linares						
	Los Ángeles						
	Osorno						
	Puerto Montt						
	Punta Arenas						
	Rancagua						
	Talca						
	Temuco						
	Valdivia						
	Valparaíso						

Country	City	Local Planning Capability	Local Regulatory Capacity	Sufficient Resources for Local Institutions	Development of Public Transport Companies	Financial Climate for Transport Companies	Local Financial Capability to Invest in Infrastructure
Colombia	Barranquilla	Not known	Not known	Not known	Not known	Positive experience in Bogotá should make it easier for financing in other Colombian cities.	Law enables sharing of debt between localities and national government.
	Bucaramanga						
	Cali	Metrocali S.A., an independent quasi-public/private entity is responsible for planning for SITM. Planning responsibility for traffic not clear.	The Secretaría de Transito y Transporte (STT) is responsible for regulation, operation and management of the traffic system. Regulation responsibility for public transportation not clear.	Not known.	Plans for their development not yet defined		
	Cartagena	Not known.	Not known.	Not known.	Not known.		
	Medellín Pereira Soacha						
Costa Rica	San José	Not known	Not known	Not known	One concessionaire along pilot trunk line.	Not known	Sufficient resources to invest in pilot trunk line.



Country	City	Local Planning Capability	Local Regulatory Capacity	Sufficient Resources for Local Institutions	Development of Public Transport Companies	Financial Climate for Transport Companies	Local Financial Capability to Invest in Infrastructure
Ecuador	Cuenca	Within Unidad Municipal de Tránsito y Transporte (UMT).	Within UMT.	UMT partially supported by resources from registration fees, penalty fees.	Reform process included the creation of 7 concessionaire companies out of what previously had been transportista companies.	Not known. Interest by Brazilian bus producers in offering lease-to-purchase agreements for concessionaires.	Yes
	Guayaquil	Yes. Subsumed within newly-created Fundación Transporte Masivo Urbano de Guayaquil (FTMUG)	Yes. Within FTMUG.	Yes. Part of FTMUG's budget will be drawn from bus tariffs.	In earliest stages of development.	Expected to attract interest by bus producers similar to what has been seen in Cuenca	Yes. City is incurring debt from CAF loan to invest in necessary infrastructure.
	Loja	Not known	Not known	Not known	Not known	Not known	Not known

Country	City	Local Planning Capability	Local Regulatory Capacity	Sufficient Resources for Local Institutions	Development of Public Transport Companies	Financial Climate for Transport Companies	Local Financial Capability to Invest in Infrastructure
	Quito	Within DMT (Dirección Metropolitana de Transporte y Vialidad). Also EMSAT ((Empresa Metropolitana de Servicios y Administración del Transporte), responsible for administration of public transportation system.	Within DMT.	DMT completely reliant on municipal budget; funding has been inadequate. EMSAT draws its budget from percentage of tariffs collected by public transportation companies.	Process of encouraging development of companies just beginning.	Existing companies suffer from little equity investment	Yes
El Salvador	San Salvador	Could be subsumed within regulatory agency.	Incipient regulatory agency exists, but by decree; MIF grant would address institutionalization.	Not yet because lacks legal status.	Gov't lacks legal authority for concessions; MIF grant would address this.	Gov't has FONTRA program through BMI to subsidize loans for public transportation companies to invest in new or reconditioned buses and associated infrastructure; also plan for payment of	\$10 million proposed IDB loan would finance pilot of 8 km along one corridor.

Country	City	Local Planning Capability	Local Regulatory Capacity	Sufficient Resources for Local Institutions	Development of Public Transport Companies	Financial Climate for Transport Companies	Local Financial Capability to Invest in Infrastructure
						\$6000 per veh. for old bus scrappage.	
Guatemala	Guatemala City	Subsumed within local gov't agency, EMETRA. Well-staffed.	Within EMETRA.	Law establishes that municipality receives receipts from fuel taxes and vehicle circulation taxes. Not clear whether fraction designated for EMETRA.	Concession established for one BRT line. Transportistas wanted to double tariffs; street demonstrations led to burning of buses.	Bessier loan called for gov't to buy buses, rent them to concessionaires for 7-yr term.	Sufficient resources at present to support pilot BRT; municipality has committed receipts from fuel taxes and vehicle circulation taxes to necessary infrastructure investment.
Guyana	Georgetown	Within purview of Central Transport Planning Unit (CTPU), which suffers from few qualified professionals.	Within purview of CTPU.	No	Not known	Not known; since country is poor, investment climate not likely to be good.	Not known
Mexico	Guadalajara	Proposed in 1998 study to be in CEIT.	Proposed in 1998 study to be the Dirección General de Transporte Público (DGTP).	Not applicable	Reforms not yet in place.	Not known	Not known

