

# sustainable

## TRANSPORT

Winter 2015 | No. 26

### São Paulo's Path to Sustainable Transport

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## Contents

Winter 2015 | No. 26

- 4 **Letter from the CEO:  
ITDP Turns 30:  
Looking Back and Moving Forward**

- 6 **TransCarioca: The World Cup's  
World Class Legacy**

By Clarisse Linke and Thais Lima

- 8 **São Paulo's Path to  
Sustainable Transport**

By Thiago Benicchio

- 11 **A New Measure for  
Mass-Transit Success**

By Gabriel Lewenstein and Colin Hughes

- 12 **D. Thara on  
Transforming Ahmedabad**

Interviewed by Aswathy Dilip

- 16 **From Curitiba to Guangzhou:  
30 Years of Bus Rapid Transit**

By Walter Hook

- 18 **30 Years of ITDP**

- 24 **Looking Back:  
Three Decades of Success**

- 27 **The Next Big Thing:  
30 More Years of ITDP**

- 31 **Vision Zero: Saving Lives in Cities  
Around the World**

By Graham T. Beck

- 32 **Reinventing India's Rickshaw**

By Meenakshi Burman

- 34 **Searching for the Next Gold  
Standard: The Future of BRT  
and TOD in Asia**

By Karl Fjellstrom

- 36 **Mexico City Completes Its Streets**

By Andrea Arzaba and Jorge Cañez

- 38 **The Promise and Challenge of  
Shared Mobility**

By Michael Kodransky

- 40 **Left, Right or Center:  
The Case for Smart Transit**

By Jemilah Magnusson

- 42 **ITDP Celebrates  
Park(ing) Day 2014**

By ITDP Staff



Cover: São Paulo is getting serious about sustainable streets.

Image: ITDP





# ITDP Turns 30: Looking Back and Moving Forward

By Walter Hook



This year is the 30th Anniversary of ITDP, and in this issue of *Sustainable Transport*, we invited ITDP's partners to talk about our best projects and to think about the next 30 years.

Looking over this issue, and thinking about all we've accomplished in the past 30 years, it's clear that ITDP was part of a revolutionary vanguard that led the way. In 1985, when Michael Replogle founded ITDP, he articulated an alternative vision of urbanization with radical geopolitical implications (see page 28). Instead of designing our cities around the interests of oil and automobile corporations, we could design them for our own health and happiness. Bikeways, great pedestrian spaces and BRT could free us from an unsustainable dependence on oil and automobiles. In 1998, Mayor Enrique Peñalosa transformed Bogotá into a living manifesto of this vision. ITDP flew thousands of urban leaders to this new Mecca, and Peñalosa, who later became President of ITDP's Board, travelled the world to spread the gospel (see page 16).

In the 1990s, USAID India's Ram Berry, worried that air pollution was destroying the Taj Mahal, asked ITDP to replace motorized access to the site with 500 modern cycle rickshaws. Answering the call, Shreya Gadeballi (ITDP India Regional Director) and Matteo Martignoni (former Vice President of ITDP) developed a superior cycle rickshaw (see page 32). Nalin Sinha sold them to the moneylenders that occupied the temple. Sleepless nights, drenched in sweat, cranking on wrenches, drinking Old Monk at hotel bars with cycle rickshaw strong men, they succeeded in deploying half a million of these vehicles across India.

September 11, 2001 stranded me in Jakarta. A few seeds were planted for John Ernst, ITDP's Regional Director, to bring Peñalosa to Jakarta. They convinced General Sutiyoso to make TransJakarta the center of his re-election bid. USAID, then UNEP GEF, supported our technical assistance. One-hundred-and-seventy-one kilometers of BRT later, TransJakarta is still growing and improving (see page 26).

In 1999, Peter Riggs at Rockefeller Brothers asked if ITDP could do something in Guangzhou. Trips by Peñalosa and visits to Bogotá and São Paulo by Guangzhou's Mayor funded by the World Bank got a BRT project started. The Hewlett Foundation, and later the ClimateWorks Foundation, joined to back our ongoing technical support. By 2010, working with our partners at the Guangzhou Municipal Engineering Design and Research Institute, with Pedro Szasz and Edgar Sandoval, ITDP's Asia Regional Director Karl Fjellstrom, led his team to implement the first Gold Standard BRT in Asia and still the only Direct Service Gold Standard BRT (see page 34).

Lloyd Wright convinced the Mayoral Committee member for Transport, Rehana Moosajee (see page 28) to build world class BRT for the World Cup in Johannesburg, South Africa. With help from the Clinton Climate Initia-



There are more than 500,000 of the cycle rickshaws that ITDP helped reimagine on India's streets today.

tive and later GIZ, ITDP brought in Wagner Colombini Martins of Logit, who got the service plan and the basic infrastructure right. Paul White (see page 27) introduced me to former Deputy Transport Minister Jeremy Cronin, who embraced our vision of BRT operators constituted from the minibus taxi industry, and he and Rehana and Lisa Seftel, Johannesburg's current Executive Director for Transportation, backed the project until it succeeded..

In India, thanks to USAID, the Blue Moon Foundation and ClimateWorks, we were able to work with Bimal Patel to convince then Chief Minister Modi (now India's Prime Minister) to build BRT. ITDP director Oscar Diaz helped convince Modi, who appointed Professor Swamy of CEPT to design the system. Shreya Gadepalli, together with Chris Kost and Professor Swamy, worked under Deputy Municipal Commissioner D. Thara (see page 12) to design India's first real BRT system, ranking Silver. Thara has now returned as Municipal Commissioner, and with ITDP support, she has implemented critical zoning and parking reforms along the BRT.

In Mexico City, under the Ebrard Administration, with help from the C40/Clinton Climate Initiative and Hewlett, Bernardo Baranda (ITDP Regional Director for Latin America) worked with city officials Fernando Menendez, Felipe Leal and Tanya Muller, to get bike lanes, bike sharing and the pedestrianization of the Madero introduced into the historic center. I cooked up the idea of a BRT connecting the Zócalo to the airport as a way of revitalizing the beautiful yet dilapidated UNESCO registered Centro Historico, and Corridor 4 of Metrobús and the pedestrianizations sparked an amazing revitalization (see page 36).

Today, we have seen an amazing 383 percent increase in BRT worldwide in just the last ten years. Africa is moving forward: the Dar es Salaam BRT project is under construction. Supported by UNEP GEF and the World

Bank, it was started by Lloyd Wright and Asteria Mlambo (now CEO of DART), when Kleist Sykes was the dynamic Mayor of Dar es Salaam. Logit did the designs, Aimee Gauthier and Edgar Sandoval did the early business planning, Dieter Schelling of the World Bank oversaw the infrastructure, and Annie Weinstock has since kept the project on track. The challenges of opening a high quality BRT in a relatively poor country are manifold, but it could be Gold Standard, and it could change the future of Africa.

These projects, messy, visceral and human, were hard fought, stressful and complicated. My hands are dirty, my hairs grey, my back scarred; a small price to pay for a front row seat to a world reinventing itself. It's time for new leadership for ITDP's global operations, now spread to seven countries with over 70 staff. I have decided to transition out of the CEO position to more technical work. Heather Thompson, former Vice President and co-founder of ClimateWorks, has graciously agreed to step in until a permanent CEO can be found. She and our dedicated staff deserve your continued support. I want to thank the members, donors, staff, and Board of ITDP for 21 great years as CEO. I hope the next 30 are just as much fun.



# TransCarioca: The World Cup's World Class Legacy

By Clarisse Linke and Thais Lima



Top: The line crosses 19 suburbs, most of them in the North Zone, a consolidated but degraded area of the city that is ripe for smart, people-friendly redevelopment.

Bottom: TransCarioca features level boarding from the station into the bus, one of many reasons riders enjoy BRT, and a contributing factor to its speedy boarding and alighting times.

In the months leading up to the 2014 World Cup in Brazil, pundits and prognosticators spent nearly as much time wringing their hands over the nation's ability to host the games as they did handicapping the matches. Despite all the rumors and fears, FIFA, the Brazilian Government and the public who traveled to Brazil to watch the games considered the event a huge success.

The debate about the country's capacity to receive the games, however, was not exclusively related to its capacity to deal with the operations and logistics of a massive sporting event. It was also about the capacity to deliver the legacy infrastructure that was promised and that resonates with the needs of Brazilian cities. Despite Brazil's rapid economic growth, the quality of life in many of the nation's metropolitan centers has not risen accordingly. The protests of 2013, triggered by a transit fare increase, represented an important moment, when the population demanded "FIFA standard" infrastructure and transport, healthcare and education improvements.

So, with the games passed and the chattering class quiet—until the 2016 Olympics—have the legacy projects made good on their promise?

In Rio de Janeiro, the second most populous city in the country, there was an absence of significant transit investment for four decades. Around Brazil, the reality was the same, and not coincidentally, transit ridership declined by 25 percent in the last five decades. In parallel, automobile ownership rates have doubled in a decade. One in every five Brazilians now has a car. Rio de Janeiro is expected to have one car for every two residents by 2020.

Since the commitments for both the FIFA World Cup and the Olympics, however, the city of Rio de Janeiro has seen major investments in transit, with 150 kilometers of Bus Rapid Transit network developed. That system has the potential to redefine the city socially and economically.

TransCarioca, the 39-kilometer BRT corridor inaugurated just prior to the World Cup, is a crucial piece in the city's BRT network, and a key legacy project for the city. The corridor cost approximately USD 550 million to build, with the city paying for 100 percent of it. BNDES, the national development bank, financed 75 percent of the investment costs.

TransCarioca was planned to provide convenient connections between Barra da Tijuca, home to several sporting facilities of the 2016 Rio Olympics, and Ilha do Governador, where the international airport welcomes visitors and residents to Rio. The system has 47 stations along its dedicated lanes, and is estimated to carry 320,000 passengers a day. Now fully operational, TransCarioca is removing nearly 500 regular buses from the streets, reducing congestion and greenhouse gas emissions across the city.

The system is already making a mark. A survey conducted in six World



ITDP assessed TransCarioca using the BRT Standard. The corridor is Gold Standard, scoring 86 points. While scoring highly in almost all categories, the corridor still has room for improvement, mainly with integrating bicycling into the corridor, from bike lanes to bike parking to bike sharing.

Cup host cities (São Paulo, Belo Horizonte, Fortaleza, Salvador, Curitiba and Rio de Janeiro) found that Rio was the only city where people were more inclined to change their travel patterns and adopt public transportation. What's more, an assessment by ITDP identified that the corridor still has room for improvement, particularly when it comes to integration with other transit systems, non-motorized transportation and pedestrian access.

The corridor is also a great opportunity for the city of Rio to focus on transit-oriented development. The line crosses 19 suburbs, most of them in the North Zone, a consolidated but degraded area of the city that is ripe for smart, people-friendly redevelopment. Conversations along those lines are already happening at city hall, and it is likely that incentive mechanisms will be developed to attract investment to the area.

So, has TransCarioca lived up to its legacy potential? Not yet, but it soon might. Its ability to get people out of their cars and on to public transport is a massive success and one that cities across the country should emulate. But an even greater legacy is within reach: With a few tweaks to the system and savvy, transit-oriented development along the route, Rio has an opportunity to counteract sprawl and recreate the city, making it denser, compact and more people-centric. That's what competitive cities around the world are struggling to achieve, and it's a feat well within reach of Rio de Janeiro. That would be a legacy project worth a World Cup and a nice collection of gold medals.

**TransCarioca has 47 stations along its dedicated lanes, and is estimated to carry 320,000 passengers a day. Now fully operational, TransCarioca is removing nearly 500 regular buses from the streets, reducing congestion and greenhouse gas emissions across the city.**



# São Paulo's Path to Sustainable Transport

By Thiago Benicchio



The twelve million inhabitants of São Paulo, the largest city in the Americas, have, for decades, suffered traffic jams, sprawl, air pollution and long, dangerous commutes. As the city's cultural and economic role in Latin America continues to grow, São Paulo is changing direction and beginning to implement policies to put it on a more sustainable development path.

An ambitious plan for 400 new kilometers of bike lanes is scheduled for completion in 2015, for a total network of more than 500 kilometers. Twelve bridges over the Pinheiros and Tietê rivers will also be adapted for cyclists, and the city will install more than 8,000 bike racks on the street, and additional bike-parking facilities at every bus terminal. São Paulo also added regulations promoting parklets, which allow businesses to apply for one, and by the end of 2014, there'll be more than 30 of those spaces.

The city has also authored a new master plan, covering the next 16 years. It promotes transit-oriented development (TOD) regulations, increasing density along transit corridors and integrating affordable housing measures into the plans. For the first time, cycling will become a recognized part of the city's transportation system. Most impressively, the master plan makes São Paulo the first megacity in the world to eliminate parking minimums city-wide. In their place, the plan calls for

A decade of civic engagement is remaking São Paulo's streets.

a new parking maximum along transit corridors, allowing only one space per residential unit (or 70 meters squared per non-residential space) before charging for extra spaces. Parking minimums, which require developers to build a designated amount of parking to serve housing and commercial uses, increase costs and unnecessarily incentivize the use of personal vehicles. By reducing parking around transit corridors, São Paulo will start reducing traffic, improving street life and encouraging the use of public transit. The collaborative process that São Paulo city used to create the plan won them the MobiPrize, an award from the University of Michigan that recognizes collaborative attempts to improve sustainable mobility, in 2014. The city is also a nominee for ITDP's 2015 Sustainable Transport Award.

