

# sustainable

## TRANSPORT

Winter 2010 | No. 22

### Guangzhou: Year of the Transit Tiger

Back to the Future:  
**Reinventing Modernism  
for the Developing World**





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Students waiting at the station of Johannesburg's new bus rapid transit system, Rea Vaya. Image: Philip Mostard





## Contents

Winter 2010 | No. 22

- |    |   |    |  |
|----|---|----|--|
| 4  | <b>Letter from the Executive Director:<br/>From Best Practice to<br/>Paradigm Change</b>                          | 24 | <b>10 Principles for<br/>Sustainable Transport</b>         |
| 6  | <b>Better Parking, Better Streets</b><br>By Michael Kodransky   | 26 | <b>Will Rio Win, Place, or Show?</b><br>By Jonas Hagen     |
| 10 | <b>Year of the Transit Tiger<br/>in Guangzhou</b><br>by Karl Fjellstrom   | 29 | <b>Tearing Down to Try Again</b><br>By Carlos Felipe Pardo |
| 16 | <b>Back to the Future:<br/>Reinventing Modernism<br/>for the Developing World</b><br>By Walter Hook and Luc Nadal | 32 | <b>Catch Us if You Can:<br/>The Rise of Commuter Races</b> |
| 21 | <b>Off the Rails: BRT in the USA</b><br>By Annie Weinstock  | 33 | <b>Buenos Aires Bikes!</b><br>By Amalia Holub              |



Cover: The Lizhiwan Canal restoration in the historical center of Guangzhou is just one of the landmark improvements being made across the city.  
Image: Wenyuan Zhang

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# From Best Practice to Paradigm Change

By Walter Hook



**If the whole world has to agree to address the problem of climate change, then our children are in serious trouble.**

A Pew Center poll conducted in October found that only 39 percent of Americans believe climate change is a real problem caused by human activity. Given that statistic and the current political landscape, the chances of a new energy and climate bill coming out of the US any time soon are slim to none. This has severely undermined the likelihood of any global agreement on climate. Fortunately, not everyone has to agree on the problem for key nations to develop solutions.

In the transport sector, countries are developing aggressive plans to build thousands of kilometers (km) of bus rapid transit (BRT) and metro systems, and bike lanes are coming back into fashion. In February, Guangzhou, China opened Asia's highest capacity BRT system, improving the commute of over 800,000 passengers every day. The system is also served by 5,000 shared-bikes. Nearby, a contaminated canal was turned into a spectacular five-kilometer greenway, with

bikeways, playgrounds and walkways lining the reclaimed waterway. In Ahmedabad, India, the government is expanding the new BRT system to 45 km after just the second year of operation, and the Indian national Ministry of Urban Development is supporting half a dozen other BRT projects around the country.

With the collapse of hope for global action, these local "best practices" will have to become "standard practice." For them to succeed, they will need to inspire other cities to copy these policies and projects, and inspire the general public to demand more. To truly succeed, these best practices must eventually change the paradigm for how we choose to live and travel.

To turn our best practices into a paradigm change, we need to massively scale up our impact. From 2000 to 2010, ITDP began an uphill battle to build an iconic, Bogotá-quality BRT system on every significantly populated continent. For us, the intangible inspiration that was absolutely critical to the success of Bogotá's system – its "Wow Factor" – was a necessary part of planning for its protégés, even if achieving it cost a little more or took additional time. The Guangzhou, Ahmedabad and Johannesburg BRT systems that have opened in the past year not only prove that the mode is as viable in China, India and Africa as it is in Latin America, but that high concept, iconic systems can become part of a city's personality and identity and help establish a brand.

Unfortunately, in the next decade, we face even more daunting odds. If transportation systems will play a key role in avoiding catastrophic climate change, we need to reduce one gigaton of CO<sub>2</sub> per year from current baseline projections by 2030. To get there, we will need to quadruple the combined amount of mass transit in the largest cities in China, India, Brazil and Mexico from about 2,600 km to around 10,000 km by 2020. BRT will play a critical role in achieving this goal. Metros will be part of the solution, but 7,500 km of metros alone will cost more than \$375 billion. A reasonable

Images: Left: Oh-Barcelona.com; Middle: Madpai; Right: Patrick Rasenberg

Left: Bike-share systems, like Bicing in Barcelona, can transform city streets and public opinion.  
Middle: Ahmedabad's BRT is so popular that it was significantly expanded in its second year.  
Right: The Dutch city of Breda breathed life into its streets by regulating parking.





mix of 20 percent metro and 80 percent BRT – using Guangzhou-inspired stations that link the two modes (see page 10) – would cost a more palatable \$100 billion and offer world-class service that inspires iteration.

In addition, to avoid catastrophic climate change, we actually have to stop the increase in private motor vehicle use in more than 20 megacities around the world. This will be extremely difficult in rapidly growing China and India, but if it isn't done, the sort of multi-day traffic gridlock that crippled Beijing recently will become the rule rather than something exceptional. The simple solution? Parking (see page 6). Right now, Guangzhou is building a whole new city center just across the Pearl River that will house almost a million people. Currently, the entire area is zoned to have one parking space for each new apartment. In the rest of Guangzhou, the average number of parking spaces, even in new apartment buildings, is only about one for every five apartments. If the new cities being built in China, India and Latin America use a car-oriented ratio of parking to building, then no matter how quickly we expand our mass transit systems, our climate goals will fail. On the other hand, if those cities look to the best practices in places like Zurich, which has imposed parking maximums tied to congestion and ambient air quality targets, we can reduce private motor vehicle use and help foster more transit-oriented communities.

Finally, we need to change the way our new cities are designed. India will be adding 250 million more urban residents between now and 2030, and China even more. Meanwhile, the inhabitants of dense Latin American cities are relocating to the suburbs in droves. All of these people will live in neighborhoods that have yet to be built, and currently, what these cities are building are Modernist, car-oriented houses and apartment buildings, following a discredited urban design paradigm that has facilitated the current climate crisis.