Country	City	Local Planning Capability	Local Regulatory Capacity	Sufficient Resources for Local Institutions	Development of Public Transport Companies	Financial Climate for Transport Companies	Local Financial Capability to Invest in Infrastructure
	León de Guanajuato	Within local-level Dirección General de Transporte del Municipio de León.	Within Dirección General de Transporte del Municipio de León.	Not known	17 companies exist, some in old system, some in new BRT system.	Not known	Some investment already made by city.
	Puebla	Within state-level Secretaría de Comunicaciones y Transportes—responsible for public transportation.	Within state level Secretaría de Comunicaciones y Transportes.	Not known	Initial plans call for creation of 5 companies from about 200 transportistas.	Not known	State government has authority.
	Querétaro	Dirección de Transporte within state level Secretaría de Seguridad Ciudadana. Study on Integrated Collective Transport System plans to address needed reforms of the Dirección.	Dirección de Transporte within state level Secretaría de Seguridad Ciudadana.	Not known	Within study on Integrated Collective Transport System, plans to reform structure of existing companies, including establishment of legal framework for requiring companies to undertake administrative changes.	Not known.	State government has authority.
Panama	Panamá City	Subsumed within nat'l gov't ATTT (Autoridad de	Within ATTT.	Not known	MIF grant started late, geared to identify how to reduce no. of companies.	Approximately \$30 million committed by nat'l gov't to	IDB future loan possible; hence, gov't resources

Country	City	Local Planning Capability	Local Regulatory Capacity	Sufficient Resources for Local Institutions	Development of Public Transport Companies	Financial Climate for Transport Companies	Local Financial Capability to Invest in Infrastructure
		Transito y Transporte Terrestre).				subsidize bank loans through National Bank of Panama for new buses (corruption crisis with amount allocated).	sufficient to secure loan.
Peru	Arequipa	Within municipal Dirección de Transporte Urbano y Circulación Vial; institutional strengthening of planning function part of IDB technical assistance.	Within Dirección de Transporte Urbano y Circulación Vial; institutional strengthening of regulatory function part of IDB technical assistance.	Not known	To be addressed in technical assistance.	Not known	Not at present. Municipality has high debt level.
	Chiclayo	To be addressed as part of IDB technical assistance.	To be addressed as part of IDB technical assistance.	Not yet relevant.	To be addressed as part of IDB technical assistance.	Not known	Anticipated to be target for IDB municipal transportation loan to Peru.
	Trujillo	Presently within Dirección de Tráfico y Transporte (DTT).	Presently within DTT.	Not known; presumably an element to be addressed in the technical assistance	At present, do not exist	Not known	

## **Annex 2: Activities of Other Donor Agencies in Supporting Sustainable Transportation in Latin America**

Other donor agencies are supporting some of the sustainable transportation activities in the LAC region. They include the Andean Development Corporation (CAF), the World Bank (both through its loan window and through the Global Environmental Facility or GEF window), and the United Nations Environment Programme or UNEP (through the GEF window). In addition, there is ongoing exploratory work by several cities on the possibilities of carbon finance, potentially through the Prototype Carbon Fund, the Dutch carbon funds at the World Bank and CAF, or the Clean Development Mechanism (CDM). These are described in more detail below.

### CAF

The CAF is in the process of developing a loan for the city of Guayaquil to finance the first three of the city's planned seven bus trunk lines. It has already provided three previous loans to the city in transportation, but they had been for road building and upgrading; a component of the last loan also included investment in the upgrading of sidewalks and other pedestrian walkways.

