



Toward Efficient Informal Urban Transit

This guide will help users:

- Understand the definition and characteristics of informal urban transit systems or “paratransit.”¹
- Recognize the importance of these systems in providing equitable transportation to underserved areas.
- Understand how these systems have evolved in Sub-Saharan African, Latin American, and Asian cities, as well as in developed countries.
- Realize that although there are no global best practices, informal transit systems can be improved by better integration into citywide services.

¹ In Sub-Saharan Africa and some other developing countries, informal transit is called “paratransit,” meaning beyond standard transit. In the United States, paratransit refers to demand-responsive services that carry a person, often elderly or disabled, from door-to-door, which are not considered in this learning guide.

Course Content

Introduction

Toward Efficient Informal Urban Transit

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Note: This version is a DRAFT. We welcome feedback to help us improve the content.

Informal Transit Systems

Informal transit systems are transit modes that are not planned citywide by a municipal authority, but rather are private systems that spring up to meet demand.

They are demand-driven, often unscheduled and flexible public transport services provided by small operators, in small to medium-size motorized or non-motorized vehicles, generally without effective regulatory frameworks.

– [Jennings & Behrens, 2017](#)

They are often characterized by:

- Unorganized (individual or small) owner-operators
- Smaller-size vehicles (mini-buses, share-taxis, or share-autos)
- Flexible schedules, with higher frequencies during peak periods
- Fixed-route services with flexible curbside pick-up and drop-off
- Some level of regulation by local authorities, although many are completely unregulated

Why Are Informal Transit Systems Important?

They fill in the gaps where:

- formal transit services run by the city or contracted private operators do not meet the population’s mobility needs (especially in poorer neighborhoods), or

- there are no formal transit systems.

Areas with dense urban cores, low-income households, and crowded streets need efficient public transport services for residents to get to jobs, schools, shopping, medical appointments, and government offices.

If a city lacks fiscal and institutional capacity, its formal public transport services can fail to meet the demands of the marketplace.

Consequently, small-scale operators, legally or illegally, enter the market to fill the gap. They can complement regular transit services, enter neighborhoods poorly served by formal operators, and respond promptly to shifting market demands.

– [Cervero and Golub, 2007](#)



A minibus and taxi depot in Amman, Jordan. Photo by [Danny Howard](#) / Flickr.

Types of Informal Transit Systems and Vehicles

- Informal systems use a range of vehicle types—small to large, motorized to non-motorized.
- They vary in service characteristics such as route patterns, schedules, and areas of coverage (a city section or a neighborhood).
- Five types of informal systems are shown below in descending order based on vehicle size and service coverage.

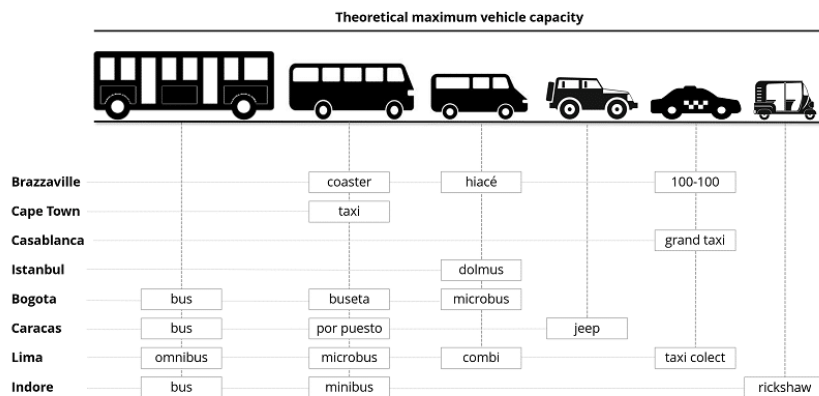
Some Types of Informal Systems

Class	Routes	Schedules	Passenger Capacity	Service Coverage
I. Conventional Bus	Fixed	Fixed	25-60	Region/Urban area
II. Minibus/Jitney	Fixed	Semi-fixed	12-24	Urban area
III. Microbus/Pick-up	Fixed	Semi-fixed	4-11	Urban area
IV. 3-Wheeler/Motorcycle	Variable	Variable	1-4	Neighborhood
V. Pedicab/Horse-cart	Variable	Variable	1-6	Neighborhood

Adapted from [Cervero and Golub, 2007](#)

Types of vehicles used range from buses to two- or three-wheelers, as well as non-motorized bicycles and rickshaws.