ITDP – together with our ClimateWorks partners – has initiated the Our Cities Ourselves campaign to try to correct this disastrous misstep (see page 16). The campaign started this summer with an exhibition of alternative future visions of 10 cities around the world, based on the work of 10 up-and-coming architects who believe in the 10 principles of sustainable urban design (see page 24). The exhibition is now traveling the globe. At each stop, it is sparking a dialog about what sort of places we want to

Left: Johannesburg's Rea Vaya BRT has shown that high concept, iconic systems can become part of a city's personality. Right: In Guangzhou's Liuyun Xiaogu neighborhood, single-use housing has become a bustling mixed-use community.

live in by 2030. Concurrently, we are scouring the globe for existing examples of neighborhood-development best practices, and through this process, we are looking for partners who want to work with us to design model neighborhoods. Our challenge for the next five years – as it was a decade ago with BRT – will be to get a best-practice neighborhood built in each of the major parts of the world. These new developments, we hope, will then inspire political leaders in these countries to change the planning regulations in a way that allows for their broad dissemination. By 2020, we hope that this new way of developing neighborhoods becomes the norm. If it does not, the near future will be a radically different place than the near past.

On good days, I am confident that won't be the case. ITDP has had an incredibly loyal group of supporters, donors and friends. When we started 25 years ago, we were a voice in the wilderness. Today, thanks to your support, we have actually witnessed a mass transportation paradigm change. Is it too much to hope for another? The next ten years are crucial. Either, we will find inspiration again and profoundly change the way the majority of the world wants to live and commute, or else our planet will not be able to save itself from irreversible climate change and potentially catastrophic shortages of energy supplies.







# Better Parking, Better Streets

## How European cities are taking control of their traffic trouble

By Michael Kodransky

Not long ago, a wide road lined with parking divided the small Dutch city of Breda. The quaint historic center sat on one side and newer neighborhoods on the other, but between the two was a dead zone. Beneath the road, the city had stashed a 200-car underground parking facility built atop a canal that had been drained and covered over. After years of struggling with the strange road, the garage and the traffic that the facilities generated, Breda decided to rebuild the area entirely. Now, restaurants and shops line a glistening new waterfront and pedestrian promenade, nearby housing values have spiked, and a new, vibrant, integrated city center has emerged out of its parking cocoon.

While a lack of strong parking policy can lead to unfortunate citywide outcomes, it can also have negative effects on day-to-day life. Parking is too often neglected as a policy issue and overlooked as a municipal asset. This frequently results in building codes that require developers to include a minimum amount of parking in new construction to satisfy future demand. Parking facilities in commercial buildings, for instance, are often built to handle the busiest day of the year, or the busiest day of the week, and thus not only remain mostly vacant most other times, but also induce driving with their promise of free and always accessible spaces.

Car parking is also land consumptive, with each space taking up roughly 30 square meters; and because every car trip necessitates at least two parking spaces – one at the start, and one at the end – vehicle storage contributes to sprawling development, sidewalks compromised by driveways and other opportunity costs associated with allocating limited urban space to less optimal uses.

Decades of car-oriented planning practices reveal that parking policy is often the Achilles' heel of cities hoping to reduce traffic, increase transit use and green their streets. For this reason, the Institute for Transportation and Development Policy has begun documenting best practices in European parking management and found a number of cities that reaped big benefits from introducing parking policy reforms on a large scale, and some smaller projects that have been successful, too.

Parking on a neighborhood street in Antwerp, for example, has been removed and replaced with trees and furniture to create a friendly environment for children to play. In the London Borough of Richmond-Upon-Thames, drivers must pay for parking based on vehicle carbon dioxide (CO<sub>2</sub>) emission levels, as assessed at the time of car registration. Other boroughs in the city such as Camden and Westminster have followed a similar course. These small projects can have wide-reaching ripple effects, but citywide parking reform is often much more effective. On this front, Zurich, Paris and Copenhagen have been the most successful of all.

Since the 1960s, Zurich has been pursuing restrictive parking policies in response to limited road capacity, air quality issues and noise pollution. Walking the city streets, one often wonders, "What happened to all the cars?" as former parking spaces have been turned into bike lanes and



Above: Caps on the amount of parking in downtown Zurich helped create a city where residents are never more than a 3-5 minute walk from a tram or bus stop.

Opposite page: Removing parking helped lead to saner streets that are used year round by cyclists and pedestrians.

tramways. Even for such a hilly city, cyclists can be seen making the climb on the steepest streets with children on board. The air smells clean and one element often imperceptibly bound to city life is noticeably missing: traffic noise.

A policy called the *Historischer Parkplatz Kompromiss* – literally, the historic parking compromise – was established in 1996, putting a cap on the city center's parking supply. If a space is created off-street, such as in a garage, in the capped area, an on-street space must be



**Left:** Over three decades, Copenhagen has systematically taken parking space away from cars and given it to people. **Right:** Though car parking is limited, there is ample bike parking in Copenhagen.

removed to keep the supply at equilibrium. New developments must follow a traffic-contingent model, too, which further limits parking outside of the capped zone. Under this system, developments have a specific number of allowable car visits allocated to them. All additional visits must be accommodated by other modes. In the case of SihlCity, a major urban mall, only 8,000 total trips by car were permitted each day, so all other visits must be made by tram, commuter rail, bus, bike or walking.

In addition to restricting the number of parking spots, Zurich also makes its citizens pay for the right to use the remaining limited number of spots, with a detailed price schedule, based on location, time of day and day of week. Parking prices in residential areas are usually the same as in the bustling city centers, and Zurich, unlike most cities, charges more per hour as each hour passes. This captures the added marginal burden a car imposes on urban space, even as it sits idle.

Coupled with and facilitated by these parking policies, Zurich has introduced measures that improve conditions for public transit users, cyclists and pedestrians. Of the 790-kilometer (km) street network, 447 km are dedicated to public transit and 340 km to bike infrastructure. Within city limits, it is impossible to find yourself more than 300 meters from a tram or bus stop. Although Zurich offers less space for cars

and charges market rates for those spaces that do exist, it delivers more mobility to its citizens.

Copenhagen has been reclaiming public space from traffic and car parking since the 1970s. As a direct result of their transportation policy, more people spend time outdoors in Copenhagen today than ever before, even in the cold months, prompting the prominent urban planner and local resident Jan Gehl to boast that the city “eliminated winter in 40 years.”

From 2002 to 2008, 219 parking spaces in Copenhagen were removed and replaced by bike paths. The city has removed parking and transformed one of the main shopping streets, Strøget, into one of the longest pedestrian corridors in the world. Copenhagen also charges high parking fees in the city center, where traffic has dropped by six percent since 2005. The city’s investment in new bicycle infrastructure and removal of auto infrastructure has led to an increase in biking – from a 30 percent mode share in 1998 to 37 percent in 2008 – making bicycling more popular than driving by a wide margin.