These changes come as a result of more than a decade of civic engagement. Organized citizens took part in



## Organized citizens took part in the political process to create a vibrant, powerful and very positive pro-bike and pro-urban-mobility culture in one of the most car-centric cities in Brazil.

the political process to create a vibrant, powerful and very positive pro-bike and pro-urban-mobility culture in one of the most car-centric cities in Brazil. The cycling movement in São Paulo has existed since the early 1980s, but it was during the beginning of the 21<sup>st</sup> century that it reached its most powerful. During the economic boom of that decade, the number and usage of cars in the city increased significantly, resulting in a serious mobility crisis, so concerned citizens organized groups and movements to promote bikes as an urban

and creative actions contesting car dominance and demanding better alternatives. Simultaneously, bloggers, photographers, videographers, writers, designers and other communication professionals and amateurs started to create, translate and publish information and content about the growing local and worldwide bike culture.

This horizontal movement played an important role in establishing the cultural groundwork necessary to shift the image of bicycles in São Paulo. As happened in most American cities

to participate in policy discussions on urban mobility. In 2009, the Urban Bicyclist's Association of São Paulo, Ciclocidade, was born as a formal NGO, gathering more than 100 bike activists, advocates and supporters in a membership based organization. In the same period, other groups and organizations started to work on an array of initiatives, from teaching people to ride to promoting events and activities related to bike culture.

The city started to move as well, creating the CicloFaixa de Lazer, a weekly car-free streets program similar to Bogotá's Ciclovía or Summer Streets in the U.S. In time, a few kilometers of bike lanes and sharrows (shared-lane markings) were painted on city streets, some laws were passed, the first bike-share system opened and cycling started to reach another dimension in public discussions.

In 2012, the bike share system was expanded with more stations and wider coverage, and cycling played a role in the mayoral election, with two of the recently born organizations (Ciclocidade and CicloBR) presenting a pro-bike pledge to all of the candidates. All were invited for a ride and asked to support ten key points on bicycle, transit and urban policies (including the bike lane network, transit priority and a new master plan focusing on more sustainable development). The candidates' rides got significant media coverage and all the most popular candidates signed the pledge, including the elected mayor, Fernando Haddad.

In June 2014, new bike lanes started appearing in the downtown area, and since then more than 110 kilometers of



São Paulo is changing regulations to promote parklets, which turn parking spaces into public spaces, increasing pedestrian space and improving the streetscape.

transportation option.

First organized as a horizontal, egalitarian group mostly connected to the Critical Mass rides (locally called Bicicletada), the movement started to grow and inspire blogs and websites, NGOs, businesses and other formal initiatives. On the streets, the movement had a role in making bicycles visible and performing some direct

during the 20<sup>th</sup> century, cycling was culturally relegated to sports, children's activities, leisure time or, at best, transport for poor people. In the 2000s, because of this movement, there was an important shift in the perception of bike culture toward cycling as a transportation option for all kinds of people and all kinds of transport needs.

As a result, cycling activists started



São Paulo Mayor  
Fernando Haddad  
tries out the city's  
new bike lanes.

facilities were added to the 63 kilometer network. Also in June, the first 2.1 kilometers of the Eliseu de Almeida bike lane were opened for cyclists. The project, designed in 2006 with the support of ITDP Brasil, consists of a five-kilometer separated bikeway connecting the Butantã district to the city of Taboão.

There has been so much progress in a few short years, but there is still a long way to go for São Paulo to become a truly sustainable city. ITDP has a decades-long relationship with the

city, and is supporting the recent policy improvements, as well as working with the city on communications strategies and capacity building for the local planners, traffic engineers and operators. The future looks bright for São Paulo, especially with a precedent of city initiatives and strong civic organizations showing they can speed up the pace of change, overcome the most skeptical perspectives and deeply transform the landscape, the economics and, most importantly, the people's lives.

## Publications from ITDP

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### New Reports:

#### A Global High Shift Scenario ITDP & UC Davis

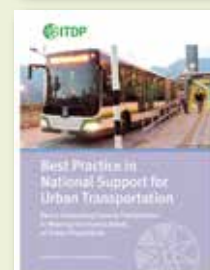
This is the first study to examine how changes in transport infrastructure and transit system investments affect urban passenger transport emissions. These findings are relevant to management of climate change, advancing equitable and environmental development and management of increasing urbanization.

#### Connecting Low-Income People to Opportunities with Shared Mobility ITDP & Living Cities

Shared mobility programs like bike-share and car-share have significant potential to benefit low-income users, yet often do not reach that population. This report explores the specific opportunities and challenges facing shared mobility programs in expanding services to low-income communities.

#### Best Practice in National Support for Urban Transportation Part 1: Evaluating Country Performance in Meeting the Transit Needs of Urban Populations

With the world rapidly urbanizing, many innovative cities have brought about significant shifts away from private car use, while others have not expanded mass transit at a sufficient pace to meet demand. This paper explores how cities have obtained help from national governments to meet their growing mobility challenges.





# A New Measure for Mass-Transit Success

By Gabriel Lewenstein and Colin Hughes



RTR places mass rapid transit systems in context by comparing kilometers of corridor with the size of the urban population that needs to use it.

For decades, comparing the mass transit capabilities of various cities has been an apples-to-oranges affair. The obvious metrics—stops, lines, kilometers, capacity, ridership—provide some useful information, but they don't get to the heart of the matter. Mass transit systems, after all, should not be big or long or heavily trafficked for their own sake, but in service of the people who ride them and the cities and countries that invest in them to boost economies, improve lives, better the environment and attract opportunity.

With that in mind, ITDP has developed a new way of measuring public transit supply, which gives a clear comparison of how well nations around the world are keeping up with transit demand in their cities: the rapid transit to resident ratio (RTR).

This new metric was developed for ITDP's research series, *Best Practice in National Support for Urban Transportation*, as a way for cities to create targets for carbon reduction. It places mass rapid transit systems in context by comparing kilometers of corridor with the size of the urban population that needs to use it. Though fairly simple in concept, the metric captures what transit investment means for people on the street, and helps planners and officials compare transit growth across time and between cities of vastly different sizes.

The RTR has already unearthed some fascinating facts. A key finding is that the amount of rapid transit per urban resident varies highly in countries around the world, from as little as one kilometer of rapid transit per urban resident in India to over 30 kilometers of rapid transit per resident in France.

Looking at RTR also reveals how transit investment has kept pace with urban population growth. For example, India spent an estimated USD 9 billion (\$38.91 per urban resident) and built 40 kilometers of BRT and 170 kilometers of metro from 2000-2014. However, this expansion of rapid

**The rapid transit to resident ratio (RTR) captures what transit investment means for people on the street, and helps planners and officials compare transit growth across time and between cities of vastly different sizes.**

transit barely kept pace with the expansion of urban population, and the country's RTR continued to hover around one kilometer of mass transit per urban resident—not nearly enough to bring more mobility to people on the streets. China saw a similar increase in urban population but built 360 kilometers of BRT and 15,000 kilometers of metro and light rail over the same period at an estimated cost of USD 114 billion (\$61.53 per urban resident) resulting in an RTR of 4.5.

Colombia, however, experienced the most growth at the lowest cost over this period. Colombia grew its RTR by 3.5 from 2000-2010, with an investment of just \$26.88 per urban resident because it built predominantly low-cost, quick-to-implement BRT instead of metro.

Of course, at the end of the day, a great mass transit system isn't simply about RTR either. As riders of crowded transit cars can attest, absolute mileage matters, as does cleanliness, timeliness, safety, frequency and so much more. As with many urban innovations, mass transit has a complicated calculus. ITDP's new RTR metric is a valuable addition to the equation. Using it alongside other analyses of transit routes, congested streets and livability indices, planners and officials can better understand how to build the systems that residents and visitors want and that cities and countries can depend on to get economic and environmental results.

*Parts I and II of "Best Practice in National Support for Urban Transportation" is available for download from [itdp.org/library](http://itdp.org/library).*

Image: ITDP

# D. Thara on Transforming Ahmedabad

Interviewed by Aswathy Dilip



*D. Thara began her career in the city of Ahmedabad, India, ten years ago. After holding a variety of administrative positions, the 43-year-old was appointed CEO of the Ahmedabad Urban Development Authority (AUDA), the regional planning agency, in 2012. At the time Sustainable Transport went to press, the government of Gujarat announced that Thara would also hold the post of Commissioner of the Ahmedabad Municipal Corporation—the top administrative position in the Ahmedabad city government.*

*Clad in South Indian attire, modest and unassuming in nature, Thara is an aggressive and hard-charging administrator with a mission to transform the cities under her leadership. Her vision, determination and fearless nature have been the driving forces behind major changes in the city during her tenure, including the implementation of a world-class bus rapid transit (BRT) system, known as Janmarg, in 2009, and the release of a progressive city-level development plan in 2013.*

*While most cities in India are still flirting with the twin challenges of urban development and transportation, AUDA is taking these issues head-on. ITDP spoke to D. Thara about the city, her achievements, the challenges she has faced and future initiatives.*

Ahmedabad witnessed a major transformation with the launch of Janmarg, the only silver-rated BRT in India. Since its launch, the system has expanded to a network of 86 kilometers and 120 stations. Janmarg clocks travel times almost as fast as the Delhi metro, but was built at only ten percent of the cost. Despite the advantages of BRT, many cities in the country are looking to build metros or monorails. Do you think BRT may be a better option for these cities?

It is not a question of metro versus BRT. If you look at the textbook definitions of rail and bus transport, rail is a mode that can transport a large number of people over long distances. A bus system may have a lower capacity, but it can take people the last mile, all the way to their destinations. Metro systems make the most sense when there are movements that are unidirectional. Yet a metro alone cannot serve a large city. Whichever city has crossed the 5 million population mark needs to have a BRT system.

Metro is a high-cost, high-technology solution that has a certain “feel good” factor. BRT also has a feel good factor, but this can only be achieved when BRT is implemented to its fullest—where BRT acts like a metro in all senses: the time taken, the fleet size, the way the system is managed, the ease of access, the level of comfort. With all of these elements together, a BRT system can match up to a metro. But we are still in the process of doing that. We have not yet reached the level where a BRT system can achieve the same standard as a metro system.

What are the biggest challenges in implementing BRT systems in India?

The biggest challenge in executing any project in India is to have control over the project site by the implementing agency. In India, with multiple agencies controlling different assets of the city, most times the implementing agency lacks total control of the project site. This crucial attribute affects the speed and quality of project implementation. When you do not have control over the space where you want to implement the project, you cannot implement it quickly. Other elements of the process—financing, planning, tendering—are now standardized. What is important is that if you want to work on a particular road, you should have control over that space and the ability to execute changes on the site.

**While certain BRT systems, like those in Delhi and Pune, are struggling, Janmarg has proven to be a successful model. What factors have contributed to Janmarg’s success?**

The success of Janmarg can mainly be attributed to the unity of control and command exercised by the newly created implementing agency—a special purpose vehicle known as Ahmedabad Janmarg Limited (AJL). The clarity of thought, clear understanding of design features of a high quality BRT, effort to get all stakeholders on board, thorough planning and standardization of processes by AJL are a few of the aspects that contributed to the success of Janmarg. Both Delhi and Pune lacked a dedicated BRT agency with a clear





**Travel distances depend on the compactness of the system. It is possible to be compact. It is also economical to be compact.**

mandate to look into all the aspects of their respective BRTs.

When urban projects are floated, advice is generally available from two sources: from well meaning administrators, consultants or academics, who have a public opinion on issues, and other people who have worked on such projects—who understand the nitty-gritty of the project. Differentiating between the two types of advice and choosing the right one is very important for the success of the project. It is also important to critically evaluate the advice one gets—is it tenable, sustainable and workable? Is it right for the context? Something that might be right for Pune might not be right for Ahmedabad.

The next element is to ensure the financial sustainability of the project. Transport projects, by and large, require government subsidies. The Bangalore Metropolitan Transport Corporation reports that its operations make a profit—but they operate large volumes, with more than 6,500 buses and 5 million passengers a day. Ahmedabad still does not have such a large number of buses, but we are moving in that direction step by step.

Financial commitment is required throughout the project—not only in terms of construction but also during the operational phase. Financial commitment should come out of democratic pressure, so that no one can cut funding in the transport budget. Good transport systems work well enough that no politician can refuse to fund them.

**Following the launch of Janmarg, Ahmedabad revamped its development plan to emphasize compact development along rapid transit corridors. Some noteworthy features include a fine-grained street network with emphasis on non-motorized modes, enhancing the interface between the public and private realms, removing restrictions on the utilization of higher FSI, and relaxed off-street parking requirements. Why do you think this transit-oriented approach is the right way to go?**

People say that by 2050 the world will run out of petrol and diesel. Then, how will we run our vehicles? If we spread our cities, how far can we continue to commute? Secondly, if we convert all our agricultural land into urban areas, where



Top: A rendering of new transit and pedestrian improvements in Ahmedabad.