Types of Vehicles Used

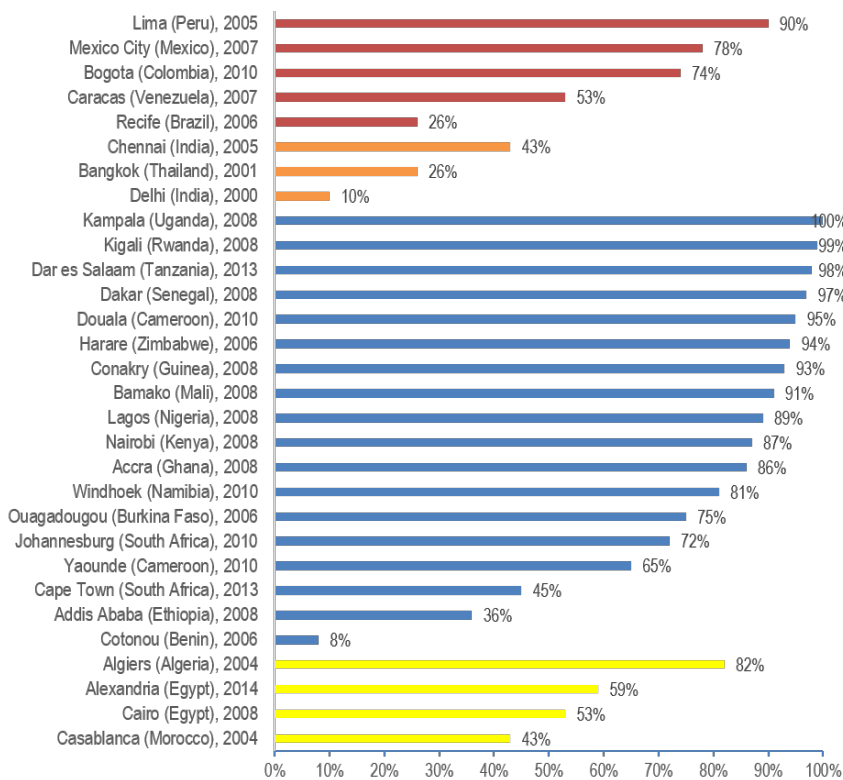


Adapted from [Salazar, 2015](#)

The Market Share of Informal Transit Ranges from 8 to 100 Percent

- Of road-based public transport systems, informal services had a market share ranging from 8 percent in Cotonou, Benin to 100 percent in Kampala, Uganda, in a survey of the developing country cities listed below.
- The market share is significantly higher in many Sub-Saharan and some Latin American cities, and lower in Asian cities where private bicycles and motorcycles are prevalent.

Market Share of Informal Transit in 30 Cities



Note: Depending on how paratransit system is defined for each city, the percentage will vary. Adapted from [Behrens, McCormick, & Mfinanga, 2015](#) and [Salazar, 2015](#).

“Path Dependency” Affects the Development of Informal Systems

- Path-dependency means the past development trajectory will likely illuminate the future. The history and culture in which current systems evolved matter.
- Rather than replicating international best practices, city planners should use only those practices that are appropriate for local contexts.
- The kind of transport projects that are put in place today will determine— that is, they will either foreclose or make possible—future transport opportunities.

Paratransit in Sub-Saharan Africa

First half of 20th Century

- Colonial governments provided scheduled public transport through public monopolies.
- Most transit was by bus, though some countries had rail.

Second half of 20th Century

- After independence, formal transit operations became unsustainable due to population growth, limited road capacity, increasing operating costs, and fare caps.
- In the absence of regulations, paratransit services using small buses were established by individual owners and self-organized transport associations to meet the demand.
- Formal systems deteriorated and many disappeared in Sub-Saharan African cities.

Current conditions

- Paratransit replaced public transport in many cities.
- The term paratransit is catching on in other world regions to describe informal transit, “para” meaning “to go beyond or further than normal.”



Minibus taxi rank in Kampala, Uganda. Photo by [James Anderson](#) / Flickr.



Gbakas
Abidjan



Trotros
Accra



Magbanas
Conakry



Cars Rapides
Dakar



Daladalas
Dar es Salaam



Minibus taxis
Kampala



Danfos
Lagos



Matatus
Nairobi



Minibus taxis
Pretoria

Mini-buses in Sub-Saharan African cities. Source: [Salazar \(2015\)](#).

