

# **NEW MOBILITY MEANS BUSINESS**

**AROUND THE WORLD  
SALVADOR, BRAZIL**

**DAVID BREEDLOVE**

# AROUND THE WORLD - SALVADOR

## EXAMPLES: SUSTAINABLE, INTEGRATED URBAN TRANSPORT

### – CURITIBA, BRAZIL

- Integrated urban development plan and affordable transportation.
- Mobility and land use cannot be disassociated

### – PORTLAND, OREGON

- According to Grist Magazine, Portland is the second most eco-friendly or "green" city in the world.
- Multiple transportation solutions

# AROUND THE WORLD

## **CURITIBA**

- Strict control on urban sprawl
- A reduction of traffic in the downtown area
- Preservation of the historical district
- Convenient and affordable public transportation
- One bus fare throughout the metropolitan area.

# AROUND THE WORLD

## CURITIBA



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## Curitiba Linhas Expresso Biarticulado

- 020 Santa Cândida - Capão Reno
- 021 Pinhal - Nal Barbosa
- 022 Candelária - Nal Barbosa
- 023 Candelária - Campo Comprido
- 024 Circular Sul (Pinhal e Santa Cândida)
- 025 Boqueirão
- 026 Pinhalzinho



## Curitiba Linhas Direta

- 027 028 Anel 2 (Dorival e Santa Cândida)
- 029 Tamandará - Cabral
- 030 Pinhalzinho - S. Cândida
- 031 Barrigóinha - São José
- 032 Aeroporto
- 033 Pinhal - Campo Comprido
- 034 Costeirão
- 035 Santa Felicidade - Bairro Alto
- 036 Centro Politécnico
- 037 Boqueirão - Centro Cívico
- 038 Bairro Novo
- 039 Sítio Cercado (Jardim e Santa Cândida)
- 040 Fazenda Rio Grande
- 041 Araucária - Curitiba
- 042 Colombo - CIC
- 043 Fazendinha - Tamandará
- 044 Campo Largo - Cabral



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## CURITIBA



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### KEY REPLICATION FACTORS

- Articulation of strong, local core values in a city plan.
- Creation of an independent municipal authority to provide continuity and implement plans, as well as to monitor planning and research to improve future efforts.
- Integrated planning processes structured to assure that planners in all areas know the strategy and are working with a shared vision and developing their plans together.
- Establish a close relationship between public transportation and land-use legislation as a guidance and development tool.
- Developing new models that provide inexpensive, creative urban solutions and reflect local values are an alternative to standard, often-higher-cost approaches.

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## PORTLAND

- Long history of urban planning. Portland began consulting with urban planners in 1903
- In 1973, established urban growth boundaries due to a new state law at the time. Protected rural areas close to town center.
- The Portland Development Commission , founded in 1958, provides economic development programs within the city and works with large developers to make large new projects.
- Multiple mobility solutions
- Informative transportation internet site.