CAF and the municipality of Guayaquil are also exploring the development of a GEF project for the city that would complement the loan. A proposal for the project development funds to define the project (PDF-B) suggested a focus in three areas: design of a transition approach between the existing transportation program and the one contemplated in the future; design of a complementary strategy to increase the spatial concentration of development in an appropriate manner consistent with community needs, and encourage modal shifting to less fossil-fuel intensive modes of transportation; and activities related to the development of a communications and marketing strategy, long-term capacity-building and institution-building. At present the municipality is seeking to determine the implementing agency that would sponsor the project; the United Nations Development Programme is the municipality's first choice.

### The World Bank

Historically, the World Bank has concentrated its activities in sustainable transportation in LAC principally in public transportation reform in the mega-cities, and frequently using the GEF window. The World Bank is presently providing a loan to Lima, Peru for public transportation reform (along with the IDB). In addition, through its role as an implementing agency for the GEF, it is supporting three GEF projects in the region: Santiago, Mexico City, and Lima.

With respect to medium-sized cities in the region, the World Bank has recently approved a \$250 million loan to Colombia that would cover the next stage of Transmilenio in Bogotá, as well as public transportation in the smaller cities of Pereira, Cartagena, Bucaramanga, Barranquilla and Medellín, and Soacha. At present, plans call for construction of 57 kilometers of busways in the smaller cities under the World Bank loan. Tentatively, this is expected to include investment in two busways in Barranquilla, 8 kilometers of busway in Bucaramanga, 14 kilometers of a busway in Cartagena (including the potential use of compressed natural gas), an 8kilometer feeder busway to the metro in Medellín, 14 kilometers of a busway in Pereira and an unspecified busway investment in Soacha.

In addition, the World Bank is presently preparing an \$8 million GEF project aimed at reducing greenhouse gases from ground transport in Bogotá and other Colombian cities (including potentially Cali, now targeted in an IDB investment project on public transportation reform). The project will consist of studies and pilot interventions to: (i) ensure an accelerated modal shift away from personal vehicles to public transportation; (ii) promote an efficient system to move freight into and through the major urban centers; (iii) increase the use of non-motorized transportation modes; (iv) reduce personal vehicle use through travel demand management measures; (v) reduce travel length through coordinated land-use and transport planning; (vi) promote cleaner fuels and better operations and maintenance practices; and (vii) enhance the analytic tools available at the institutional level.

### UNEP

UNEP is working on two public transportation projects using the Medium-Sized Projects (MSP) window of the GEF. The first of these involves the city of Cartagena, Colombia, as well as Dar El Salaam, Tanzania. BRT demonstrations are planned for both cities, as well as a BRT Planning Guide, which is proposed to be applicable to other cities in the two regions.

The second MSP project involves the provision of technical support to three medium-sized cities, with diffusion of the results through an infant information network known as NESTLAC (the website is located at <http://nestlac.org>). Originally, the three medium-sized cities were all slated to be in Central America: Panamá City, San Salvador, and Guatemala City. However, San Salvador has dropped out; at this point Concepción, Chile is proposed to be the substitute. The NESTLAC network currently consists of Concepción, Quito, Bogotá, Panamá City, San Salvador, and Guatemala City.

### Carbon Financing

Given the significant contribution to carbon emissions from transportation, it is not surprising that carbon finance has been considered as an option for many of the cities in LAC. Among the cities falling into this category are Mexico City, Mexico; Bogotá, Colombia; Cali, Colombia; Lima, Peru; and Santiago, Chile. There are several carbon financing options for these cities. The first of these are the Dutch funds administered both by the World Bank and the CAF, which may be used to purchase carbon credits from developing country projects that reduce carbon emissions. The second is the Prototype Carbon Fund, administered by the World Bank. And the third, and clearly the longest term in gestation, is the actual Clean Development Mechanism (CDM). All projects, as well as the methodologies used, must be approved by the CDM Executive Board.

While Mexico City and Santiago have not clarified the specific type of carbon finance they are interested in, both Lima and Cali have had conversations with the CAF about access to carbon credits from the Dutch funds they administer. At this time, consideration of carbon finance for transportation projects remains unclear as a result of the CDM Executive Committee's rejection of the methodologies proposed to be used in a Bogotá project involving expansion of the Transmilenio system.