Informal Transit in Latin America

First half of 20th Century

- At the turn of the 20th Century, electric street cars (eléctrico), often owned by foreign companies, were **introduced in Latin American cities** including:

Rio de Janeiro in 1892 Buenos Aires in 1896 San Jose and Kingston in 1899 Sao Paulo, Santiago and Mexico City in 1900 Havana in 1901 Valparaiso in 1904	Lima and Montevideo in 1906 Caracas and Guadalajara in 1907 Veracruz in 1908 Guayaquil in 1910 Quito in 1914
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- Although initially praised as a marker of modernity by various governments, the transport system could not keep abreast with the growth of Latin American cities. **Some common issues** were overcrowding, lack of punctuality, lack of maintenance of tram cars, and high fare price.
- As in the United States, in the late 1920s streetcars in Latin America began to face competition from public buses and private cars, which were more flexible and did not require rail tracks.

- In the mid-1930s, streetcars lost ridership to buses. The private companies started selling them to municipalities.



A streetcar in Santiago, Chile, in 1915. Photo via [Wikimedia Commons](#)

Second half of 20th Century

- While streetcar companies needed considerable capital to maintain tracks and other infrastructure, a bus company could be started by any entrepreneurially minded person with a small investment. By the late 1940s/early 1950s, the responsibility for mass transit shifted to private mini-bus operators without stringent regulations.
- These private operators self-organized themselves as companies or associations and competed for business.



Micro-bus in Mexico City, Mexico. Source: GIZ

Current conditions

- In many Latin American cities, bus service is provided by private operators under contract to the city (often with vague service quality requirements) run in parallel with public transport.
- In Brazilian cities, the public transport system is more established and cities have stronger contractual relationships with operators.



Micro-bus in Lima, Peru. Source: GIZ

Informal Transit in Asia: Minibuses and Rickshaws

The development of informal transit systems in Asia varies across countries, making it difficult to present a general pattern. Minibuses and three-wheelers are commonly used in Asian cities.



A jeepney in Olongapo City, Philippines. Jeepneys, also known as “King of Road,” are American jeeps that were refurbished after WWII. Photo by [Jayel Aheram](#) / Flickr.



Mini-buses in Ho Chi Minh City, Vietnam. Source: GIZ



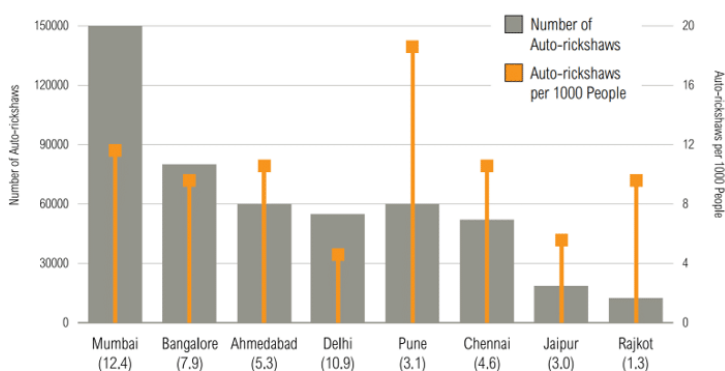
Autorickshaws line up outside a railway station in Mumbai, India. Photo by [Aashim Tyagi](#) / WRI India.



Three-wheelers called ‘tuk-tuks’ are a common sight in Bangkok, Thailand. Photo by [Didier Baertschiger](#) / Flickr.

- Informal systems in Asian cities are dominated by three-wheelers, which can be motorized or non-motorized. The operators usually lease or own their vehicles.
- They often serve first- and last-mile needs of users such as going to markets or schools, carrying food and other goods, or getting to or from drop off points for larger transit systems.
- Because of their affordability and flexibility to navigate into neighborhood streets, motorcycles and motorcycle taxis are gaining popularity in Sub-Saharan African and Latin American cities.

Market size of auto-rickshaws for selected Indian cities, 2010



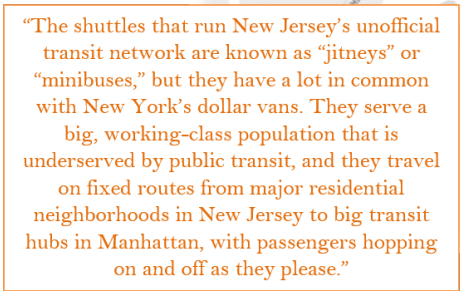
Note: Numbers in brackets with city names represent 2010 population (estimated) in millions.