The goal in Copenhagen has been to discourage visitors and commuters from coming to the city by car, while encouraging travel by bus, train and bicycle. They have been so successful in achieving this goal, while revitalizing their city center at the same time, that plans are underway to remove even more parking spaces and further restrict car access in the city.

Paris had a later start than either Copenhagen or Zurich – 2003 – but in that short period of time, it has successfully decreased driving by 13 percent through similarly integrated programs that restrict car parking and encourage use of other modes.

The city reduced overall on-street parking supply by nine percent, which in a city of Paris’ size amounts to a whopping 14,300 spaces, and at the same time, converted 95 percent of meter-less spots into paid parking spaces. Roughly 4,000 of the removed parking bays were repurposed to accommodate 1,451 new Velib stations, which hold most of the 20,000 public bike-share bicycles. Car parking spaces were also repurposed for motorcycle parking, bicycle parking, disabled parking and tramway corridor access. Paris has also introduced new car-sharing stations across the city, all of which use former public parking spots.





Left: Paris replaced 4,000 parking spaces with 20,000 bike-share bikes.

Below: A long row of ticketed vehicles in Paris shows the importance of enforcing parking policies.



In addition, Paris, like many other French cities, has been clearing public space of cars by shifting the supply to underground parking facilities, and while not adopting an explicit parking supply cap like in Zurich, the city has eliminated parking minimums and forbids building new parking within 500 meters of a metro stop – as it happens, every part of Paris falls within this distance.

As these three cases demonstrate, it is possible for a city to thrive economically and citizens to embrace mobility, while limiting car use through parking restrictions. When it is free, cheap or in excessive supply, parking infrastructure can be detrimental to street life. American cities like Detroit and St. Louis are tragic examples of the negative impacts of planning for cars. In the past few decades, they have transformed their compact, walkable, charming downtowns into vacant, depressing parking lots. In the process of accommodating hypothetically massive influxes of drivers,

street life has been destroyed, ironically leaving behind a destination no one would want to visit.

As parking increasingly becomes a political issue – mayoral elections in Poland, Mexico and Italy have been won and lost over metered spaces – particularly in the developing world, where car ownership rates are soaring, it is important to make public the best practices that have succeeded elsewhere. Coordinated programs that restrict the number of parking spots and monetize them, while improving the infrastructure for other modes of transport, lead to more vibrant, sustainable and pleasant city centers. Parking caps that determine a maximum amount of parking based on ambient air quality and desired automobile use can achieve similar results as well. For a municipality to successfully tackle the interrelated issues of congestion, climate change and air pollution, parking must no longer be ignored: it is, in some ways, the linchpin of this particular planning problem. The solution is an approach to city design that integrates land-use and transportation planning with regulatory mechanisms that are linked to larger quality of life metrics, like taking a walk and smelling the fresh air.



# Year of the Transit Tiger in Guangzhou

by Karl Fjellstrom



In Chinese mythology the tiger is the king of all beasts, and it is fitting that Guangzhou, the fastest growing city in one of the fastest growing provinces in China, chose the first days of the Year of the Tiger to launch a bus-based mass transit system operating at metro-level capacity that integrates with the city's subway lines and a new bike sharing system.

With China's cities expanding upward and outward, the most vexing question being posed by this unprecedented urban development is how to avoid gridlock. Guangzhou is transcending its manufacturing and mercantile roots to provide a new menu of answers to this question for the Pearl River Delta, China and the rest of the world.



Above: Gangding BRT station.

Below: Gangding before the BRT implementation.





In February of 2010, Guangzhou opened the first “metro-replacement” level BRT system outside of South America. Now, 980 buses using 23 kilometers of dedicated BRT lanes move 800,000 daily passengers through 26 stations. At rush hour, the system carries more than triple the passengers of any other BRT line in Asia, and more than any subway line in mainland China other than Beijing’s Lines 1 & 2.

Above: Gangding bus stop, before and after the BRT implementation  
Below: Access to Dongpu BRT station.





The system will soon exceed one million daily passengers, and within the next few years the Guangzhou BRT will likely exceed the one-directional passenger flows of all the subway lines in mainland China.

Guangzhou's BRT is the first to feature direct physical connecting tunnels from BRT to metro stations. It is also the first high-capacity "direct-service" BRT system, in which BRT buses operate both inside (at BRT stations) and outside (at regular bus stops) the BRT corridor.



Above: Shidajida BRT station is the world's longest.

Below: BRT operators are paid per bus-km rather than per passenger and are controlled at a new BRT control center.





ITDP worked on the Guangzhou BRT together with the Guangzhou Municipal Engineering Design and Research Institute (GMEDRI), from early conceptual planning in 2005 through to implementation and operation in 2010.

Stations feature high quality architecture, real-time passenger information, fare collection upon entry to the station rather than on the bus, and overtaking lanes for very high capacity. The largest stations also feature escalator access.



Counterclockwise from top right: Station escalators move tens of thousands of passengers with ease each day; Broad, shaded boarding platforms offer a comfortable wait; Benches and railings provide places to sit and lean.



Counterclockwise from top: A bike-share station adjacent to a BRT station; A satisfied bike-share customer; A bike-lane paralleling the BRT corridor; And one of the many new greenways.



As well as being the first BRT system in China with more than one operator – the system has seven bus operating companies – Guangzhou's BRT is the first to include bike parking and bike sharing in the station design. A bike-sharing

system that opened in June now has 5,000 bikes along the BRT line at 113 bike-sharing stations and has accompanied the construction of new bicycle infrastructure, including hundreds of kilometers of greenways and single- and double-tier bike parking. Cycling has jumped by 50-100 percent in different sections of the BRT corridor in the first six months of operation.





This groundbreaking BRT system, coupled with development projects like the Donghaochong Greenway, the Lizhiwan Canal and the Liuyun Xiaoqu neighborhood, which converted single-use housing into a vibrant mixed-use area, is remaking Guangzhou as a model city for the new millennium.

Above: (left) The Liuyun Xiaoqu neighborhood and (right) the Lizhiwan Canal restoration in Guangzhou's historical Xiguan district, which opened in November 2010.  
Below: The Donghaochong Greenway.



# Back to the Future: Reinventing Modernism for the Developing World

By Walter Hook and Luc Nadal

During the final descent towards the Beijing International Airport, one can see the future of China's cities. Some 40 kilometers (km) from the Imperial Palace, a grid of wide arterial roads separates superblocks, where row after row of south-facing 15- to 30-story housing slabs rise at varying stages of construction.