Bottom: A typical intersection in Ahmedabad.

will we get our food?

Making a city compact improves convenience because people do not need to travel long distances. Travel turns hours of people's lives into nonproductive time. A human putting in so many unproductive hours—such as traveling four hours to work for six hours—is stupidity! I think children should not travel more than one kilometer. Travel distances depend on the compactness of the system. It is possible to be compact. It is also economical to be compact.

**A typical criticism of densification is that additional built space will result in chaos in the city. How do you respond to such concerns?**

I find the argument that vertical growth and densification of a city leads





A visualization of the Ahmedabad development plan.

to clutter and chaos baseless. Even today, without densification, there is chaos in many parts of our cities. Chaos and clutter are not a function of the number of people living or working in a certain area. They are a function of spatial planning and management—how the space gets organized. Even in a compact space, you can avoid chaos if it is planned well.

We just need to look for solutions—should we allow horizontal growth or vertical growth? We have not made optimum use of land in the city center. By offering more FSI, we are rekindling the process of urban planning and reorganization—a process by which spaces that are dead today can come alive and be put to use.

A human being lives outside his or her house for 8 to 16 hours, depending on the routine at home. Housing is a function of income, but the other 8 to 12 hours he or she lives outside the house, the kind of urban space that you provide matters. You can provide quality urban space in a city of 400 square kilometers but you cannot do so if the city area goes up to 900 square kilometers. You cannot double up like that. So it is very important to densify.

Chaos is not so much because of a lack of space but because of the behavior of people. I don't think more densification is happening in India

than elsewhere—density is far greater in Hong Kong, Singapore, and many Chinese cities—but why are they quiet and disciplined? I feel the behavior of people in public spaces should change. Many times, one notices that citizens may spit in a local bus, but the same people maintain a higher level of cleanliness within BRT buses. This behavioral difference is evident as BRT buses are much cleaner than the regular buses. The way you maintain spaces can raise standards of behavior.

**In this regard, could you say a little more about a city taking pride in its transport system?**

I sincerely feel that the city's transport system builds the city's fiber. If you travel in a car to all parts of the city, then you make connections with the places you visit. But if you travel with other people in public transport, you also make connections with the people who are traveling with you. City transport actually brings in city integration. I think it brings in a sense of belonging that you will never experience if your primary mode of transport is a private vehicle.

If you are traveling by a metro or a BRT, it is not only transporting you from one place to another, but it is also enriching your experiences in life. Sometimes, people fall in love by

spending time together in a metro and get married. Sometimes, BRT becomes a good place to meet up. So your travel becomes a more interesting part of your life and can be life-changing itself. This way transport networks are a part of city space and improve city interaction.

**What convinced AUDA to eliminate minimum parking requirements and also discourage the provision of parking in the central business district and transit-oriented zones?**

We decided to eliminate off-street parking requirements because we are confident that we can implement effective on-street parking management. The moment you do a better job of managing on-street parking, the private sector will take care of off-street parking. We are also confident that we can improve public transport to the CBD.

If you can manage your public realm better, provide better public transport and ask people to follow parking rules in the public realm, then you can let people organize private parking accordingly.

**Can we talk about the role of the private sector in urban transport and urban development? How has your experience been with private sector engagement in the operations of Janmarg?**





## If you are traveling by a metro or a BRT, it is not only transporting you from one place to another, but it is also enriching your experiences in life.

What I have seen in Janmarg is that the private sector engagement has been pretty smooth. The way you write the contracts matters a lot. We made a good tender, and a good tender means good execution, and good execution means no problems. Until now, there have been no problems. The operator is happy and there hasn't been a single dispute between the operator and the government. The formula in the bus operations contract is clear—if diesel prices go up, the cost of operations goes up.

**What do you think is the value-add of bringing the private sector into public transport operations?**

Efficiency is the main value addition that comes with private sector participation. The structure should allow the private sector to maximize profits within given parameters. In the public sector, there are many things that play a role—efficiency is not our major goal. So things become inefficient. The private sector always maintains efficiency because of the pressures of competition. The only way the private sector can maximize profits is to operate efficiently. Unless you work with the private sector and find a way for the private sector to earn reasonable returns, there is no way for meaningful private sector participation.

**Do you see the new development plan as a win-win situation for the developers and the public at large?**

I think it is already that way, because otherwise I would not be sitting here. We have the support of 95 percent of the developers of the city. Developer support is very important to kick-start this process.

The private developers are making profits with the increased built space, but they are also devoting 20 percent of their land to the public realm. They are willing to build and reorganize their space based on the regulations laid out by the development authority. The developers benefit but at the same time they are giving back to the society. The more important part is how we put this public space to good use in the public realm.

Further, by creating an aggregation of floor space in certain zones, and concentrating people near rapid transport, we are creating the crucial number of users required to ensure the viability of the rapid transport system. So, density and transport feed into one another.

**The national political scenario has changed and the new government is keen to develop 100 “Smart Cities” across the country. What are the key issues that should be addressed in this initiative?**

First of all, these cities need a vision and planning to achieve the vision. I think many of these cities do not even have a proper idea of how they want to develop. What are their views toward urban planning? How are they going to approach densification? What are the political conditions? How do they envision their future?

The objectives and principles that will drive these plans should be very clearly established right away. Otherwise, these efforts may result in unintended consequences. Urban transit, urban planning, urban space making and urban infrastructure—these four components should be a part of the plans for these cities.

**Once a vision is drawn up, what are the**

**most important factors that will play a critical role in the implementation of this vision?**

The agencies have to share the same vision. Once they converge on a vision and plan, you can say who will deal with what. Above all, political leadership is essential to guide the collaboration. In Gujarat, after the then-chief minister gave his blessing to the BRT, people couldn't pull the project in different directions. Even today there is strong leadership from the state government.

**What do you think is the role of an organization like ITDP?**

One aspect that I really admire is that organizations that work in several countries have a different perspective. They have an in-depth understanding of the subject.

Secondly, since ITDP is not remunerated by the local agencies, you don't need to please me, nor do I need to please you. You can have a clear standpoint based on your principles, which is very important for a project. I personally feel that NGOs like yours should get funded from other sources and not from the city agency. It helps a lot. It goes a long way.

And further, ITDP does not work out the detailed cost or construction details of a project. So the role of ITDP is unique in that sense. ITDP offers their services for a project because it wants to correct the status quo. ITDP's role is above a consultant and below an honorary organization. I think this role, with the wisdom and independence of the organization, gives a lot of strength to the solutions offered by ITDP. This makes ITDP and organizations like ITDP very important.

# From Curitiba to Guangzhou: 30 Years of Bus Rapid Transit



By Walter Hook

When the Institute for Transportation and Development Policy opened its first office in 1985, BRT was still an unconventional mode of mass-transit. The idea that high-quality buses, in dedicated lanes with metro-like stations, could quickly and conveniently carry large numbers of people was known to transport planners. Only Curitiba, Brazil, had really implemented something similar to what we consider Bus Rapid Transit today.

There, in 1974, Jaime Lerner, an architect-turned-mayor, implemented what came to be known as the world's first BRT system. Curitiba's trademark tubular pre-paid boarding stations came from his imagination. Despite the system's success and popularity in planning circles, and despite numerous predictions that BRT would become the wave of the future, it took two more decades to take off. The bus operators fought BRT because it meant greater government control over their operations. Metro and light rail companies fought it because it was a threat to their core business. Curitiba added many of the components of what we now consider Gold Standard BRT only gradually: the dedicated lanes in the central verge were there since 1974, and were copied from older street car road cross sections. Off-board fare collection was only added in the 1980s—and passing lanes and express services only in 2010. Separation of the farebox revenue from the operators also only happened in the 1980s.

As the BRT concept was copied in other Brazilian cities, without off-board fare collection or platform-level boarding, and without better regulation of the operations inside the busway, BRT developed a bad name in Brazil. Concentrating too many old buses in a single lane without the other BRT features led to slower, rather than faster, bus speeds and concentrated pollution along the BRT corridor, bringing blight. As a result of this and a coordinated attack against the concept of BRT by rail interests and the bus operators themselves, BRT fell out of fashion in Brazil for three decades.

Curitiba was also copied in the U.S. in a handful of cities. Pittsburgh opened its first busway in 1977, and another, better corridor in the early 1980s, taking advantage of an abandoned railway right of way. These systems never came close to the technical standards that Curitiba reached.

It wasn't in Brazil or in the U.S., but in Bogotá, Colombia, that BRT went through its next evolution, when TransMilenio opened.

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Above: TransMilenio proved that BRT could reach speeds and capacity levels competitive with metro systems but could be built at a fraction of the cost.



TransMilenio proved that BRT could reach speeds and capacity levels competitive with metro systems but could be built at a fraction of the cost. Suddenly cities around the world could afford mass transit, and they started to invest in BRT because it was a financially viable alternative to metro and light rail. Pittsburgh and Cleveland in the U.S., Ahmedabad in India and Johannesburg in South Africa found that if they built high-quality BRT systems, it was not only equivalent to rail in terms of quality of service and speed, but also in its ability to generate new development and help revitalize communities.

The next major leap forward for BRT came in Cali, Colombia, and Guangzhou, China. Until these two systems opened, the planning profession believed that there were two types of BRT systems: “trunk and feeder” systems which had all of the BRT features, like off-board fare collection and platform-level boarding, that were introduced in Curitiba and Bogota; and “open, direct service systems” which allowed normal buses to operate in mixed traffic and enter a dedicated lane on a main trunk road, following the example of São Paulo, Porto Alegre, Brisbane and a few other cities. These

This new wave of BRTs has passing lanes, which allow for express and local service, giving BRT a another advantage over light rail.

High quality BRT provides the best possible service to transit customers. The next evolution in BRT is likely to involve providing more service options to BRT customers. Once BRT right of way has been dedicated and beautiful stations built, a variety of services can take advantage of these facilities. In order to justify dedicating a lane of traffic downtown, particularly in the U.S., where demand is low, as many buses as possible should use the lane. In most U.S. cities, this means allowing a variety of services to use the lane, including longer distance express buses serving a variety of destinations. To use the BRT stations, special buses are needed, but these additional services



Left: Guangzhou's BRT, which is rife with innovation, will soon be the world's most heavily used. Right: The world's first BRT system, in Curitiba, Brazil, was an auspicious start, but it took decades to replicate its success in other cities.

systems lacked the full BRT station features of platform-level boarding and pre-paid fares.

It wasn't until Guangzhou's BRT and Cali's Mio system opened that the full BRT station features were introduced into a system with direct services that also operated in mixed traffic for part of their route. These “hybrid” systems became the new wave.

That design allows BRT vehicles to continue beyond the dedicated corridor with specialized stations into mixed traffic, where it becomes like a regular bus. This reduces the need for a time-consuming and inconvenient transfer. This best-of-both-worlds approach saves time for passengers, allows for more flexible routes and lowers construction costs by eliminating transfer terminals.

Guangzhou has become a global model. When a second planned corridor is completed, it will surpass TransMilenio as the world's largest system. What's more, it has become a global model. Lanzhou, China, and the Yichang BRT, scheduled to open in 2015, all have this hybrid operation.

can be added gradually as demand grows.

There is potential for BRT in other surface transport systems as well. In Sweden, the light rail right of way is also usable by buses, and cities considering LRT systems should consider replicating that. This would allow LRT to serve the trips primarily going up and down the trunk corridor, while the same dedicated right of way can be used by trips that are just passing through the corridor.

No matter BRT's exact future, one thing is certain: its days as an unconventional mode of mass transit are long gone. With every Gold Standard system comes more proof—and more certainty—that BRT will be a significant force in the urban planning landscape for the next 30 years, and far beyond.

# 30 YEARS OF ITDP

ITDP is celebrating its 30th birthday. In the past three decades, ITDP has worked in over 104 cities in 23 countries. Through advocacy, technical expertise and on-the-ground work, we've designed, built and implemented sustainable transport systems that have saved time, money and improved quality of life for millions.

## THE AMERICAS

- 1985**  
**Bikes Not Bombs** NICARAGUA  
In a time of political turmoil, ITDP is founded to send and distribute used American bikes to support low-income communities in need of basic transportation.
- 1989**  
**Mobility Haiti** HAITI  
To improve health care access in rural and low income communities, ITDP works with a local hospital to refurbish donated, used bikes and provide reliable, ambulatory transport for patients and clinicians.
- 2003**  
**ITDP Begins Site Tours to TransMilenio BRT** COLOMBIA  
Kick-starting the era of high-quality BRT and catalyzing the spread of good design, ITDP brings foreign officials to see Bogotá's revolutionary TransMilenio, inspiring new systems in cities around the world.
- 2010**  
**Launch of EcoBici** MEXICO  
Expanding mobility options and reducing emissions, Mexico City's ITDP-supported bike-share system debuts as one of the most successful in the world.
- 2011**  
**Metrobús Expands to Historic City Center** MEXICO  
Mexico City's Metrobús BRT, which launched in 2005, opens Line 4, connecting the city center to the international airport, massively reducing travel times and adding to the revitalization of the historic neighborhood.
- 2012**  
**Opening of TransOeste** BRAZIL  
With support from ITDP and advice from board president Enrique Peñalosa, Rio de Janeiro opens the first Gold Standard BRT in Brazil since Curitiba. TransOeste is the first of four corridors to be open by 2016.
- 2013**  
**Buenos Aires Transport Revitalization** ARGENTINA  
Bringing this cosmopolitan metropolis into the age of sustainability, ITDP works with Buenos Aires officials to pedestrianize 33 blocks of the Microcentro area, add new bike lanes and launch two corridors of bus rapid transit, including on the city's iconic 9 de Julio Avenue.