Source: [Mani, Pai, & Aggarwal, 2012](#)

Informal Transit in New York City

- Informal systems are also found in developed cities like New York City.
- Dollar vans complement the city’s subway system, and play an integral role for many immigrants and minorities.
- In a 2014 story for the New Yorker, Aaron Reiss mapped the network of dollar vans. The excerpts

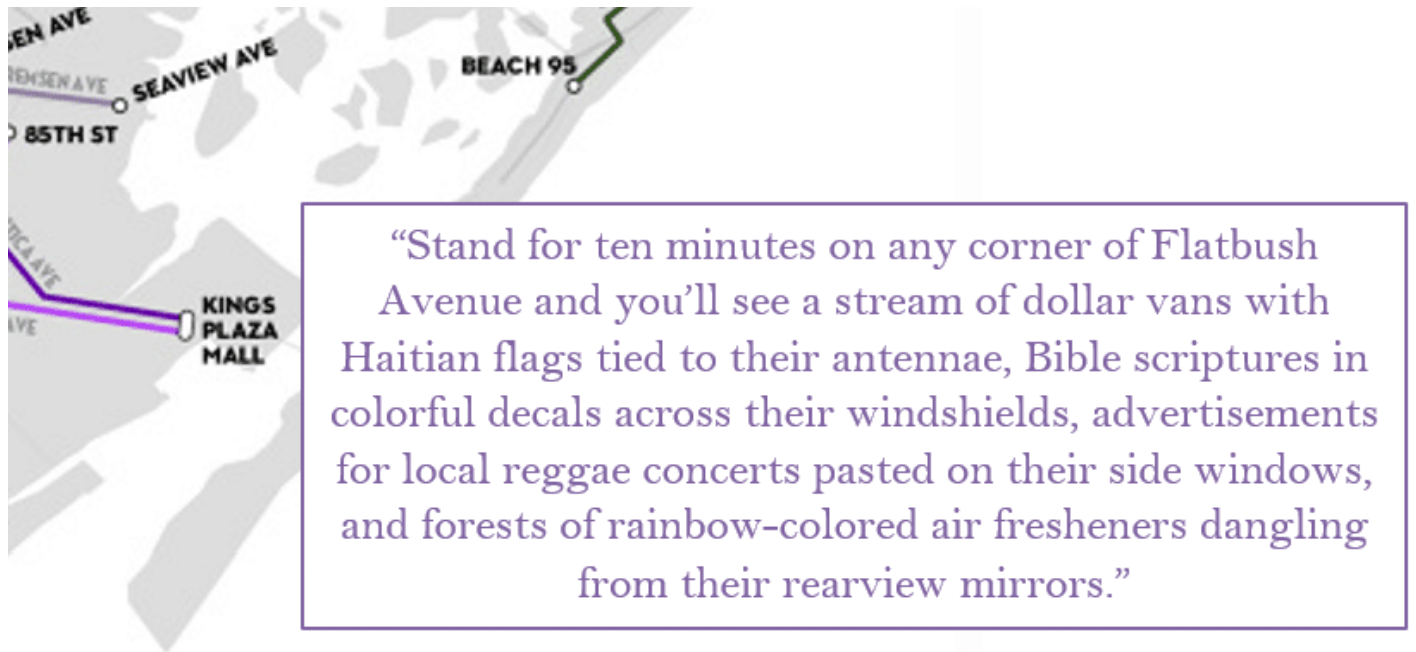
Map of Dollar Van Routes in NYC (colored) Overlaid on the City's Existing Subway System (grayed) - *Click through the gallery to zoom in to the text boxes.*