The view looks familiar: it looks like the utopian visions of the early Modernists. The high-rise cities of the young Le Corbusier, of Bauhaus planner Ludwig Hilberseimer, and the centerless communities dispersed by a grid of highways that Frank Lloyd Wright promoted are finding their most dramatic expression in China. Like these early Modernist visions, China and much of the developing world are being planned from on high – literally from a bird's-eye view. Unfortunately for those of us who remain flightless, what looks orderly from the air is often alienating on the ground.

Perhaps because single-family houses are virtually unknown in China, and villas have been banned by the national government in an effort to conserve agricultural land, the superblock tower-in-the-parking-lot pattern of development is pervasive. Consulting with China's urban design institutes from Harbin to Guangzhou, one is confronted with town plans driven by outmoded Modernist principles, many of which are embedded in the national planning code. And this planning code produces places that are completely anathema to contemporary pedestrian- and transit-oriented planning: inward-looking auto-dependent single-use superblocks designed for economic simplicity instead of livability; roads built as conduits for speed, where biking and walking and human interaction are an afterthought; the erasure of whatever was on the land before, whether it was historical or industrial buildings, ancient footpaths or elements of the natural environment like lakes,

creeks or old trees. What's more, these same early-Modernist principles inform almost all new development efforts of significant size, from Jakarta to Delhi to Johannesburg to Mexico City.

One major departure from the principles articulated by the Modernist movement is the pervasive spatial fragmentation, security cordons, fences and other defensive measures that further divide and privatize publicly accessible space and hamper the free flow of pedestrians. The security of persons and property were quite minor issues in the visions of Le Corbusier, the Bauhaus and other kindred thinkers. They designed for a generic, standard "man of the future" and simply assumed the

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Left: Though the Pruitt-Igoe complex in St. Louis, Missouri looked orderly from the air, at ground level, it was a haven for drugs, crime and violence. It was destroyed 16 years after construction was completed.

Right: The view from an airplane 40km east of Beijing.







The complexes being built in rapidly expanding cities like Guangzhou will establish transport patterns and energy habits for generations.

advent of a harmonious society free of social, economic and ethnic tensions. One look at the fences and checkpoints that separate the little “Forbidden Cities” of Beijing’s new middle-class from the surrounding communities, and it is clear that such an optimistic assessment of human progress is no longer part of the program.

### Early Modernist Planning and Development

These urban planning concepts were theorized in the early 20th century and drafted as a dogma in the Athens Charter, issued from the debates at the 1933 International Congress of Modern Archi-

tect. They became the new paradigm, embraced by generations of decision makers, experts and technocrats, and were implemented on a massive scale from the 1940s to the 1970s by figures such as Robert Moses – who in his own words, drove motorways through the old neighborhoods of New York City “with an axe.” The so-called Master Builder and like-minded city planners around the world leveled countless thriving urban neighborhoods in the name of their “renewal” and reconstructed them as large, profitable towers, rising up out of characterless parks and shop-less main streets.

The early Modernists were not

completely mad. While to some extent they were misled by theories that linked disorderly urban environments with social ills and civil unrest, early modernist planning was primarily a reaction against the slums and tenement houses that lined the crowded, noisy, polluted and crime-ridden streets of the late 19th and early 20th century cities. They aimed to create buildings with full access to light and air, and insulate them from the street environment with set-backs and pillars. The primary failure of Athens Charter urban planning was that instead of making the street environment clean, secure and livable, it ran away from the street, retreating high above the world

Image: Nicolette Mastrangelo



Left: A middle-class housing compound in Guangzhou; Right: Gated housing in Harbin

where nothing, not even a sense of community, could touch it.

Starting in the 1960s, the grim landscapes built according to early Modernist dogma set off a widespread popular reaction, led by thinkers like Jane Jacobs. Her seminal work, *The Death and Life of Great American Cities*, ushered in a new vision of urban space and fierce opposition to *tabula rasa* development. People began to realize that there must be another way. Soon, politicians like US Senator Barbara Mikulski of Maryland, who rose to prominence opposing a 16-lane highway that would have destroyed Baltimore's famous Inner Harbor and Fells Point neighborhoods, were celebrated as heroes. But while this early Modernist urban planning paradigm has already risen and fallen from grace in the US and Europe, 40 years later it has become the dominant mode in the developing world.

### Urbanization Off Track

In the next two decades, the cities of China and India – already some of the largest in the world – will add hundreds of millions of new residents. About 70 percent of these people will be working and living in places that have yet to be built. The earth's limited natural resources and its climate balance simply cannot absorb this new urban population if these new cities and neighborhoods are energy-intensive and rely on private motor vehicle travel. Chinese superblock residents have been shown to consume 4.5 times more energy in transport as the residents of old, traditional neighborhoods.

And although suburban sprawl in most of the developing world looks different than in the US, where the perpetrators are low-density single family houses, it results in similar prob-



lems. In the rest of the world, sprawl takes two forms, which are both highly deficient in terms of sustainability: there are the car-oriented enclaves of the upper- and middle-class, perched at the urban periphery, and there are sprawling, under-serviced slums. Once either of these development patterns is set, given the life cycle of buildings and infrastructure, they are likely to be with us for decades, if not centuries.

### Leapfrogging Robert Moses

In the West, it took the better part of a century before people fought off, discredited and stopped the Robert Moses approach to planning. Today, after decades of giving priority to traffic flow, single-use and *tabula rasa* redevelopment at the expense of public space and urban vitality, the great cities of the developed world, like New York, San Francisco, London, Paris, Berlin, Amsterdam, Copenhagen, Zurich, Milan, Barcelona, Seoul and Singapore, are taking steps to reclaim public space, revitalize transit systems, make walking and cycling safe, practical and pleasant, and relegate the car to a more appropriate and modest role in the overall transportation system. In these cities, living in car-free environments with great cultural amenities, and great walking and cycling environments is a new "it" lifestyle. Car ownership is no longer a relevant status symbol. A car-dependant life, with the weight of traffic, parking and fuel issues, is increasingly thought of as undesirable

and old-fashioned. While this lifestyle has primarily flourished in historic districts, with pre-automobile housing stock and street plans, large-scale new developments are now being built in developed nations that are every bit as transit- and walking-oriented. These can be emulated and even surpassed in the developing world.