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## PORTLAND



# AROUND THE WORLD

## PORTLAND



# AROUND THE WORLD

## PORTLAND



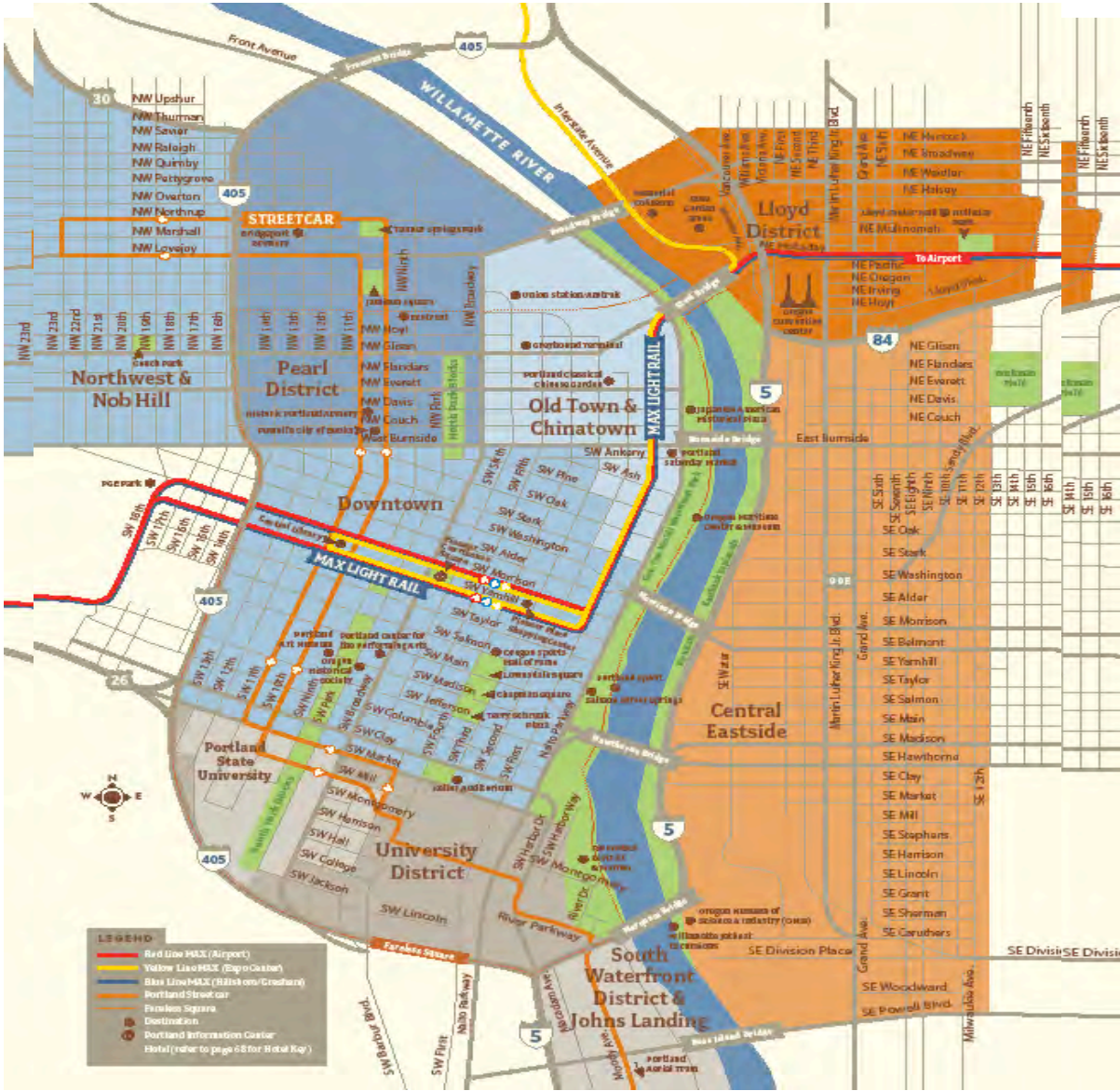
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### MOBILITY NEEDS

- A strengthening Brazilian economy and available financing has greatly increased the sale of light vehicles. Vehicles sold increased from 1.1 million in 2001 to 2.5 million in 2007 with 1.0 million sold in the first four months of 2008. 2008 sales are forecast at 3 million units.
- The number of vehicles in Salvador has increased 31 % from 2001 to 2008 with no increase in highway capacity. The fleet is 600,000 in 2008.
- There are only 15 km of dedicated bike paths in the city.
- Infrastructure for tourist mobility is poor.

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## SALVADOR

### **MOBILITY NEEDS**

- Capability to move workers from population centers to growing industrial and tourism centers is poor. The two lane road linking Camacari is very deficient and dangerous.
- Brazil has been awarded the World Cup in 2014 and Salvador wants to be selected as a site for some of the games.
- There is an urgent need to define mobility solutions in Salvador to improve the quality of life as well as provide a viable solution for the movement of the World Cup participants and visitors so as to be selected as a World Cup site.

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CAMACARI

STADIUM

AIRPORT



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## **PROGRAM DESCRIPTION**

- Apply the Ford Megacity Mobility Model being applied elsewhere in the world to Salvador.
- Identify consortium of private business, academics, government and NGO's to define solutions and business opportunities.
- Initial thought is to identify key transportation hubs to implement mobility solutions.