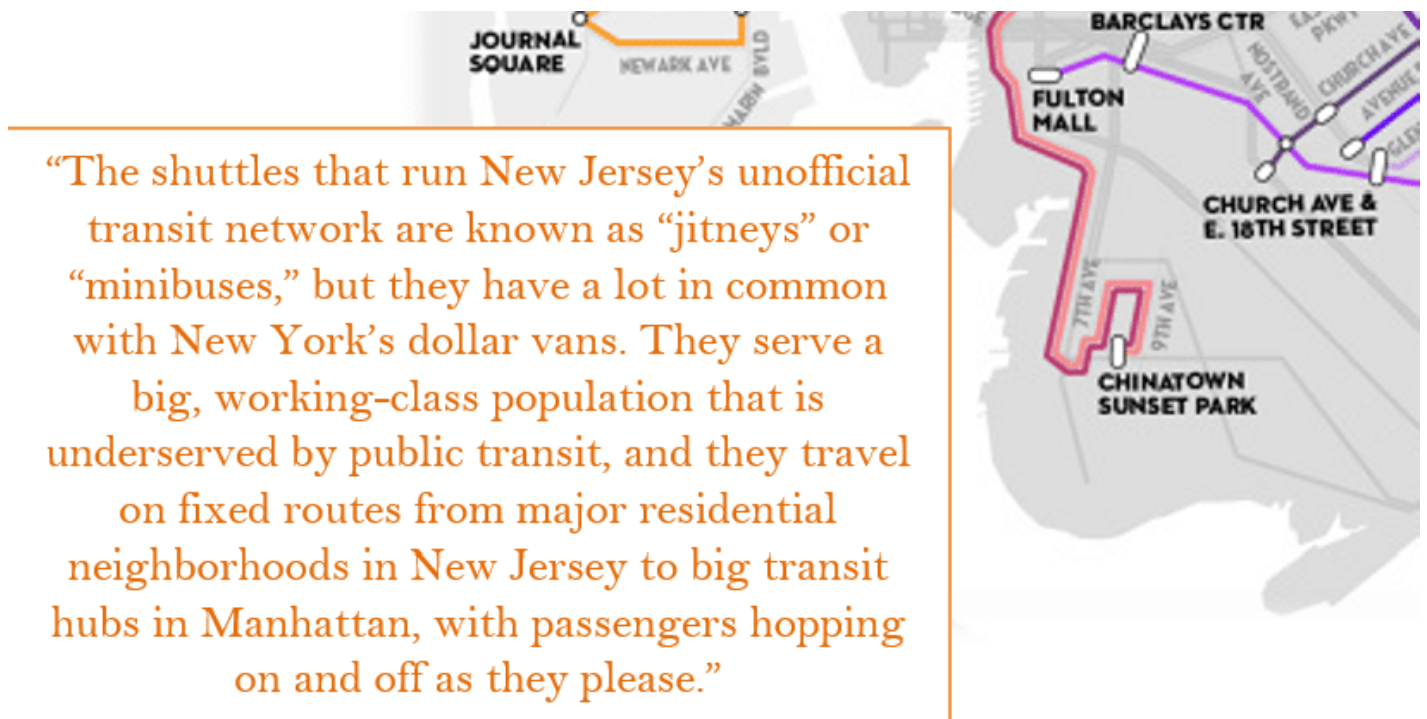
“Stand for ten minutes on any corner of Flatbush Avenue and you’ll see a stream of dollar vans with Haitian flags tied to their antennae, Bible scriptures in colorful decals across their windshields, advertisements for local reggae concerts pasted on their side windows, and forests of rainbow-colored air fresheners dangling from their rearview mirrors.”

“A ride on a Chinatown van ... is a relatively familiar experience for a Chinese immigrant. It could easily be a ride on a bus in rural China: tinny, saccharine pop is piped in through the van’s speakers; people chat in their local dialects about the price of cabbage. If there are more passengers than seats, people settle onto plastic stools set up in the aisle.”

Source: [Reiss, A. 2014.](#)



Source: [Reiss, A. 2014.](#)

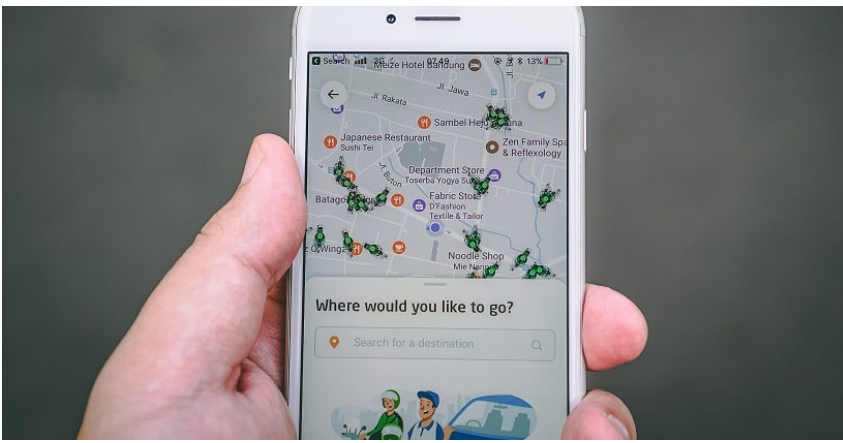


Source: [Reiss, A. 2014](#)

High Tech Services are New on the Informal Transit Spectrum

Smartphone apps and GPS (global positioning systems) have opened new models of informal transit.