In China and India, however, owning a car remains an unquestioned sign of status. Therefore, while in the US and Europe, it is often upscale real estate developers interested in transit- and walking-oriented developments, in much of the developing world builders catering to the high end of the real estate market are focused on car-oriented developments. Even sophisticated developers say they would not dream of building a new residential development without at least one parking space per unit. Developers catering to the middle and lower end of the market are more likely to consider minimizing parking if they can save money by doing so, but these developers tend to be less sophisticated, use cookie cutter designs, and they are less likely to pay much attention to creating high-quality walking environments.

Chinese leaders frequently suggest that they are free to make the same mistakes that were made in the West, implying that these are not actually mistakes but a stage of development. Indeed, the great housing projects of the Robert Moses era did – despite their disastrous shortcomings – accommodate





huge numbers of people. China and India together have done more than any other countries to meet the United Nations' Millennium Development Goals' target of improving the lives of 100 million slum dwellers. In China, the slum population dropped from 37 percent of the total population to 28 percent in the past ten years, but, of course, this laudable achievement has come at a price. Most Chinese citizens, who previ-

ously inhabited dwellings with cramped, dark rooms and little light or air, also lived in walkable transit-oriented urban villages. As was the case with the West, China's is a pyrrhic victory. Though citizens unquestionably want better living conditions, a home is not just four walls and a roof. It is a community, a way of life, a predictor of resource consumption and an identity.

### Signs of hope

Not every development in China falls victim to these early Modernist blunders. A recent ITDP China exhibition in Guangzhou revealed promising progress. First, most Chinese develop-

ment has sufficient density to support economically viable public transit services. And in places where single-use zoning codes are not being strictly enforced by the planning bureaus, some communities are taking the initiative to change the ground floors of old Modernist housing complexes into shops and improving the pedestrian environment around them. There are a few cases where historical centers and urban villages have concentrations of both protected and unprotected historical buildings, and some of these neighborhoods are being revitalized into walk-

Guangzhou's Donghaochong Greenway (below), as well as the Huang Cun Urban Village (above), are harbingers of what can happen when Modernist fortitude meets modern sensibilities.



Images: Luc Nadal





Left: The Hammarby - Sjöstad development in Stockholm. Right: Sanlitun Village, Beijing

ing- and transit-oriented enclaves, such as Xiaozhou Village in Guangzhou.

In a few cases, single, large high-end developers are starting to pay attention to the value of the natural and man-made heritage of their development site and include these assets in their marketing strategy. One such developer, Shui On Land Limited, has built its Tiandi brand with this ethos in mind. And many new high-rise developments for the middle-class are sited adjacent to mass transit connections, whether metro or BRT. Some also offer limited parking as well as pedestrian and cycling amenities that connect directly to the transit systems.

There are also promising mixed use developments in Beijing, with open blocks and excellent pedestrian infrastructure, such as Sanlitun Village by Guo Feng Development and Swire Properties, and most of the projects by SOHO-China. There are also a few large transit- and ferry-oriented developments that are not gated, like the Whampoa Gardens estate in Hong Kong. Finally, there are some new large greenfield developments, like OTC in Shenzhen, that have been respectful of existing natural amenities, like waterways and old trees. OTC also has good cycling facilities connected to transit services, and has preserved the local

context and resources. Some industrial buildings, for example, have been repurposed for mixed-use offices and commercial space by urban US architects. Recognizing and promoting these good examples, while finding new convincing and appealing models for builders, will be key to reorienting urban development in rapidly growing cities.

### Reinventing, Not Repudiating

Some of the reaction against Modernism and utopian city builders has also been disempowering and reactionary. The original Modernist impulse to lower the cost and improve the quality of housing – though the means were never terribly effective – remains an important goal, just as the impetus to improve slums remains a central concern to the developing world.

The assertiveness of Modernism in its ambition to create better living conditions for everyone will need to be rediscovered if we are to address the challenges of our time. Oil scarcity, climate change, declining aquifers, rising demography and rapid urbanization in large parts of the world are grave threats that require great responses. Given the gravity of the problems we face, might it not be a good idea to borrow at least some of the determination mustered by Modernist city builders,

but apply that fortitude to making a more humane, sustainable and livable urban habitat?

Though the international community has started slowly, best practices are emerging around the world. From Stockholm to Seoul, there are revolutionary neighborhoods on every significantly populated continent. And, of course, Beijing and the developing world have them, too. Changing the way people think about urban design requires recognition for the good work that is already underway. It is as important today as it was in Athens 75 years ago.

Leading architects continue to place themselves in the evolving tradition of Modernism. But new Modernists, like Richard Rogers, Christian de Portzamparc and others have also become proponents of a people-oriented urban environment, where walking and transit have priority. In his book *Cities for a Small Planet*, Rogers writes, “It is transport that will make or break the sustainability of a city.” Brilliant design will help make or break the success of this effort, because firing up imaginations and desire with beauty and style will do more to make change happen than the most convincing charts and bullet points.

For the right practices to prevail, architects and planners, intellectuals and citizens, and no less crucially, real estate developers and their customers, as well as the power of governments, must be brought in line. Reform of the streets and the greater transportation system, and a thoughtful flexibility in relation to everything from planning codes to status symbols will be critical. So too is prompt and deliberate action.



# Off the Rails: BRT in the USA

By Annie Weinstock



Between 1936 and 1950, a consortium consisting of General Motors, Firestone, Mack and Standard Oil of California bought up streetcar lines in 45 cities across America, only to dismantle them and replace them with bus services using General Motors and Mack vehicles. As suburbanization boomed and downtowns dissolved, these services became less integral to the car-addicted ideal of American life. The quality of buses plunged, their routes were ensnared by congestion, and passengers who could afford no other means became the sole ridership.

In the 21st century, many in the United States have finally awakened to the limitations of the past century's auto-centric planning. Faced with acres of sprawl, hours of time lost in traffic jams and near-epidemic levels of obesity, diabetes and asthma, the automobile has begun to lose its flash. When looking for an alternative, Americans have seemed to turn in two directions: first, across the Atlantic for lessons from the Old World. Many picture the idyllic cities of Europe, with their metros, trolley cars

Las Vegas is one of the bold cities pioneering BRT in the US.

and light-rail lines connecting thriving historic communities filled with healthy citizens who bike and walk everywhere. And Americans remember their own past, when one could travel through lively downtowns on stylish streetcars.