**2010**  
**2011**

**1989**

**1985**

**2003**



**2012**

**2013**

2004  
1995 1996



2003



2003



2003

2003



2009  
1994

1987



“30 years ago, cycling was considered a fringe element in transportation. ‘Sustainable transportation’ was not yet established as a concept and proposals for research papers and conference sessions about it were rejected. ITDP challenged institutions to pay attention to bicycling and walking and the transport needs of the poor.”

Michael Replogle, Founder and Managing Director for Policy, ITDP

## **AFRICA**

○ **1987**

### **Bikes for Africa** MOZAMBIQUE

ITDP and our partners provided hundreds of bicycles and technical assistance to expand mobility options for farmers, midwives, health and refugee workers.

○ **1994**

### **AfriBike** SOUTH AFRICA

As the country enters a new, post-apartheid era, ITDP helps dismantle the spatial legacy of discrimination by providing more than 700 bicycles to low-income residents of Johannesburg and Soweto. Over the next five years, more than 10,000 bikes were distributed through this program.

○ **2003**

### **The “California Bike” Project**

SENEGAL, GHANA, TANZANIA, SOUTH AFRICA

ITDP works with partners to develop and distribute thousands of new, high quality, utilitarian bikes, supporting local business and allowing many HIV/AIDS workers to double or triple the number of patients they reach. This project later became the Shova Kalula Bicycle Project, which is continuing this work in South Africa.

○ **2009**

### **Opening of Rea Vaya**

SOUTH AFRICA

Rea Vaya, Africa’s first true BRT, opens, connecting the historically black township of Soweto with the central business district, providing a high-quality, safe, efficient, comfortable trip for all city residents.

○ **2010**

### **Opening of MyCiTi**

SOUTH AFRICA

After the success of Rea Vaya, the MyCiTi BRT system opens in nearby Cape Town. This is the first African BRT system to include parallel bike lanes along the corridor.

## **EUROPE**

○ **1995**

### **Saving the Budapest Tram**

HUNGARY

ITDP begins work with the Hungarian Traffic Club, preventing cuts to transit funding, stopping an unnecessary metro line and halting suburban sprawl in Budapest. ITDP stopped the planned destruction of the Budapest Tram, which has been updated, and continues to serve thousands of people daily traveling through Buda and Pest.

○ **1996**

### **Wheels out of Balance** HUNGARY

Following ITDP’s recommendations, the World Bank shifts its transit investment lending portfolio from exclusive road-building to include more sustainable transport options.

○ **2004**

### **Brownfield Cleanup** CZECH REPUBLIC

Addressing critical economic and environmental concerns, ITDP assists in brownfield redevelopment in several cities in the Czech Republic, identifying key site issues, removing barriers to development and auditing brownfield holdings.

# ASIA

○ **1996**

## **Cycle Rickshaw Modernization** INDIA

With India's human-powered rickshaws on the verge of losing out to motorized alternatives, ITDP creates, produces and markets a redesigned, modern cycle rickshaw. The program added over 100,000 modern cycle rickshaws to the streets in India, reducing emissions at significantly lower costs than alternatives and increased rickshaw driver incomes by 20–50 percent.

○ **1998**

## **Pedestrian Improvements in Surabaya** INDONESIA

ITDP begins work on pedestrian improvements in this city of three million with serious road safety problems. The project, which concluded in 2010, resulted in new sidewalks in the downtown.

○ **2004**

## **Opening of TransJakarta BRT** INDONESIA

A major milestone in the replication of high-quality BRT, Jakarta opens the first true BRT outside of Latin America. Today, TransJakarta has grown to 12 corridors and carries 350,000 passengers daily.

○ **2009**

## **Janmarg BRT Opens** INDIA

The first true BRT corridor in India, Janmarg improved the image of BRT in India, and today is moving more than 115,000 residents a day. Ahmedabad and ITDP lead the way in bringing high quality BRT to India.

○ **2010**

## **Opening of Guangzhou BRT** CHINA

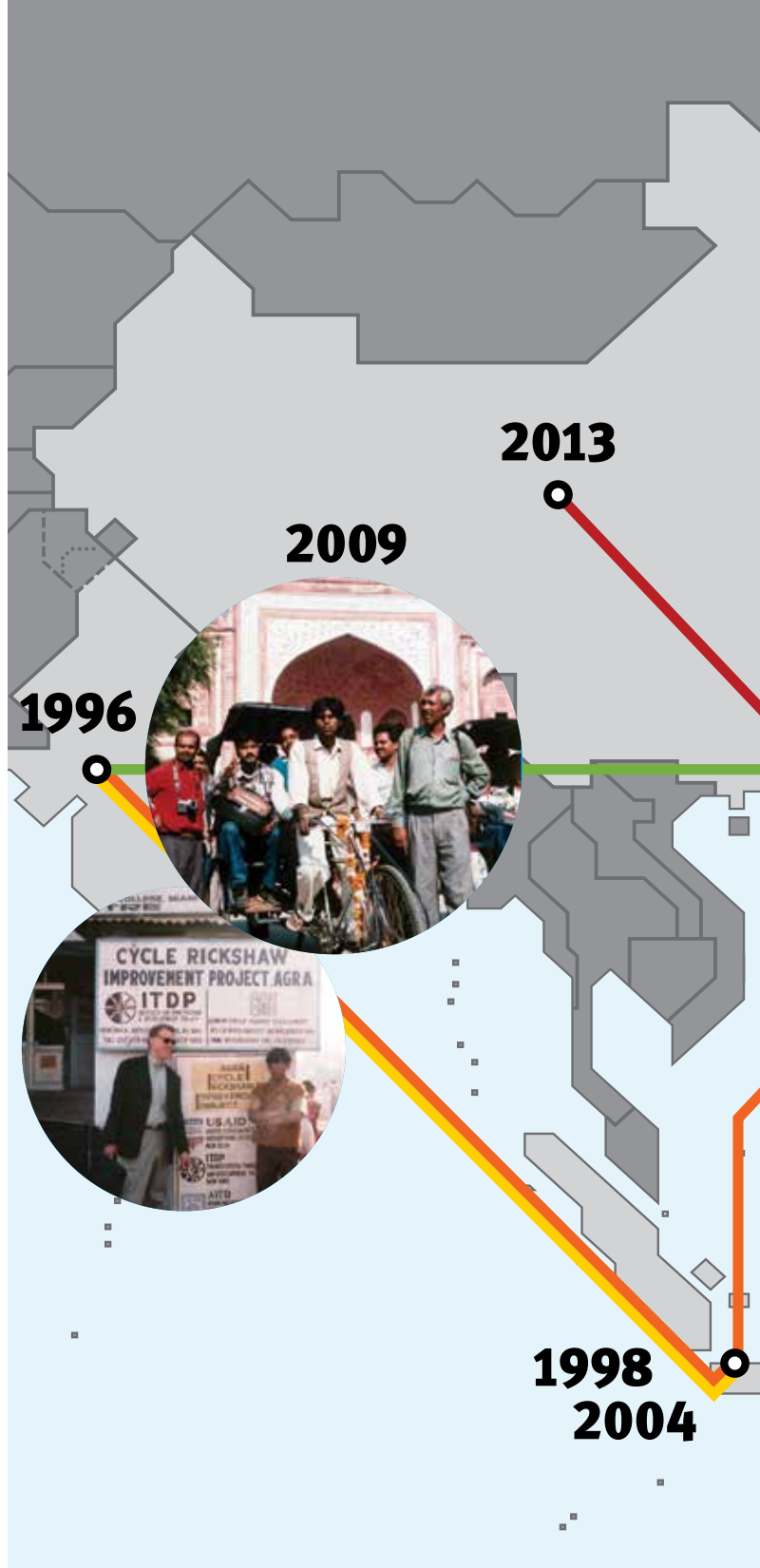
Setting a new standard for modal integration, ITDP works with the city of Guangzhou to design, build and implement Asia's first Gold Standard BRT. Today, the GBRT moves an incredible 850,000 people per day. Along the corridor, the city also opened a high-quality bike share with over 5,000 bikes.

○

**2013**

## **Opening of the Lanzhou BRT** CHINA

Lanzhou, China, pioneers a new station design, improving the capacity and efficiency of BRT and succeeding in creating one of Asia's largest and highest-quality systems. The LBRT was the first BRT to be funded by the Asian Development Bank. In 2014, Lanzhou opened a bike share system along the corridor.





# POLICY

In addition to targeted project work, ITDP has engaged in broad-based efforts to influence transport policy and financing around the globe.

## HIGHLIGHTS

### 1987 Defining “Sustainable Transportation”

The first published paper to define “sustainable transportation,” ITDP’s “Sustainable Transportation Strategies for Third World Development” brings new attention to the economic, environmental and social challenges of improving mobility.

### 1989 Reforming U.S. Transport Policy

ITDP organizes a campaign to press for major reforms in U.S. transport policy and financing. The efforts contribute to the passage of the landmark 1990 Clean Air Act Amendments and 1991 Intermodal Surface Transportation Efficiency Act (ISTEA), which play a major role in reducing America’s car dependence to this day.

### 1995 Getting the World Bank on Board with Biking

After earlier World Bank reports failed to take note of the role and potential of bicycles in urban transport and climate change strategies, ITDP launched an advocacy campaign to encourage bicycle awareness and prioritization, culminating in the Bank hiring its first non-motorized transit expert and laying out its new transport policy in the publication *Sustainable Transit*.

### 1997 Revising the GEF Guidelines

ITDP leads efforts to refocus guidelines of the Global Environmental Facility (GEF) transport program to promote non-motorized transport, travel demand management and traffic reduction schemes, leveraging hundreds of millions of dollars for BRT and NMT projects around the world.

### 2010 Reducing Carbon Emissions from Transport Projects

ITDP produces a report for the Asian Development Bank on the carbon footprint of projects funded by the ADB’s transport lending. The report helps the ADB shift its support toward low-carbon sustainable transit.

### 2012 Rio +20 Multilateral Development Bank Commitment

ITDP, working with the Partnership on Sustainable Low Carbon Transport (SLoCaT), helps organize the eight largest multilateral development banks to make a voluntary commitment of \$175 billion for more sustainable transport over the next decade.

2010



Over three decades, ITDP has worked with some of the best and brightest minds in sustainable transport. A few of them were generous enough to share their thoughts on the past 30 years.

## 30 Years of Progress

by Michael Replogle, Managing Director for Policy and Founder, ITDP



In 1984, with the U.S. involved in an illegal war on Nicaragua, a conversation with a friend of a friend, bike mechanic Karl Kurz, resulted in a simple idea: to send bikes (not bombs)\* to teachers and health workers as humanitarian aid. We set out to organize bike clubs and churches to donate secondhand bicycles to Nicaragua as a response to the CIA's drug-funded war, and as a way of empowering ordinary American citizens who felt helpless to stop the actions of their government, but also as a way to demonstrate how basic mobility can massively improve quality of life.

The following year, we incorporated the Institute for Transportation and Development Policy. What started with 100 bikes, quickly grew to 10,000, moved beyond Nicaragua, to Haiti and Mozambique, and included efforts to reform the transport policies of both the World Bank and the U.S. government.

Thirty years ago, cycling was considered a fringe element in U.S. transportation research, planning and engineering. "Sustainable transportation" was not yet established as a concept, and proposals for research papers and conference sessions about it were initially rejected. A 1984 World Bank report on China, a country where the vast majority of people traveled by cycling, did not even contain the word "bicycle," and the World Bank's Urban Transport Sector Study mentioned cycling just four times in 300 pages, disparaging it as a marginal mode suited just for villages. These

policy choices demonstrated just how forcefully American car culture was being exported to the rest of the world, to everyone's detriment. The World Bank was happy to fund road and railway construction but considered walking and bicycling to be backward modes of travel, not worthy of attention, let alone financial support.

Through conference sessions, publications and letter writing campaigns, our small team challenged the World Bank and other institutions to pay attention to bicycling and walking and the transport needs of the poor. Gradually, we made progress. We got the World Bank to hire its first bicycle coordinator. Invitations to train Bank staff and advise on integrating non-motorized transport into Bank strategies and projects followed in the 1990s.

In a mark of how far we have come in 30 years, in 2012, the eight largest multilateral development banks (MDBs) offered a voluntary commitment to invest USD 175 billion over ten years in more sustainable transport. This action was spurred behind the scenes by ITDP and the Partnership on Sustainable Low Carbon Transport (SLoCaT), which ITDP helped organize in 2009. This brought a new dedication to efforts to advance, measure and report on progress toward sustainable transport.