- Companies like Lyft (United States) and Uber connect potential riders to part-time drivers through apps and collect fares by smartphone.



A ride-hailing app being used in Bandung, Indonesia. Photo by [Fikri Rasyid](#) / Unsplash.

- Many services use the same technology to drop off bikes or scooters at rider-selected urban locations. Riders pay by smartphone and leave the bike or scooter where the company can pick it up using GPS. Other companies provide stations that rent bikes for urban use.



Dockless electric scooters, operated by the scooter-share company Bird, parked on the sidewalk in San Jose, California. Photo by [Grendelkhan via Wikimedia Commons](#).

- Examples from the developing world include Didi (started in China now with services all over the world); Mobike; Ofo; Grab (in Southeast Asia); Go-Jek (motorcycle taxis in Indonesia that use apps and compete with informal motorcycle taxis)



Smart dockless bicycles operated by the Indian bike-sharing startup Yulu, seen here in the city of Pune, can be located and rented using an app. Photo by Harshita Jamba / WRI.

Problems with Many Informal Systems

- Unregulated operations can have problems with:
 - Passenger safety from lax maintenance of vehicles or unregulated drivers
 - Lack of redress for rider complaints
 - Overcrowded and uncomfortable vehicles
- There may be little connectivity among informal transit systems
- As with formal transit, some areas (the poorest) may not be served at all



Photo by [Seema Parakh](#) / WRI Ross Center for Sustainable Cities.

Pathways Forward

City officials generally have one or more of the following attitudes toward paratransit operators and systems (Godard 2006):

- Ignoring them or minimizing their role
- Fighting them
- Regulating them
- Acknowledging their role and helping them modernize within an integrated citywide scheme.

The emerging consensus on informal bus/minibus upgrading is that the public sector is best placed to undertake planning, regulation, and oversight of public transport, and the private sector should provide services through some form of organization that is accountable to users and/or regulators.

- [Venter, Mahendra, & Hidalgo, 2019](#)

Policymakers Can Guide Informal Systems

Informal transit systems provide a valuable service especially to low-income neighborhoods where other transit is not available.

Most cities struggle to subsidize urban transit and should take advantage of the transit services provided by entrepreneurs.

Cities need to recognize informal or paratransit operators in transport policy, and pro-actively engage them on a path toward operational reform.

They can:

- Connect existing services into an integrated network.
- Invest in priority infrastructure.
- Pro-actively upgrade and integrate informal operators.
- Harness technology for more productivity.
- Offer targeted subsidies for underserved areas.

Summary

- Informal transit encompasses a range of vehicle capacity, vehicle types (two/three-wheelers, motorized or non-motorized), and different schedule and coverage patterns. In developing countries, it is also called paratransport, or “beyond” the formal transit system.
- Informal systems fill a gap in the formal transport systems provided by governments.
- Many urban systems, including informal systems, are path-dependent: the past development trajectory will likely illuminate the future.
- The histories of Sub-Saharan African, Latin American, and Asian cities show the emergence and importance of informal transit systems and indicate how they might move forward.
- Informal systems are ubiquitous in developing countries, and are recently popular in high-income cities in developed countries.
- Urban governments can benefit by coordinating and fostering safe, efficient informal transit systems.

Quiz Yourself - 1

- ☐ They cost riders less than municipal systems.
- ☐ They fill needs unmet by formal public and private systems.
- ☐ They offer employment for anyone with a car.
- ☐ They are more fun than metrorail systems.

Quiz Yourself - 2

- ☐ Western Europe
- ☐ Latin America
- ☐ Sub-Saharan Africa
- ☐ Asia

Quiz Yourself - 3

- ☐ Ignore them.
- ☐ Fight them.
- ☐ Regulate them so much they go out of business.
- ☐ Help them modernize and integrate into the overall transit scheme.

Further Reading

Coming Soon

The next guide in this series will look at the advantages and disadvantages of informal transit systems from the perspective of users, governments and operators.

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