With the great villain of the tale, General Motors, now on the ropes, surely the time has come to undo that historical injustice and put America back on the rails? With that sentiment, municipal governments have gone on a light-rail building binge in recent years. The projects have helped to reduce congestion and have even

Image: Annie Weinstock



New York City's Select Bus Service uses pre-paid boarding, one of the elements of world-class BRT

begun to alter the fabric of entire cities, but at a considerable cost. Full-fledged light rail systems are priced at an average of \$35 million per mile. At that rate, most US cities can only afford to build one or two lines before they run out of funds. One or two light rail lines in a whole city simply cannot cover enough ground to take people where they need to go. Furthermore, as the systems do not come anywhere close to covering their operating costs, the more a city builds, the larger the long-term financial burden; something increasingly tax-averse voters find difficult to digest. With such limited transit networks, for most citizens, driving remains the only viable option.

### Enter BRT

While most of the US was looking to our past and across the ocean to Europe, a few people started looking south to Latin America. Fueled by study tours to Curitiba, Brazil, the birthplace of bus rapid transit (BRT), a growing number of US planners started to look at BRT as a transit solution as viable and attractive as light rail, but significantly less expensive to build and operate. However, BRT is easily watered down. In the decade after Curitiba built its landmark system, a half-dozen Brazilian cities copied it with lackluster bus lanes. Similarly, in the US, timid politicians, fearful of antagonizing motorists, labor unions or business communities, have too often diluted BRT into something indistinguishable from normal limited-stop bus services. Even if some planners understand perfectly well how to design a proper BRT system for US conditions, it is politicians, not planners, that ultimately make the decisions. So while conversations about BRT seem to be everywhere in professional planning circles, and while a growing number of politicians are aware of the successful BRT systems around the world, few US politicians are ready to stick their necks out to produce a world class, iconic BRT system. Many are continuing with ambitious light rail plans despite severe financial constraints and construction



timelines that all but ensure the projects will not be completed until someone else is in office.

In the US, none of the BRT systems built to date have been sufficiently successful to convince the powers that be that the political risks are worth it in the end. This is in part due to the US political system in which no single local politician has unilateral decision-making abilities. A US mayor, for example, may need at least majority support from his or her city council or transit agency board to move forward with a project or vice versa. It takes not just the will of a political champion, but the strength of this same champion to influence these other decision makers. Finally, the environmental review process and federal grant process can take many years to complete. That said, a handful of new systems are starting to change the public image of BRT in the US.

### The Bold Ones

Cleveland, Ohio, Las Vegas, Nevada, Los Angeles, California, and Eugene, Oregon have led the charge for BRT in the United States. All four cities are now operating BRT-like lines that include many elements of the systems that revolutionized public transit in cities like Bogotá and Curitiba. Some portion of each city's system operates in dedicated lanes in the center of the road and all include off-board fare collection, which decreases the amount of time buses spend picking up passengers. Many of the vehicles accommodate bicycles, encouraging multi-modality, they have all employed distinctive buses that closely resemble light-rail vehicles, and they have constructed attractive stations filled with site-specific attractions.

Yet each system has made certain compromises that degrade the overall quality and efficiency of the line: some made concessions to private





Like the revolutionary BRT systems of Latin America, Cleveland's HealthLine uses station design to build a brand.

lobby and state departments of transportation who are steeped in antiquated auto-oriented policies. Another issue is how to gain buy-in from the business community, who is often under the impression that the short-term impacts of street construction and loss of parking could negatively impact their businesses, though study after study has shown the long-term effects of BRT are a boon. Here, cities are beginning to look to Cleveland, which gained support from the entire business community early on in the planning process through close and frequent coordination. US cities are also exploring ways to speed the construction process so that systems can be implemented quickly. Montgomery County, Maryland, for example, is looking to set up a special tax district to fund the project locally and sidestep the slow federal funding process.

The next challenge will be actually building the lines, and building them right. In the US this may not always mean bi-directional dedicated bus lanes 24-hours a day. Demand in most American cities does not necessarily warrant that. Similarly, off-board fare collection may be overkill at stations with very low passenger volumes. What is right is a BRT system that operates at its maximum efficiency without getting mired in political, auto-oriented policy along the way.

### Transforming American Cities

Once a successful BRT system of the highest standard is traveling the streets of one medium-to large-sized US city, other American cities will likely begin to look to BRT as a model for public transport planning. Harkening back to the halcyon days of streetcars, or to the charming boulevards of Old Europe will not solve the problems that modern American city planners need to tackle. American cities need a new model – one that suits today's realities and solves tomorrow's problems. It is only once we take the need for functional, cost-effective public transit seriously that we will start to see our cities truly transformed.

business interests, some to private automobiles' presumed dominance of the road. In Las Vegas, for example, on the Strip, where employment density and the number of transit-dependent tourists is extremely high, officials caved to the desires of the casino owners, who wished to keep the buses in the congested mixed-traffic lanes. Similarly, in Cleveland, running times for the BRT have gotten slower as pressure to improve the signal timings for cross-street traffic has resulted in a reprogramming of signals. Despite their shortcomings, these systems represent a major step forward, and need only a small push to raise BRT to the standard necessary for other American cities to understand the groundbreaking transit solution it represents.

Now, while each of these cities seeks to expand its new system, other urban areas are beginning to look at BRT more seriously. New York City, Boston, Montgomery County, Maryland, Chicago and the San Francisco Bay Area have all put forth some exciting BRT proposals, though they are all grappling with some of the problems most common in the US. One such issue is how to take a lane away from automobiles and dedicate it to buses. This crucial step is often met with opposition from a strong auto





# 10 Principles for Sustainable



## Walk the Walk

Walking is the most universal form of transportation, and when streets are designed for pedestrians, health, economic activity and safety all improve.

## Powered by People

Bicycles and other means of people-powered transportation, like pedicabs, allow for the convenience of door-to-door travel, but use less space and fewer resources than cars and taxis.

## Get on the Bus

Comfortable, safe, high-speed public transit can move millions of people quickly and comfortably using a fraction of the fuel and space required by automobiles. Bus-based mass transit systems like bus rapid transit (BRT) combine the efficiencies of metro-like stations with exclusive bus lanes and clean new buses.



## Make it Last

Buildings, roads, paving stones, street furniture, public art — all can last for decades, if not centuries, with the right planning and maintenance. High quality design, good materials and effective management of public space are all key to creating memorable streets and public places that outlast election cycles.

## Connect the Blocks

Streets that are short and relatively narrow make traffic slower and walking more attractive. Buildings, shops, trees and other streetscape elements increase the vitality of local retail.