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## **PROPOSED MOBILITY PROJECTS**

TO BE DEFINED BUT COULD INCLUDE:

- IT solution to integrate mobility options as well as manage access
- Define and manage mobility hubs and services
- Provide transportation solutions, such as mini buses, electrical powered vehicles, car sharing, bicycles and vehicle rentals.
- Planning and logistic provider
- Emission free technology solutions
- Goods movement and supply chain management
- Mobility solutions to move tourists from hotels to sites.

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### **MOBILITY CHALLENGES**

- Development of an integrated land use and mobility plan.
- Prioritization of mobility projects
- Source of funds
- Definition of affordable solutions, both in initial investment and ongoing costs
- Insuring security
- Integration of systems
- Environmental Impact
- Local elections in 2008
- Car ownership still considered a status symbol

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### **VISION/NEXT STEPS**

- Select a local enterprise connector to manage initiative.
- Re-establish contacts with local private industry.
- Organize a kick-off session with Ford management and local industry.
- Understand present approved urban land use and mobility plans in Salvador.
- Develop initiatives for review with government ministries and get their buy-in.

**BACK UP**

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## CURITIBA

- Curitiba Master Plan adopted in 1968
- Closed XV de Novembro
- Trinary Road system with dedicated bus lanes
- Five of these roads form a star to downtown
- Areas farther from the star are designed for low density development
- Number of swampy areas were condemned and made city parks
- 1980 adopted RIT, Integrated Transit network with one fare for all transport in the city

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## CURITIBA

- Encourage local community self sufficiency by providing all city districts with adequate health care, education, recreation and park areas
- Guiding principle that mobility and land use cannot be disassociated

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## CURITIBA

- **About 1,100 buses make 12,500 trips per day, serving 1.3 million passengers. Five different types of buses operate in Curitiba:**
- **Express buses operate exclusively on the arteries' dedicated busways.**
- **"Rapid" buses operate on both the arteries and on other main streets throughout the city, and their routes are changed to respond to demand. These buses stop at tube-shaped stations designed for protection from the weather and for quick bus entry and exit. They also accommodate the handicapped.**
- **A new "bi-articulated" bus, introduced in December, 1992, is a form of rapid bus operating on the outside high-capacity lanes. Bi-articulated buses - the largest in the world - are actually three buses attached by two articulations, and are capable of carrying 270 passengers.**
- **"Inter-district" buses bring passengers between the city's sectors lying between the arteries, and thus provide a crucial link between the routes of the express and bi-articulated buses.**
- **Finally, "feeder" buses mix with traffic on all other city streets and bring passengers to transfer stations called "District Terminals," around which local urban development and commercial activity has flourished.**
- **Curitiba's buses are privately-owned by ten companies, managed by a quasi-public company. With this public-private collaboration, public sector concerns (e.g. safety, accessibility, and efficiency) are combined private sector goals (e.g. low maintenance and operating costs). The bus companies receive no subsidies; instead all mass transit money collected goes to a fund and companies are paid on a distance travelled basis.**

- **Curitiba's buses carry 50 times more passengers than they did 20 years ago, but people spend only about 10 percent of their yearly income on transport. As a result, despite the second highest per capita car ownership rate in Brazil (one car for every three people), Curitiba's gasoline use per capita is 30 percent below that of eight comparable Brazilian cities. Other results include negligible emissions levels, little congestion, and an extremely pleasant living environment...**

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- **The policy of encouraging high density development along the five structural arteries has helped to divert transport movement from the city center. The low congestion consequently made it easier to promote other means of travel in the city center. Hence, the city created a pedestrian network, covering an area equivalent to nearly fifty blocks, in the downtown area. Although at first local merchants were opposed to the idea, they quickly found the pedestrian zone to be a tremendous economic boost; much more space was available in the area for customers rather than vehicles, the shopping environment was more pleasant, and people had more time to shop when they did not have to drive and park. Bus terminals on the periphery provide frequent access to the area. Furthermore, the Curitiba Public Works Plan for 1992 calls for 150 km of bicycle paths to be built, following river bottom valleys and railway tracks and connecting the city's districts to make the entire city accessible to bicycles.**