Though there are still bad ring road motorways and costly metro projects being advanced, many MDBs have adopted sustainable transport policies and initiatives. To accelerate the transformation of lending, we need to continue a



long march through the institutions, helping cities develop and operate more efficient and cost-effective urban transport, integrated travel demand management, non-motorized transport and green freight.

It's amazing to look back and see how much has been accomplished over 30 years, and it's

due to decades of work by ITDP's dedicated staff, volunteers and donors. I want to say thank you for all you've helped us do together.

\*Bikes Not Bombs, the group that launched ITDP, is now based in Boston: [bikesnotbombs.org](http://bikesnotbombs.org).

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# 30 Years of São Paulo

Helena Orenstein de Almeida, Former Director, ITDP Brazil

Today, more and more people in São Paulo are switching to bikes, public transport and walking—and contributing to a more rational, sustainable and pleasant experience in the city. Many feel as if they've come to know a new city, gaining new perspectives on São Paulo by trading the isolation of a private automobile for the freedom of a bicycle.

Thirty years ago, such a scenario was unthinkable, not only in São Paulo, but in other Brazilian cities as well. Car culture reigned in the 1980s, and cycling or promoting the rights of pedestrians were not options considered by either society or government. Tunnels and urban highways were then opened to give passage to a fleet that was beginning to grow and would explode in the 1990s.

The city of São Paulo has made steady progress in the past ten to fifteen years with regard to urban mobility. A consolidated vision of a city where public transport is the primary mode of transportation has taken hold among both the public and the city government. In corridors of power, this vision has transcended partisan bickering to become a nearly universal goal. The positive political agenda and legacies of recent city administrations have been connected to this perception of public space: Marta Suplicy is remembered for having created the Bilhete Único smart card fare control system and for installing

the city's first bus corridors; Serra and Kassab are remembered for the Virada Cultural (with metro and buses running all night for the shows) and their campaign for pedestrians. This progress paved the way for the current mayor, Fernando Haddad, to take even greater strides toward the development of a more just and sustainable São Paulo. Haddad just approved a daring master plan, aligned with the most contemporary visions of urbanism, which are—not by chance—those defended by ITDP.

Exclusive bus lanes continue to be expanded, in an initiative supported by 95 percent of the population. Meanwhile, each month around 40 kilometers of new cycle lanes are implemented and eventually will cover 400 kilometers, the goal established for the end of 2015. This includes the Butantã bike lane, which ITDP designed in partnership with the city. "The example comes from abroad," said the Mayor in a recent interview, thus hinting at the important role that ITDP played and continues to play in these positive developments in São Paulo.

By influencing public opinion through the media and through direct contact with the government, ITDP can be proud of its role in São Paulo, as in so many other cities throughout the world. For a youth of just 30 years, this is no small accomplishment—and this is just the beginning.



Image: ITDP

# The Triumph of TransJakarta

By Alfred Nakatsuma, Regional Environmental Office Director, USAID



When ITDP began, BRT only existed in a substantial form in Curitiba, Brazil, and convincing governments to consider this new system of mobility for their cities was a monumental task. I witnessed this firsthand as the USAID project manager for a grant to ITDP to undertake the establishment of the TransJakarta busway.

In 2002, I went with ITDP and Jakarta's Governor Sutiyoso to Colombia to see the TransMilenio busway in Bogotá. The purpose of this trip was to convince the Governor that a similar busway should be built in Jakarta. We thought this would be a difficult task because BRT was relatively new to Asia, the required budget was big, and there was little human capacity to implement it. We were not highly optimistic. Due in large part to the impressive show in Bogotá, Sutiyoso saw the potential of a high quality BRT system and agreed. ITDP and USAID were elated.

ITDP quickly provided a superior technical design, and Jakarta started construction. However, the six months of major traffic disruption on the city's main north-south corridor created public outcry and political pushback—not from Indonesians, but from the U.S. Embassy in Jakarta. Their acquiescence came only with the assurance that USAID's funding for ITDP's design would not be publicly revealed.

We kept our secret safe for the time being and were certain that the temporary pain would be compensated over the long run. After months of finger pointing and complaints about nasty traffic, TransJakarta was launched and became highly popular. The year the system opened in 2004, it served over 50,000 people per day. Today, it's increased to 11 corridors, serving 360,000 people per day. Unfortunately, the quality of construction was far below the quality of design we provided, rendering the BRT less effective and less efficient than it might have been, and leading to jail time for the contractors involved. But despite all the skepticism and headaches, TransJakarta is still serving the poor, improving air quality and moving thousands of people every day.

Since those difficult times, thanks in large part to ITDP, BRT has increased in popularity and has been developed in many other cities, including impressive projects in China. Cities across Asia and beyond are much more certain about BRT's benefits, and improved designs are creating larger impacts for the benefit of people and our planet.

Congratulations to ITDP for 30 years of hard work. Though your organization is small, you have made large impacts and have helped transform bus rapid transit into a tool for efficient urban transportation, pollution and climate change mitigation, as well as human livability.



After three decades of boundary-pushing work, ITDP knows that the future is always uncertain. Still, imagining, planning and working for a better future are integral to making one. With that in mind, we asked four experts to consider the next 30 years of sustainable transport.

## Old Values, New Again

By Paul Stealy White ,  
Executive Director, Transportation Alternatives  
and former Regional Director for ITDP Africa

As we go deeper into the 21<sup>st</sup> century, demand for ITDP's work is growing. That's in part because of urbanization, and in part because of concerns about climate change, and in part because of the huge successes in ITDP's past 30 years—the world-class BRT systems and bike networks and pedestrian spaces. Mostly though, I think the growing demand for ITDP's work is because of the organization's particular vision.

*The public right-of-way should be designed and managed for the public.*

Until ITDP's founding in 1985, that revolutionary idea was hidden in plain sight, obscured by the decades-long reign of the “expert” traffic engineer, who insisted that rigorous analysis conducted during a site visit or two was the most reasonable way to shape the streets and communities that people called home for their whole lives.

ITDP was the first to plant a big green and white flag and shout to the world: “The engineers have no clothes!” They insisted, with dogged persistence, that there were smarter, more efficient, more inclusive ways to design city streets and urban transportation systems.

This is the sacred work of ITDP—work that has drawn thousands to dedicated service, has caused hundreds of thousands to take action and impacted the lives of hundreds of millions

around the world. Because of the improvements ITDP has won, future generations will be healthier, happier and more connected.

And as we go further into the 21<sup>st</sup> century, and the demand for ITDP's work further increases, it's that particular vision that must carry the day. If I have one big idea for ITDP to ensure 30 more years of success, it is for the organization to meet this challenge of demand by growing its direct engagement with the public and honoring its particular vision for smarter, more efficient, more inclusive ways to design city streets and urban transportation systems.

While policy makers and practitioners are more likely to know ITDP, revere ITDP and demand its services, the riding public is our real customer base. ITDP may be the most effective organization that average citizens know nothing about. Most urbanites are unaware that their public space and transportation resources are being squandered. More widespread familiarity with ITDP, its values, its heroic history and its innovative solutions will ultimately unlock the resources needed to meet the rising demand for sustainable, equitable transportation. An inclusive way of thinking about streets was what set us apart, and an inclusive way of changing them is what will carry us forward with great success.



## Transport Takes Center Stage

By Rehana Moosajee, Transportation Planner, City of Johannesburg, South Africa



Transport is more than just vehicles and infrastructure. Transport is about the dignity of the people using it. Transport policies and practices influence people's access to opportunity, often dictate what life prospects are open to them and substantially influence economies and quality of life. Transportation has been integral in shaping movements for rights and human dignity, from when Mahatma Gandhi came to South Africa and got kicked out of the first class compartment because he had the wrong skin color to Rosa Parks who sat down to stand up, giving birth to the civil rights movement that has transformed the United States.

But even as transport has the power to stir us to act in defense against the indefensible, inequity still plagues transport in the form of where we are putting our resources. I am hopeful that the next movement spawned by transportation is for people-centered cities. The next 30 years of sustainable transport will need to throw off vehicles and modes and focus on human beings. More pedestrians are killed in car crashes than motor vehicle drivers or passengers. Streets and roads around the world are built without sidewalks or cycle lanes, only for cars. And the voices we hear on the radio or TV news are the car captives, complaining about the injustices that car drivers are suffering.

What I hope from the next 30 years is to hear more voices. The voices of the disenfranchised and displaced, demanding transportation that responds to their needs—to reach work and school and hospitals—in an affordable and convenient manner. I hope to hear the silent voices of today demanding sidewalks, so that they do not have to walk in the street, afraid of cars. I hope that the movement for designing cities

for people swells forth, beginning with how we design our streets. We show value for people by giving them dignified and safe options.

To do that, we require an ongoing investment in building transportation leaders who boldly and fearlessly provide thought leadership, challenge the status quo, help to break through siloed thinking and provide voice for the billions whose transport experiences remain challenging on a daily basis.

A commitment to knowledge sharing, respect for local conditions and culture, an openness to share and learn, collaboration rather than competition, approaches that incorporate head and heart: these are what need to inform transport policies and planning as we move forward. We must resist the temptation to see placemaking and transit options as merely engineering disciplines, lest we lose the human component of the decisions being made.

Rea Vaya, the bus rapid transit project I worked on in Johannesburg, was the first investment in public transport that connected townships to the downtown in over a decade. With ITDP's help, we were able to launch based on this. We needed the sharpest minds and the strongest hearts to do this, and now it is expanding and hopefully only getting better.

As ITDP reflects on its past 30 years, may we be reminded of the ongoing urgency in elevating transport in the quest to change the lives of the citizens across the globe. As the world grapples with issues of sustainability, quality of life, growing inequality, poverty and imbalance, the Institute for Transport Development and Policy is likely to have an increasingly important role.

Urban migration, depletion of resources, loss of life through road crashes, diminishing air quality, increasingly insular communities and a focus on infrastructure development to the



exclusion of people are all issues that require bold and visionary leadership. ITDP and the policies it advocates have the potential to equip leaders, decision-makers, service providers and civil-society activists alike with the tools to make decisions that are about the well-being of humans and the planet.

As ITDP turns 30, it is time to create a spotlight on transport that clarifies its interdependency and relationships with other aspects of life. As we pause to celebrate, may we be reminded of the ongoing urgency in elevating transport in the quest to change the lives of citizens across the globe.

# Planning and Implementing Mobility

By Yonah Freemark, Metropolitan Planning Council, Chicago

Change has set in. In virtually every American city, the fastest-growing neighborhoods are those located in the core. These communities are dense, mixed-use and made for sustainable transportation. In city after city, this growth has produced more walking, more biking and higher rates of public transit use.

For the most part, the private market has triggered these changes by responding to popular demand that—after two decades of a steady uptick—has ceased to be a “trend” and is now the new development paradigm in U.S. cities.

In too many places, however, development is constrained, and with it our ability to produce transit-rich metropolitan regions. Governmental regulations promote limited density, offer too little transit and require an oversupply of roads and parking. As poverty declines in the core, producing increasingly exclusive neighborhoods, it has shifted to the suburbs, reducing the ability of the transit system to expand access to opportunity and forcing the most needy to rely on unsustainable, expensive personal automobility.

It’s time for the public sector to revamp development regulations to build more livable cities and fully harness this growth.

Stronger political will is needed to fund the transit investments that serve people living in dense areas, particularly in large metropolitan areas. New York, Los Angeles and Chicago each have expanded their rail and rapid bus networks

to meet their respective needs, but these efforts pale in comparison with those being made in major European and Asian regions. If we’re not careful, continued core growth without corresponding transit investments will mean increased congestion and journey times, reducing quality of life. A failure to invest outside of the traditional city will mean a continued geographical disconnect between the transit system and the population that most needs it.

To seize growth’s momentum and ensure equity in our transit-oriented neighborhoods, we must allow increased density. This requires not only regulatory changes, but also a commitment to using city land more effectively as a development resource that prioritizes mixed-use, mixed-income projects. Not doing so will reduce the potential for economic growth, increase housing prices and ultimately limit our ability to contain unsustainable, automobile-oriented greenfield development.

Over the next 30 years, leaders of American cities must take a more dominant role not only in developing proactive plans for transit-based developments designed in the public interest, but also in leading their implementation. With political leadership, whole neighborhoods can be transformed into urban communities designed specifically around sustainable transport, with equitable access to housing, jobs and other resources.



Image: ITDP

## Urban Mobility in 2045: Energy Production

By Julio Lamas, Journalist, Brazil



According to the United Nations, 6.5 billion people will inhabit cities by 2045, with more than 80 percent of them living in emerging countries like Brazil, China and India. Especially in cities in these countries, one of the most important issues for the next 30 years is how to plan urban centers that will provide a better quality of life for the 84 percent increase in global population that experts anticipate.

Today, many urban planning transformations are underway to create more density in cities, options for public transportation and spaces for cyclists and pedestrians. In the future, the energy matrix will play a larger role in the debate over urban mobility in the context of imminent global warming and the containment of greenhouse gas emissions. But this discussion won't be held on the field of growing consumption as much as it will be in the perspective of production. At this moment, renewable sources account for 22 percent of world energy production, according to the Renewable Energy Policy Network. Indeed, a great leap forward has happened in this direction, but until 2044, solar energy and other clean sources must be assimilated in every economic activity inside cities to answer for a new class of consumers and producers.