This is excerpted from *Our Cities Ourselves: 10 Principles for Transport in Urban Life*, a collaboration between the Institute for Transportation and Development Policy, Gehl Architects and Nelson Nygaard and a companion to the 'Our Cities Ourselves' exhibit being held around the world.



# Transport

The successful city of the 21st century will be replete with choices, including non-motorized, post-fossil fuel travel options. Citizens of the world do not want to sit in bumper-to-bumper traffic. They do not want to walk in mud, nor feel threatened on a simple bike ride. They want to be in cities that provide for creative interaction, affordable living and healthy movement. These principles will help achieve that end.



## Cruise Control

By using parking and congestion charging to encourage people to leave their cars at home, establishing eco-zones where only clean vehicles can enter and removing highways in favor of community revitalization, cities can better manage necessary automobile trips and reduce needless driving.

## Get Real

A community's history, natural environment and ethnic traditions all contribute meaningfully to what makes a place unique. Maintaining this "sense of place" contributes to creating the kinds of communities that people will walk, bike and take mass transit to enjoy.



## Fill it In

The first step to accommodating urban growth is to build on vacant lots or brownfields before developing greenfields on the urban fringe. Dense communities use resources more efficiently, reducing the carbon footprint of residents.

## Mix it Up

Making a street "great" includes having a diversity of places and activities along it. Lively downtowns stack retail on the ground floor, with residential and office space above it. Shops and offices are supported by the people who work there by day and by the people who live there at night.

## Deliver the Goods

Every city needs all sorts of different products delivered more efficiently. Sustainable cities manage those deliveries and incentivize cleaner, smaller, slower, quieter and safer delivery vehicles.





# Will Rio Win, Place, or Show?

By Jonas Hagen

Rio de Janeiro will host two of the world's largest sporting events within 25 months of each other: the FIFA World Cup in 2014, followed by the 2016 Summer Olympics. While it is a sure bet that each of these contests will crown champions, Rio has the opportunity to utilize its role as host to guarantee that its citizens are the real winners in the long term.

Other cities' experiences with competitions of this scale hold telling lessons. Montreal just recently paid off the mortgage on its \$1.5 billion Olympic Stadium, 30 years after it hosted the games. In Athens, most of the 22 venues built to accommodate the 2004 Olympics sit abandoned behind chain link fences and face uncertain futures, as the entire nation teeters on the brink of bankruptcy. Beijing pays \$10 million annually to maintain its seldom-used Olympic facilities, including the \$423 million, 80,000-person capacity Bird's Nest stadium. Metro lines leading to

the complex are hardly used, and the enormous space lies dormant, awaiting a planned conversion into a shopping and entertainment complex, as does the Blue Cube aquatics center next door.

On the other hand, with a bit of planning savvy, the Olympics can be an excellent opportunity for urban revitalization. Barcelona was able to use the 1992 Olympic Games to transform the once-derelict port area into a high-quality public space and help establish the city as one of Europe's most desirable metropolises. South Africa used the 2010 World Cup as a reason to invest in public transportation. Their full bus rapid transit (BRT) system became the first on the African continent due to the leverage the contest provided planners and politicians. In London, city officials hope to revive the formerly industrial Eastern area of the city for the upcoming 2012 Olympics. They are refurbishing existing rail infrastructure and expect 80 percent of spectators to arrive

at the venues by public transport. With London also making improvements to its bicycling infrastructure, the games promise to be nearly car-free.

## The Odds in Rio

Known for its breathtaking landscape, lively samba music and party atmosphere, the so-called "Marvelous City" is just as well known for its high rates of crime and poverty. According to researchers, at least 19 percent – and likely much more – of the city lives in shantytowns or favelas – citizen-built, unplanned districts, with no sanitation or formal policing, that are run by violent drug gangs. If Rio can find a way to harness the potential of its upcoming sporting events to improve living conditions for the people who live in the favelas, as well as the millions of middle- and upper-class residents, then it will truly emerge the contests' biggest winner.

Officials have already announced





plans to hold the greenest Olympics ever, offsetting the event's carbon footprint by planting 46,000 trees, but the main challenge lies in creating lasting infrastructure that will improve the city for decades to come. To this end, the municipal government plans to use the Olympics to revitalize the city's port area, much like Barcelona did. The city is structuring an open bid for a private firm to redevelop and administer the area, which will house a Santiago Calatrava-

designed Museum of the Environment, as well as the press center for the games.

Through events, workshops and studies with planners from Barcelona, London, Paris and Copenhagen, Brazilian professionals are being exposed to state-of-the-art urban design practices. However, it remains to be seen if this will translate into tangible improvements on the ground. While the city plans to double the amount of bike lanes by 2012, from 150 to 300 kilome-

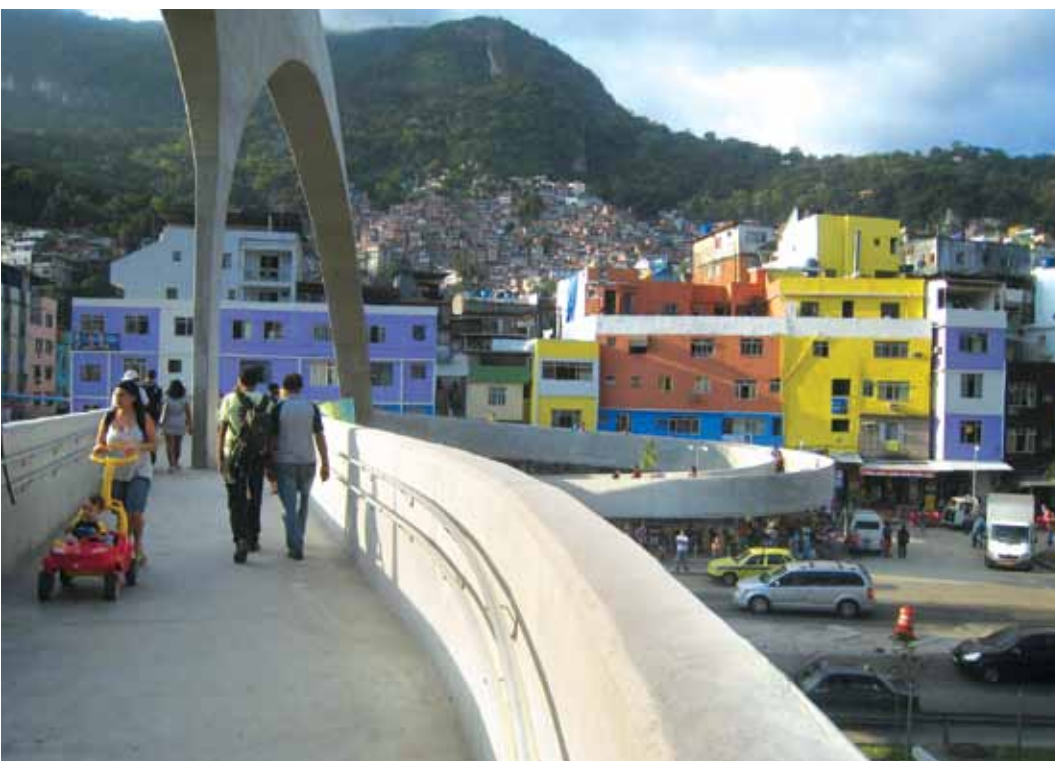
ters, these plans are not directly connected to the Olympic Games. And in some circles, the automobile still seems be a top priority, although the implementation of a well-planned bus rapid transit system could help change that.