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## CURITIBA

- “A normal bus in a normal street conducts  $x$  passengers a day,” he told me. “With a dedicated lane, it can transport  $2x$  a day. If you have an articulated bus in a dedicated lane,  $2.7x$  passengers. If you add a boarding tube, you can achieve  $3.4x$  passengers, and if you add double articulated buses, you can have four times as many passengers as a normal bus in a normal street.” He says that with an arrival frequency of 30 seconds, you can transport 36,000 passengers every hour — which is about the same load he would have achieved with a subway.

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- Unfortunately, the trends of bus usage are down. While the system has expanded to cover 13 of the cities in the metropolitan region, charging a flat fare that in practice subsidizes the trips of the mostly poorer workers who live in outlying areas, bus ridership within the Curitiba municipality has been declining. “We are losing bus passengers and gaining cars,” says Luis Fragomeni, a Curitiba urban planner. He observes that, like potential users of public transport everywhere, many Curitibaanos view it as noisy, crowded and unsafe. Undermining the thinking behind the master plan, even those who live alongside the high-density rapid-bus corridors are buying cars. “The licensing of cars in Curitiba is 2.5 times higher than babies being born in Curitiba,” he says. “Trouble.” Because cars are status symbols, attempts to discourage people from buying them are probably futile. “We say, ‘Have your own car, but keep it in the garage and use it only on weekends,’ ” Fragomeni remarks. And the public-transport system must be upgraded continuously to remain an appealing alternative to private vehicles. “That competition is very hard,” says Paulo Schmidt, the president of URBS, the rapid-bus system. During peak hours, buses on the main routes are already arriving at almost 30-second intervals; any more buses, and they would back up. While acknowledging his iconoclasm in questioning the sufficiency of Curitiba’s trademark bus network, Schmidt nevertheless says a light-rail system is needed to complement it.

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## PORTLAND

- The city consulted with urban planners as far back as 1903. Development of [Washington Park](#) and one of the country's finest greenways, the [40 Mile Loop](#), which interconnects many of the city's parks, began.
- Portland is often cited as an example of a city with strong [land use planning](#) controls;<sup>[6]</sup> This is largely the result of statewide land conservation policies adopted in 1973 under Governor [Tom McCall](#), in particular the requirement for an [urban growth boundary](#) (UGB) for every city and metropolitan area. The opposite extreme, a city with few or no controls, is typically illustrated by [Houston, Texas](#).
- Portland's urban growth boundary, adopted in 1979, separates urban areas (where high-density development is encouraged and focused) from traditional farm land (where restrictions on non-agricultural development are very strict).<sup>[13]</sup> This was atypical in an era when automobile use led many areas to neglect their core cities in favor of development along [interstate highways](#), in [suburbs](#), and [satellite cities](#).
- As a result, one can see pastoral farmlands and old red barns within 15 miles (24 km) of downtown Portland, literally across the street from large suburban developments (where that street is the urban growth boundary.) Opponents argue that this growth boundary has limited growth and increased the costs of housing; proponents argue that it has preserved valuable farmland, made possible the popular farmer's markets in Portland, and brought more efficient public transportation and less traffic than similarly sized cities.

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- As the population has grown, and undeveloped land inside the urban growth boundary has dwindled, there has been pressure to change or relax the rules. The rapid growth of two major employers in Washington County, namely [Nike](#) and [Intel](#), contributed to this pressure.
- The original state rules included a provision for expanding urban growth boundaries, but critics felt this wasn't being accomplished. In 1995, the State Legislature ordered cities to expand UGBs to provide enough undeveloped land for a 20 year supply of future housing at projected levels, and to complete the newest expansion by the end of 1999.[\[14\]](#)