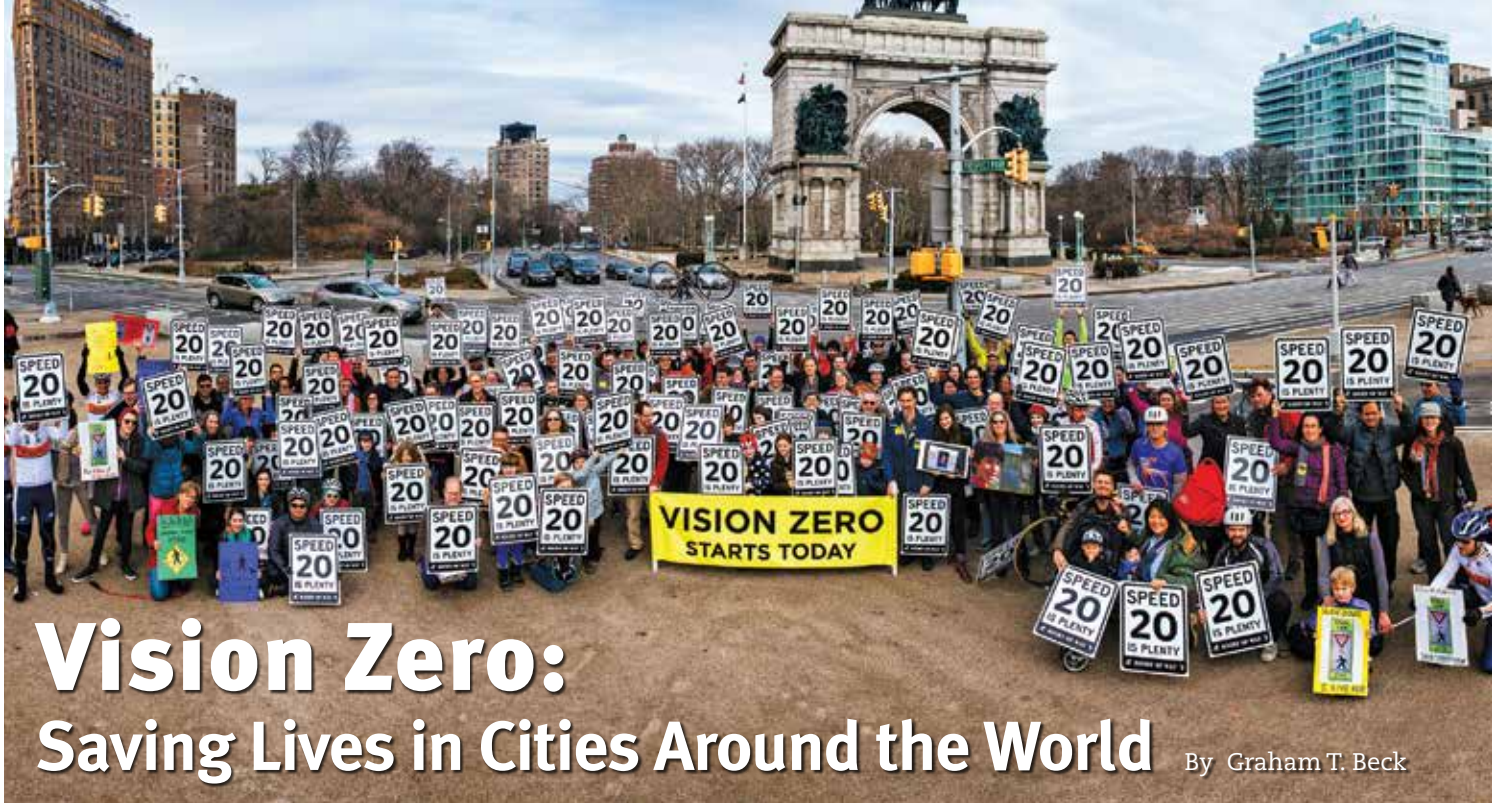
From this point of view, public transportation, cars, cyclists and pedestrians will be partly responsible for pushing forward energy production in more advanced cities. Projects like solar roadways, which make roads and venues pickups for solar energy, will be taken very seriously and will provide electricity for houses and the operation of clean transportation systems and their infrastructure. New buildings will also be smart and involve

new intelligent materials in their designs, as sligher, more transparent and flexible solar cells are developed. Imagine a building by Frank Gehry or Renzo Piano that is able to produce energy enough for its offices and apartments, and at the same time feed the central grid that powers subways, bus rapid transit systems, light rails, electric cars and delivery drones. Drones will lessen short and medium distances between cities, generate information about traffic, facilitate the exchange of products and help to expand the areas covered by local public services and private businesses.

In another technological improvement, we will probably see more use of data-analyzing software for sustainable urban planning and mobility control. And this is exactly what researchers from MIT in India and Singapore and the University of Michigan in the U.S. have been developing over the past ten years. The objective is to allow decision making on urban interventions with the maximum of real-time information and the minimum of direct impact on the cities, through a series of simulations and studies. It will be easier to find new spaces for construction, expand public transportation on demand, create projects with connections between urban mobility modes and avoid traffic congestion.

It's hard to play the role of a fluent and coherent futurologist like Arthur C. Clarke or Ray Kurzweil, but we can try. It helps to think that we in fact live (right now!) in a golden age of knowledge about cities and urban mobility. With great help from ITDP, Brazil has conquered so much in terms of educating and enlightening minds about the importance of sustainable and democratic developments in urban spaces that the vision I described does not seem like such a distant future.





# Vision Zero: Saving Lives in Cities Around the World

By Graham T. Beck

Along with Bus Rapid Transit, shared mobility, bike share and parking reform, there's another movement making waves in urban planning: Vision Zero. As its nebulous name suggests, it is not an obvious infrastructure improvement, but something more philosophical. Regardless, it's changing streets, saving lives and catching on around the globe.

Started in Sweden in the late 1990s, Vision Zero is a commitment to eradicate fatalities and serious injuries from road traffic, which numbered more than 1.24 million globally in 2010, according to the World Health Organization. At its core is a belief that human life is always more important than the transport of people, goods and services. Cities that adopt Vision Zero policies keep this fundamental tenet in mind when making urban planning decisions, allocating police resources, prosecuting dangerous drivers and considering the day-to-day and long-term reality of urban transport.

What started as a particularly Scandinavian idea was adopted by Western Europe, then spread to the U.S., where pedestrian deaths have become a national epidemic. Now, it's having an impact on cities in developing nations. In recent years, Turkey, Brazil, Mexico and a handful of other countries have started looking into Vision Zero policies.

In Buenos Aires, ITDP's regional office has developed—with the World Bank and the city government—an Intersections Design Manual to help make safer streets a reality. In the city's Priority for Pedestrians program, there is a pipeline of more than 100 interventions that include road safety principles with the goal of implementing a Vision Zero policy. More than 20 interventions are already complete, with more on the way.

The uptake of Vision Zero policies is, however, relatively new, and these efforts have taken different shapes in different places, reflecting the needs of local populations. In Sweden, there has been an emphasis on engineering roads to account for human error. In the Netherlands, the emphasis has been on self-explaining roads, which clearly inform all users where they should be and how they should behave. In New York the Mayor and the State Legislature have fought for stricter penalties and automated enforcement of speed and red-light laws, as well as new designs for problematic intersections.

"In New York, Vision Zero has focused public and official attention on the problem of street safety like no other rubric or message has before," says Jon Orcutt, former policy director

Vision Zero supporters in New York City call for a lower speed limit.

at NYC's Department of Transportation, who developed the Vision Zero Action Plan for Mayor de Blasio in 2014. "It has the potential to ignite the public debate about preventable deaths on roads and city streets that is still missing in too much of the world."

While "Vision Zero" has been a much more effective, easily-understood rallying cry than traditional rhetoric about safety, there are many jurisdictions with aggressive safety policies that don't use the term, which is still fairly uncommon outside of Europe and the U.S.

Regardless of the rhetoric or course of action, the results have been promising. For too long, cities and countries accepted traffic deaths as an inevitable consequence of modernity. Now they're seeing past that outdated conclusion, working toward streets that truly serve all citizens. Streets that are safe for all road users are fast becoming a new measure of quality of life and livability. Competitive cities around the world are taking Vision Zero seriously, not only because it's morally right, but because it's a smart way of attracting development and improving the lives of citizens.

# Reinventing India's Rickshaw

By Meenakshi Burman

When I. R. Sharma, a sharply dressed 80-year-old, exits the Civil Lines metro station in Delhi, he heads directly to the waiting cycle rickshaws. Without a pause, he gets aboard, sits comfortably and travels carefree to his destination. “For a person of my age,” he says, “this model of rickshaw is very safe and comfortable.” But it was not always like this.

Rickshaws, which have been an integral part of India's transportation landscape for more than half a century, were once a more challenging affair. Saraswati Devi, who now rides happily down the narrow alleys of Chandni Chowk, Delhi, remembers a time when she'd often slip from the seat because of bumps or suffer under the hot sun and rains.

The cycle rickshaws were a frequent mode of travel in the 1990s, with the number of rickshaws in Delhi soaring from 20,000 in 1975 to 450,000 in 1993. However, the rickshaw ride was quite uncomfortable for the passengers, as well as exhausting for the rickshaw drivers.

The true potential of the rickshaws was discovered in the late 1990s. The Indian government decided to ban polluting motor vehicles within a five-kilometer radius of the Taj Mahal in order to counter the growing menace and damage caused by their pollution. However, visitors and locals needed to easily access the site as well as move comfortably within the neighborhood. With the objective of solving this challenge, ITDP's India office began to reimagine the cycle rickshaw as a modern and more comfortable solution.

With funds from the United States Agency for International Development (USAID) and the United States Envi-

ronmental Protection Agency's Energy, Environment and Enterprise Program, or “E3,” ITDP initiated the India Cycle Rickshaw Improvement Project (ICRIP). This initiative aimed to reinvent the traditional cycle rickshaw by developing a modern version that could demonstrate the potential of cycle rickshaws as a transport mode, an economic engine and a cultural icon.

In 2000, after two years of extensive research and field-testing, the ICRIP design team debuted its modern cycle rickshaw. With reduced weight, increased stability, an ergonomic tubular frame, low step-in height and overhead canopy, the newly designed cycle rickshaws were truly revolutionary both for the drivers and for passengers. After launching the project in Agra, ITDP brought the redesigned model to other markets including Delhi, Noida, Ghaziabad, northern Rajasthan and Lucknow.

The approach was “not to make a complex, high-tech product that is inaccessible to most, but, instead, to proliferate a design that is simple and efficient, whose genesis is in appropriate technology,” explains Shreya Gade-palli, a design consultant for the project who is now ITDP's India Regional Director.

The plan, of course, came with its own set of challenges. It required the



participation of stakeholders including cycle rickshaw manufacturers, drivers and mechanics, who service the rickshaws, as well as small-scale industrial units that manufacture and assemble rickshaw parts. In collaboration with Strategic Alliance—a Delhi based organization led by Nalin Sinha, using innovative management and social marketing strategies, the team promoted and popularized the modern cycle rickshaws and specifically created acceptance to the new design within the existing cycle rickshaw industry.

Rajendra Verma, ITDP's Jharkhand (India) Program Manager, who was part of the project since its inception, recalls that the toughest challenge was resistance from manufacturers. “Initially, the manufacturers believed that we were trying to compete with them,” he said. “They saw the project as a threat to their business.” To overcome this obstacle ITDP organized extensive training and interactive programs with the manufacturers and rickshaw drivers in Agra, Jaipur, Ludhiana and Delhi. These interactions helped ITDP establish strong ties with these stakeholders and earn their support. Rajendra adds that “getting the existing rickshaw industry to adopt the new design was one of the main reasons the project turned out to be sustainable and succeeded at replac-





The new vehicles have brought a sense of pride to the cycle rickshaw profession. Drivers' earnings have improved significantly, and rickshaws are a desirable part of the tourist experience.

ing the old design at a fast pace.”

Sandeep Arora ran a family business making cycle rims in Delhi before opening a cycle rickshaw manufacturing unit with ICRIP's modern designs. He recalls that he was initially apprehensive about this project taking off. “Lack of literacy amongst the rickshaw drivers resulted in resistance to change.” To counter this, ITDP and Sandeep Enterprises organized night workshops for rickshaw drivers in Mayur Vihar, Delhi. Various events organized by ICRIP in collaboration with local stakeholders helped spread awareness about the benefits of the new model.

Though it required a lot of ground-work, this collaborative approach ensured that ICRIP addressed not only the ergonomics, safety, maintenance and longevity of the vehicle—but also its commercial viability. The commercial viability of the modern cycle rickshaws was crucial to ensure the long-term success of the project. The modern cycle rickshaws cost the same as a traditional rickshaw, but last longer and cost less to maintain, making them an attractive financial proposition for drivers.

“In the past five or six years, the market demand for old rickshaws has

almost died out,” observes Mohamed Ismail, who has been driving rickshaws for more than ten years. “Passengers prefer to sit in the new rickshaws. The old rickshaws are now used mostly to transport goods.”

Within two years of their introduction, there were more than 25,000 of these modern vehicles on the roads. And today, long after ITDP concluded the project, in Delhi alone, around 85 percent of the 700,000 rickshaws on streets are based on the design developed by the ICRIP team. Similar numbers of modern cycle rickshaws transport people across Agra, Meerut, Jaipur and other cities.

The new vehicles have brought a sense of pride to the cycle rickshaw profession. Drivers' earnings have improved significantly, and rickshaws are a desirable part of the tourist experience. In cities like Agra and Jaipur, many hotels have started including rickshaw rides as part of their stay packages. Keoladeo National Park at Bharatpur (Rajasthan, India) has a fleet of modern cycle rickshaws to ferry visitors around, with many of the drivers doubling up as authorized guides. Innovation continues as well. In Chandigarh and Fazilka,

**With reduced weight, increased stability, an ergonomic tubular frame, low step-in height and overhead canopy, the newly designed cycle rickshaws were truly revolutionary both for the drivers and for passengers.**

there are now dial-a-rickshaw services, which bridge the gap between demand and supply by providing quick access to rickshaws.

This national transport icon has also brought recognition to cycle rickshaw manufacturers like Sandeep Arora, who is now invited to attend summits on non-motorized transport across the world. He claims that he has sold a few units of the same design in other countries like Dubai and the U.K.

In addition to its successes, the reinvention of the cycle rickshaw also holds a powerful lesson. At a time when domestic and international policies were more inclined toward promoting innovations in the automobile industry, ITDP demonstrated that it is not always advanced technology, but appropriate technology, developed through consensus, that can provide the best solution to a mobility challenge. Tellingly, the same Taj Mahal car ban also spurred the development of electric bus and three-wheeler systems. Despite a USD 2.24 million subsidy, electric vehicles failed to catch on for another decade—when imported Chinese models began to appear. The India Cycle Rickshaw Improvement Project, accomplished at a cost of \$300,000, was able to bring a product to market in a fraction of that time, and the benefits are still felt today.

# Searching for the Next Gold Standard: The Future of BRT and TOD in Asia

By Karl Fjellstrom



The Vientiane BRT, in the capital city of Laos, can be a model for smaller cities throughout Asia and will transform downtown Vientiane.

Prior to the opening of the Guangzhou BRT in 2010, Bus Rapid Transit in Asia, and especially in China, was in dire straits. A string of mediocre, low-capacity BRT systems had opened in cities such as Beijing, Hangzhou, Dalian, Chongqing and Hefei, resulting in many cities either canceling or indefinitely postponing their BRT plans. Since the Guangzhou BRT opened, hundreds of city delegations have visited each year, and cities that had put BRT on hold were emboldened to proceed. Chengdu and Lanzhou are both operational after being directly inspired by visits from top officials to the Guangzhou BRT, and many more kindred systems are operating, in planning or under construction.

However, BRT in Asia is urgently in need of additional exemplars of Gold Standard system design together with Gold Standard TOD along transformative urban corridors. Deterred by the many examples of poorly planned and performing BRT systems, many cities continue to view BRT as a kind of niche, low-capacity application, rather than a true mass transit alternative to underground rail capable of transforming urban corridors in cities ranging from 500,000 to 25

million inhabitants. Thus, while BRT in Asia received a great boost with the Guangzhou BRT, more Gold Standard BRT systems are needed. So, what's next for BRT in Asia? ITDP and other regional experts have their eyes on two systems in varying stages of development: Yichang and Vientiane.

Yichang, the second largest city in Hubei Province, the site of the Three Gorges Dam, will soon be known more for urban transport and TOD than for hydrology. It is hard to overstate the importance of the Yichang BRT project. While Guangzhou shows the way forward for the largest cities, Yichang is directly applicable to the hundreds of medium-sized cities around Asia. In passenger-demand terms, the station and roadway configuration in Yichang will be directly applicable to all but the largest megacities. Meanwhile, key TOD features being developed and promoted by ITDP in Yichang, such as a special zoning for the BRT corridor, an off-street parking cap (rather than a minimum) for new developments, station-area development focusing on robust public space and high quality access and excellent pedestrian and bicycle integration, are applicable in small and large cities alike.

The Yichang BRT system, planned and designed by ITDP China with the Guangzhou Municipal Engineering Design and Research Institute (GME-DRI) and financed by an Asian Development Bank (ADB) loan, will open in mid-2015. The corridor will run 23.9 kilometers, with 37 stations through the heart of the city and connecting major urban sub-centers in the north and south. The BRT will cut travel times across the city dramatically, from 92 minutes to 59. In 2012, ITDP China won an international bid by the ADB to provide the BRT preliminary design in Yichang and prepared the



preliminary corridor design; demand analysis; operations, station and road design; a modal integration plan focusing on TOD, pedestrians and bicycles; and other system features including a revolutionary BRT station design pioneered by ITDP in Lanzhou. This station configuration provides the same capacity as a traditional offset BRT station but with only half the total station length. It has been proven in Lanzhou and is the basis of BRT systems in advanced planning in Tianjin and Kuala Lumpur, but the true test and exemplar of this new approach to BRT station design will be in Yichang.

Like Guangzhou, Tianjin and Vientiane, “direct service” operations are a key feature of the BRT system under construction in Yichang. Under direct service operations, buses serving BRT routes can enter and leave the BRT corridor without the need for costly interchange stations and terminals and without forcing passengers to transfer between trunk and feeder buses. Direct service operations, implemented for the first time with very high capacity performance in Guangzhou, are now increasingly a defining feature of the BRT landscape in Asia.

A second likely transformational BRT project in Asia in coming years will be the Vientiane BRT in Laos. Vientiane is a city with immense appeal that is fast becoming overwhelmed by traffic congestion and related afflictions. BRT, together with TOD, parking reform and complete streets, is the antidote to Vientiane’s transportation ills. ITDP China has provided detailed recommendations and plans and designs for measures in all these areas, with ADB assistance and funding. Vientiane’s BRT is planned to have 24 stations along 11.5 kilometers of BRT corridors, and will be served by BRT routes covering more than 80 kilometers of roads in the city. The project can be a model for smaller cities throughout Asia and will dramatically transform downtown Vientiane. The downtown corridor features a transit mall through the heart of the historical conservation zone, as well as a range of pedestrian-friendly design components. Vientiane will likely be operational by 2019, although the project is still subject to final approval by the ADB and the local government. It has received strong support from key Lao PDR officials and stakeholders and is likely to be implemented.

There are also notable BRT projects on the horizon in Tianjin and Kuala

Lumpur, both cities in which ITDP China carried out the initial corridor selection and preliminary design work, and both with enormous potential provided the project is approved (in Tianjin’s case) and that the right decisions are taken during the final design stage. Kuala Lumpur’s BRT was recently approved but the ability of the system to reach Gold Standard will be heavily influenced by integration with the massive Mid-Valley development, access through the KL Sentral area and extension of BRT routes throughout the CBD and Bukit Bintang areas.

In 2012, ITDP started work on the Yichang BRT after top city officials were inspired to move ahead after seeing the Guangzhou BRT in action. Before then, nobody would have predicted that Yichang could soon be at the forefront of a much-needed sustainable transport revival in China and Asia. It is entirely possible that new city leaders will emerge from unexpected cities over the next few years—the only certainty being that leadership will come from city rather than national level initiatives. Following Curitiba in 1972, Bogotá in 2000 and Guangzhou in 2010, Yichang’s BRT system and related urban development measures along the BRT corridor opening in 2015 will provide a model for sustainable transport development that is sorely needed in China and Asia. Vientiane, Tianjin and Kuala Lumpur, if they proceed, can, with Guangzhou and Yichang, provide the basis for a sustainable transport renaissance in Asia centered on high quality BRT and TOD corridors.



Left: Yichang’s BRT line (shown under construction) is directly applicable to the hundreds of medium-sized cities around Asia.  
Right: Yichang is expected to be Asia’s second Gold Standard BRT and feature a range of TOD improvements.

# Mexico City Completes Its Streets

By Andrea Arzaba and Jorge Cañez

Around the globe, city streets are changing. What were once thoroughfares completely dedicated to the movement of automobiles are becoming places for people, where all road users—pedestrians, cyclists, public-transport customers and cars—can coexist.

These are complete streets.

This change has been underway since the 1970s, when a few progressive cities such as Portland, Oregon, in the U.S. and Emmen in The Netherlands began designing streets that fully incorporated sidewalks, bike lanes, crosswalks, pedestrian medians, bus lanes, transit stations and other features that encourage all means of transportation, as well as private cars.

Hundreds of municipalities in the United States have since adopted a Complete Streets policy or created transportation plans that incorporate Complete Streets principles. In France, the first “living street” was introduced in 2008, Sweden has created “walking speed” areas that give pedestrians and cyclists preference and Canada is planning multiple complete streets in Montreal.

In Mexico City, Avenida Eduardo Molina is the first complete street in the country and one of the first in a megacity in Latin America. This street integrates infrastructure for pedestrians, cyclists, public transport and private cars throughout its entire length. In the two years since it opened, it has radically changed the quality of life of thousands of people whose lives intersect along its route.

“Since Metrobús Line 5 opened along Avenida Eduardo Molina, I can spend more time enjoying my grandchildren,” said José Antonio Gomez, a 60-year-old man with a hoarse, quiet voice. Sitting

beside him was his grandson Emmanuel. José Antonio uses Metrobús to go from his home near the San Lazaro bus station to Coyol, to visit Emmanuel and the rest of his family.

He is one of 55,000 people who ride the route each day. Metrobús Line 5 connects two delegations (boroughs) and is ten kilometers long. Due to the line’s success, there is now a proposal to extend it from its most highly used station, San Lazaro, to Glorieta de Vaqueritos, in the south of Mexico City. This would approximately double its length.

The line’s stations are equipped with bathrooms, and there are six bike-parking lots along the corridor, each with capacity for 100 bicycles. The corridor

and its 18 stations cost USD 800 million.

In addition to the complete street concept, a useful feature of Metrobús Line 5 is the clear information given to its users. At the stations, maps and posters provide information on routes and road safety, while screens announce how many minutes remain until the next bus arrives. Inside each bus, screens and speakers broadcast the name of the next station. These details contribute to the high level of service attained by the line.

Of course, the complete street overhaul of Avenida Eduardo Molina isn’t simply for Metrobús riders. Like José Antonio, Angelica Lopez is an avid user of the new complete street. She is a cyclist who rides the new bike lane daily. Wearing fluorescent tennis shoes, round sunglasses and leggings, she stopped on her bike, and when asked about the street replied, “In general, I feel much calmer and safer because

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Dedicated space for pedestrians, cyclists, cars and buses improves conditions for all users on Avenida Eduardo Molina.





In the two years since Avenida Eduardo Molina opened, it has radically changed the quality of life of thousands of people whose lives intersect along its route.



Left: In Mexico City, Avenida Eduardo Molina is the first complete street in the country and one of the first in a megacity in Latin America. Right: Supporters of the Metrobús give thanks at its grand opening ceremony.

there is more respect for cyclists.”

Like many of her two-wheeled compatriots around the globe, Angelica knows that things aren’t as good as they could be. Cars and motorcycles often block the bike lane and enforcement could be better. Still, she feels, “happy and much safer having it,” and acknowledges that, “Now I don’t have to constantly worry about whether the cars have seen me.”

Though there is not an up-to-date estimate of how many cyclists pedal the Eduardo Molina bike path, informal observations found that the lanes are rarely empty for more than a minute.

Ulises Navarro, Director of Public Transport for ITDP in Latin America said, “When we began to go to meetings about the new BRT line, we made a proposal to include a bike lane, but there was some reluctance on the part of

the Works Department, as many of the people in the government do not bike for transport purposes. They proceeded with the lane anyway, and now cycling has increased in the city and most of the decision makers supported the lane. Most importantly, though, cyclists can now pedal with ease down a road next to the Metrobús.”

And residents and visitors can walk with ease too. The sidewalks along Avenida Eduardo Molina were repaired, and pedestrians, including the disabled in wheelchairs or traveling with walkers, can travel safely. By increasing the width of the path and removing obstacles such as poles, ramps, food stands and trees, ten kilometers of pedestrian space were adapted so that people could travel without a problem.

Julia Zepeda, who uses the sidewalk daily, enjoys the newly remodeled walk-

way. She told ITDP that she appreciates her day more, feels safer and has pride in her city.

All of the changes that went into the redesign of Avenida Eduardo Molina are a historical event for the mobility of chilangos (the colloquial term for Mexico City’s citizens). Thanks to the efforts of planners, advocates, government and everyone involved, it has been shown that building a complete street is possible in the country’s capital.

“Now you have seen how the urban environment can be changed, when we have complete streets,” said Miguel Ángel Mancera, the Mayor of Mexico City. “This is the message we want to take from Mexico City and share with the whole country.”

The chilangos agree. At an opening ceremony held for the redesign of Avenida Eduardo Molina, a local woman was carrying a banner reading, “Thanks for the Metrobús.”