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- The [Portland Development Commission](#) is a semi-public agency that plays a major role in downtown development; it was created by city voters in 1958 to serve as the city's [urban renewal](#) agency. It provides housing and economic development programs within the city, and works behind the scenes with major local developers to create large projects. It has been criticized for clubbiness and lack of transparency.
- In the early 1960s, the PDC led the razing of a large Italian-Jewish neighborhood downtown, bounded roughly by the I-405 freeway, the Willamette River, 4th Avenue and Market street. It was replaced by concrete office developments that proponents find clean and modern, and opponents find antiseptic and lifeless at night.
- Mayor [Neil Goldschmidt](#) took office in the 1970s as a proponent of bringing housing and the associated vitality back to the downtown area, which was seen as emptying out after 5pm. The effort has had dramatic effects in the 30 years since, with many thousands of new housing units clustered in 3 areas; west of Portland State University (between the I-405 freeway, SW Broadway, and SW Taylor St.); the RiverPlace development along the waterfront under the Marquam (I-5) bridge; and most notably in the Pearl District (between I-405, Burnside St., NW Northrup St., and NW 9th Ave.).
- The [Urban Greenspaces Institute](#), housed in Portland State University Geography Department's Center for Mapping Research, promotes better integration of the built and natural environments. The institute works on urban park, trail, and natural areas planning issues, both at the local and regional levels.
- According to [Grist Magazine](#), Portland is the second most [eco-friendly](#) or "green" city in the world trailing only [Reykjavík, Iceland](#).<sup>[15]</sup>

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## PORTLAND

- **Bus and Max Light Rail**
- Portland has long been known as a clean, green and friendly metropolis, with lots to do and even more to see.
- Leading the "City of Roses" into the 21st century is its economical, easy-to-use public transit system, which every year transports millions of visitors and residents through the city and its surrounding neighborhoods.
- On the [TriMet bus system](#), which covers the city and its suburbs thoroughly, you'll find low fares, friendly drivers and full wheelchair accessibility. And since most buses are now equipped with bike racks, mass transit has become more user-friendly for the cycling set.
- TriMet's 44-mile [MAX \(Metropolitan Area Express\)](#) offers train-to-plane service, and door-to-door access to one of the richest collections of visitor attractions. A 10-minute ride from downtown will deliver you to Washington Park station, the deepest underground transit station in North America. The stop, 260-feet below the Earth's surface, provides nearby access to Washington Park, the [Oregon Zoo](#), the [World Forestry Center Discovery Museum](#), the Vietnam Veterans Living Memorial, Hoyt Arboretum and the [Portland Children's Museum](#).
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- **Transit Mall**
- More than half of TriMet's bus lines run through the transit mall along Southwest Fifth and Sixth avenues, including ART, The Cultural Bus (Line 63), which stops at Portland-area attractions.
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- **Portland Streetcar**
- In July 2001, the [Portland Streetcar](#) began service linking downtown's Cultural District, the Pearl District and the Nob Hill/Northwest Neighborhood. The sleek Euro-designed streetcars progress along a newly constructed 4.8-mile loop that begins and ends at the Portland State University campus. The Portland Streetcar extended its reach in March 2005 to include the busy RiverPlace neighborhood. Overlooking the Willamette River and bordering downtown Portland, RiverPlace features two hotels, several restaurants, shops, galleries and a collection of waterfront condominiums. The area is also a popular bicycling route for visitors, connecting to both Waterfront Park and the Willamette River Greenway Trail. The fare for the Portland Streetcar is the same as those charged for buses and MAX light rail.

- Completing the Metro – R\$ 47 million
- Add a Line 2 Metro to the airport and Laura de Freitas (magnetic train) – R\$ 290 million Eventually want to extend out to Linha Verde and then over to Camacari – 25 km
- Lengthen train to Ferry boat and Campo Grande – 6.4 km R\$ 50 million
- Improve the Ferry Boats
- Redesign the existing bus system
- Upgrade train line to Ford and Camacari
- Add a station at Camacari
- Add a new station at km 21 on BR 324. Would connect rail line from Cachoeira Would include restaurants, stores, services, etc.
- Connect Ribeiro and Metro
- Build express road to port from BR 324 ten lanes ( 4 truck and six light vehicle.)
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# AROUND THE WORLD SALVADOR