Image: ITDP

# The Promise and Challenge of Shared Mobility

By Michael Kodransky

The term “shared mobility” has emerged as a way to describe the rise of low-volume passenger service offerings such as car-share, bike-share, ride-share and smartphone app-enabled taxi hails. The appeal in these systems is partly economic, as users only pay based on increment of use. These systems also have shorter implementation timeframes, require less upfront capital investment than mass rapid transit, can be piloted before full system scale-up and offer users increased potential for door-to-door access. These reasons together are why cities have been embracing shared mobility. The overall impact can mean an increase in low-carbon travel options, a decrease in greenhouse gas emissions and the possibility of more compact development. By remaking millions of daily trips, these systems are redefining how urban transportation functions in cities from Guangzhou, China, to Paris, to Los Angeles.

There are specific benefits to each shared-mobility mode: round-trip car-share can reduce parking demands and, as a net effect, decrease car ownership and driving (according to extensive research conducted by Susan Shaheen at the Transport Sustainability Research Center of the University of California Berkeley); bike-share increases cycling rates; vanpools may directly connect clusters of individuals with non-traditional work hours to employment centers and they can operate in low density areas with limited public transit availability.

The promises of shared mobility may also, however, come with challenges. Car-based transit, especially one-way car-share systems, has the potential to increase vehicle trips by making cars more available. In some cities, bike-share systems have brought financing and maintenance hurdles, and minibuses, motorcycle taxis and rickshaws require oversight to ensure customer safety and satisfaction.

The prevalence of smartphones has made



New York's Citi Bike program has proven wildly popular.

on-demand travel feasible for just about anyone, making a ride-share just as easy, if not easier, than using public transit. In theory, shared mobility can maximize the use of vehicles (by eliminating empty seats in cars), expand transport options and reduce travel costs for users and cities. Like bike-share, other forms of shared mobility can significantly improve first-and last-mile connections and allow system users to right-size their travel choice, by biking or carpooling or car-sharing as need and circumstances dictate, but without the burdens of vehicle ownership.

Some cities, such as Paris and Guangzhou, have developed smart cards that allow users to effortlessly access BRTs, metros, buses and shared mobility schemes with one payment. When the metro closes in Paris, people can use their Navigo smart card to easily access a Vélib' bike-share station or a Mobilien bus located near the metro. Guangzhou has a similarly integrated BRT, metro, and bike-share scheme that feeds into itself. In this way, the transit agencies are able to optimize ridership on their networks, while the users have more options for how to get around.





Shared mobility is not a new concept in developing cities, where privately-owned, shared vehicles are a common way to get around. In Manila, Jeepneys are former military vehicles that run along various routes and charge a small fee per person, and in Dar es Salaam, shared van taxis or minibuses function as an informal bus system. Bike-share systems and vanpools are examples of shared mobility that are catching on in cities around the world.

To reach scale, shared mobility programs will need to better coordinate with transit agency services for a truly multi-modal public transport network that reaches all people. While conventional transit systems rely heavily on public subsidies, many shared mobility schemes that extend mobility services—especially in the U.S.—have yet to receive consistent subsidies that recognize their public value to the same extent. Transit agencies have a role to play in regulating these schemes, if only to make the best use of them to enhance access and utility of their own systems.

Yet few shared schemes have succeeded in reaching low-income users without some public investment. Potential cost- and time-savings offered by these systems can help lift some of the travel related burdens faced by low-income individuals, while connecting them to opportunities. Low-income people are also disproportionately impacted by the need for multiple payments between transfers and poor transfer facilities.

These are not insurmountable obstacles. Every transport system requires a certain amount of municipal investment—whether financial, infrastructural, regulatory or otherwise—to function at its most efficient. One intervention that would be beneficial to shared mobility is the encouragement of density and transit-oriented development. Locating shared-mobility facilities with transit stations is an obvious way to encourage the use of both. If those are sited near to commercial districts, housing and job opportunities, then a virtuous cycle of use and growth can quickly develop, boosting property values and quality of life for everyone.

Street design and management is also shifting as new visions for public space emerge. Parking formerly used by private vehicles, which remain idle 95 percent of the time, is now being transformed into bike-share stations and round-trip car-share pods. People with varying trip needs take advantage of these assets throughout the day and night, especially when conventional public transit services are closed. In San Francisco, electric scooters will also join the cadre of curbside shared mobility services.

The future of street policies will require a more sophisticated understanding of user needs and movements to adapt and shift away from single-minded car throughput, especially in light of the growing focus on Vision Zero road safety policies. Shared mobility services have the potential to give city dwellers something that they want and are unlikely to get with even the best public transit: door-to-door service. With the right regulation and support, these schemes can free urbanites from the social, environmental and actual cost of private car ownership.

# Left, Right or Center: The Case for Smart Transit

By Jemilah Magnusson

Earlier this year, the Tennessee State Senate became an unexpected BRT battleground. The Republican-controlled body passed legislation aimed squarely at defeating a proposed 7.1-mile BRT corridor in Nashville known as the Amp.

The bill, Tennessee Senate Bill 2243, would have prohibited the use of dedicated lanes for surface transit, effectively banning the center-running transit lanes that are the mark of true BRT, as well as hampering any other surface mass transit.

Political controversy is nothing new for transportation projects, but the Nashville example is notable for its partisan origins. Americans for Prosperity (AFP), a lobbying organization founded by fossil-fuel billionaires Charles and David Koch, who are well-known in the U.S. for their backing of the extreme right-wing Tea Party, poured millions into the anti-BRT effort. They have also stoked paranoia about the concept of smart growth, which they see as infringing on their rights to live, and drive, with maximum use of fossil fuels.

“This is one of the most anti-mass transit pieces of legislation I’ve ever seen,” said Annie Weinstock, ITDP Regional Director, U.S. and Africa. “Even though it didn’t succeed, this coordinated attack on mass transit could have serious national implications.”

Tea Party extremists aside, sustainable transport is not an issue that should break down along party lines. In the U.S., both Republicans and Democrats on the municipal level have

championed—and opposed—measures such as congestion pricing, bike-share, and BRT. Left, right or center, everyone benefits—and every political philosophy wins—when there’s smart investment in quality transit, particularly BRT, for cities, suburbs and rural areas.

That’s because BRT is cost-effective and an economic engine. As detailed in ITDP’s “More Development for Your Transit Dollar” report, a world-class BRT corridor can generate massive returns in development projects for every dollar spent on BRT construction. Cleveland’s Silver Standard HealthLine BRT corridor, which was championed by the Republican George Voinovich, has returned \$114.54 in TOD for every dollar invested in BRT construction.

Conversely, the absence of transit, and the parking lots and traffic and massive automobile infrastructure it necessitates, are an economic drag. In New York, São Paulo, Mexico City and Ahmedabad, India, real estate developers are actively fighting to give road space to transit, bikes and pedestrians and remove parking minimums so that their new projects can meet their new customers’

demands, and increase their profits.

And then there are the demographics: Study after study finds that young people—even in car-centric U.S. suburbs—are eager to live car-free lives, without loan payments, insurance costs, or the lifestyle that comes with traffic. A similar trend is evident among older Americans as well. They can live happier and more independent lives in places where they’re able to walk, easily talk with neighbors and meet their needs without a car.

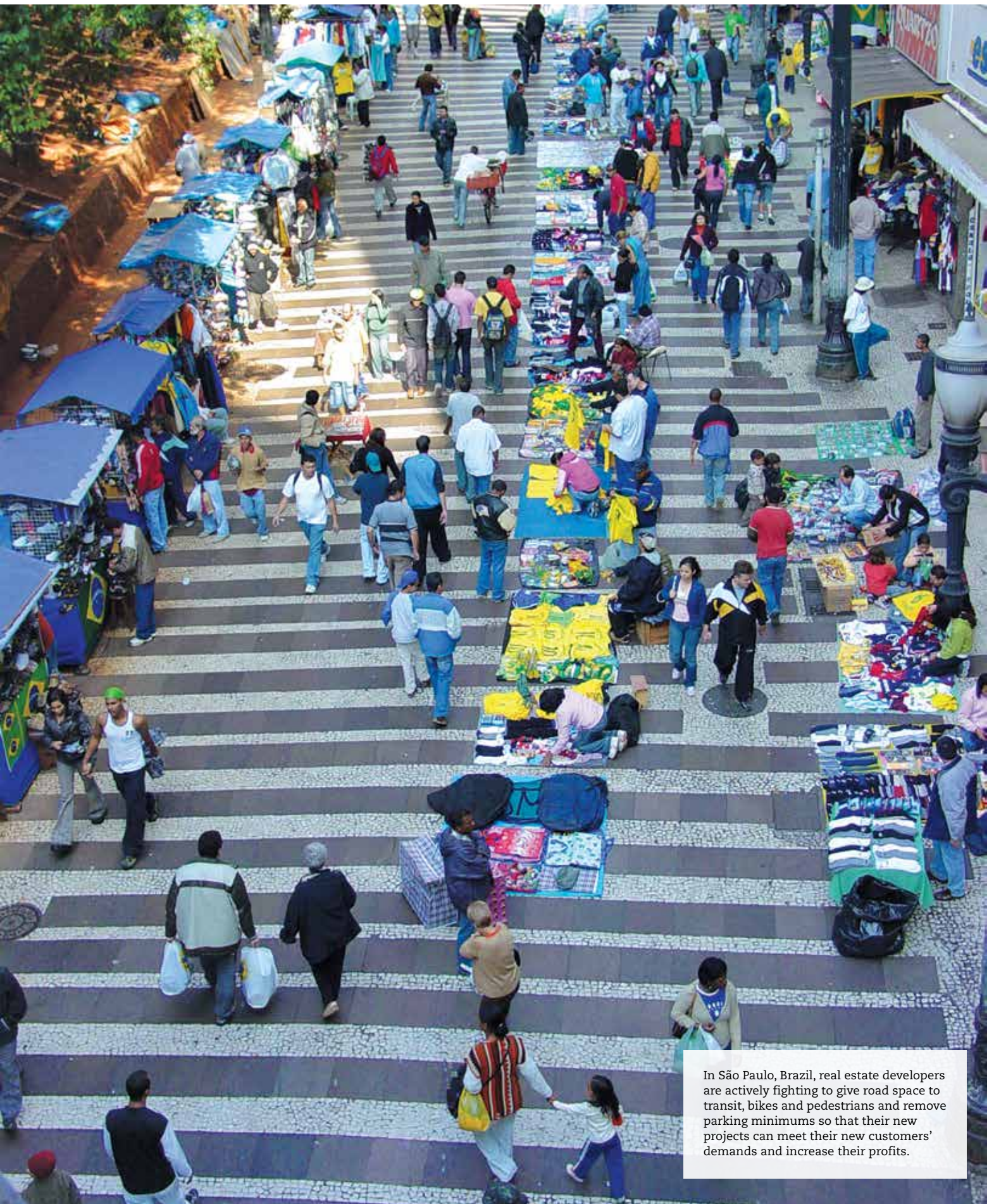
Though the events that transpired in Nashville are a frightening and extreme example of the sort of politicization that can really disrupt a transit project, they are also informative. Real change requires committed champions with political courage. It’s not about left or right or liberal or conservative but standing up for what’s best. When it comes to transit, it’s quite clear that—whether measured economically, socially, demographically or otherwise—allocating road space to transit, reforming parking and generally supporting the shift away from cars to more sustainable modes is the smart way forward.



Right: Tennessee Senate Bill 2243 would have prohibited the use of dedicated lanes for surface transit, effectively banning the center-running transit lanes that are the mark of true BRT, as well as hampering any other surface mass transit.

Images: Nashville MTA





In São Paulo, Brazil, real estate developers are actively fighting to give road space to transit, bikes and pedestrians and remove parking minimums so that their new projects can meet their new customers' demands and increase their profits.



# ITDP Celebrates Park(ing) Day 2014

By ITDP Staff



Park(ing) Day helps city dwellers see their streets in a new way. With the right changes, what was once simply space for cars can become a place to work and play.



Images: Stefano Aguiar

Park(ing) Day is an annual, worldwide celebration where artists, designers and activists transform metered parking spaces into temporary public parks. On September 19, 2014, tens of thousands of people from over 100 countries created over 1,000 parks, reclaiming valuable street space from cars, for the benefit of people and community.

This “open source” project was created by the San Francisco-based art and design studio Rebar in 2005, with the intention of rethinking the way city streets are used, and to call for broad-based changes to urban infrastructure. “Urban inhabitants worldwide recognize the need for new approaches to making cities,” says Rebar principal Matthew Passmore. “The planning strategies that have led to traffic congestion, pollution and poor health in cities everywhere do not reflect contemporary values, nor are they sustainable. Park(ing) Day raises these issues and demonstrates that even temporary objects can improve the character and quality of the city.”

ITDP staff in Mexico City and Rio de Janeiro hosted Park(ing) Day events with local partner organizations, providing games, education and community participation.

For more information and a map of events from around the world, visit [parkingday.org](http://parkingday.org).



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Images: City of São Paulo, City of Rio de Janeiro, City of Belo Horizonte