**Above:** The view from Rocinha favela.

**Below left:** A pedestrian bridge designed by Oscar Niemeyer connects Rocinha to São Conrado.

**Below Right:** As part of Rio's recent upgrading program, a new public elevator provides direct access between Ipanema and the Morro do Cantagalo favela.

Images: Clockwise from top-left: seier+seier; Jonas Hagen; Walter Hook





“We realized we could get the same capacity as a metro with a BRT, but at a much lower cost,” said Elaine Felske, who was responsible for the transport plan used in Rio de Janeiro’s winning Olympic bid. While that plan included ongoing improvements to the commuter rail and metro system, it also focused on the implementation of BRT corridors – to date the city has announced plans totaling more than 146 kms of BRT. Some highlights from those projects include a much-needed extension to the international airport with the erection of two viaducts and a bridge that do not include infrastructure for cars; the construction of a Transolímpica BRT corridor from Barra da Tijuca to Deodoro, which is being planned as a tolled express-road with high-capacity BRT service; and a BRT line along the 10-lane Avenida Brasil ring road, which could be used to spur urban revitaliza-

tion in surrounding communities.

These are good omens, as are the city’s efforts to foster bicycling culture and improve street safety. Events like Car-Free Day, held for the second time in 2010, are well received by both the media and local residents. They have helped catalyze the removal of car parking spaces and the development of eight low-speed zones throughout the city, making the streets safer for all forms of transportation. Also, bicycle use is on the rise, especially among the middle-class. This mode of transport seems to be a good fit for the city’s beach-centric, laid-back lifestyle.

And perhaps most promising, the city’s difficult relationship with the favelas is beginning to improve, with police moving into the hillside slums and wresting control away from drug lords. The city has started creating infrastructure links to these communi-

ties that better integrate them into the fabric of the city. Tourists can now take photos at a panoramic lookout that sits atop an elevator connecting the Cantagalo favela to the metro station in world-famous Ipanema, and pedestrians from the Rocinha favela now use a footbridge designed by Oscar Niemeyer to reach a recently completed community sports facility and the beaches of São Conrado; both facilities were inaugurated in 2010.

The 2014 World Cup and the 2016 Olympic Games are an amazing opportunity, but if Rio de Janeiro hopes to make the most of it, and truly win the day, it will have to start working now. A full-fledged BRT system, if properly conceived and executed, could revolutionize transport in the city for years to come. No matter what, the world will be watching.

Left: Barcelona’s Olympic Village remains a popular pedestrian promenade.

Right: Barcelona harnessed its Olympic building boom to remake the city’s port area.







# Tearing Down to Try Again

By Carlos Felipe Pardo

For decades, city planners believed that the solution to traffic congestion was more road construction. We were told – and most people still believe – that smoother-flowing traffic is just a few more lanes away, that more cars demand more space and more space will make it all better. It is a wonderfully intuitive way of addressing a problem that has plagued cities for years. Unfortunately, it is entirely wrong.

As famed urban theorist Lewis Mumford put it, “Increasing road capacity to accommodate increased driving is like buying bigger pants to cure obesity.” City after city has shown that one way to tackle congestion is to take space away from cars and dedicate it to other uses. In municipalities as varied as Seoul, San Francisco and Milwaukee, tearing down highways has actually improved traffic flow, given way to better public spaces and even improved air quality.

Typically, when confronted with traffic congestion, most municipal leaders want to build roads. The view that building roads reduces traffic congestion is so widely accepted in most of the world that no further analysis of alternatives is required. In a few cases, administrative or funding procedures require a more judicious review, in which case they turn to traditional cost-benefit analysis. Developed primarily for prioritizing investments among competing inter-city road designs, cost-benefit analysis mainly looks at the project’s impact on vehicle speeds and operating costs. For intercity roads, and for the purposes that cost-benefit

Thousands of smiling faces replaced hundreds of speeding cars when Seoul tore down the Cheonggugcheon highway to make room for a greenway.

analysis was originally intended, this is generally unproblematic. For urban roads, however, this analysis could lead to disastrous results.

For urban roads there is a much greater likelihood that the time savings initially accrued because of faster speeds will degrade rapidly because of induced travel – new trips taken because of promises of a speedier route – or because of new development around the new corridor. Cost-benefit analysis rarely considers induced demand, because the tool was not developed for urban roads, and the impact is quite site specific and hence fairly difficult to predict.

Perhaps even more importantly, urban highways are more likely to blight surrounding neighborhoods by elevating levels of pollution and noise, increasing local traffic, severing the community and blocking sunlight if the structure is elevated. These impacts will certainly be





Above: Paris changed a six-lane highway into a four-lane boulevard and tramway flanked by bike lanes and wide sidewalks. Below left and right: Downtown Seoul before and after the removal of Cheonggugcheon Highway.

reflected in property values, but because they are fairly hard to predict in advance, they are generally ignored. Leaving out these impacts for an intercity road may not matter so much, but ignoring them for a road through a dense urban area will result in a positive economic evalua-

tion, when in fact the highway could result in an economic catastrophe. When Robert Moses built the cross Bronx expressway, nobody considered the economic cost of blighting the South Bronx for the next half century.

In cases where cities have bucked the trend and torn down or repurposed their highways, the results have been impressive. In cities ranging from Paris to Seoul to Milwaukee to San Francisco to Portland, highway take-downs have improved traffic flow, reduced trip times and improved public space and quality of life without adversely impacting traffic speeds in other parts of the city. Additionally, in cases where boulevards have replaced elevated highways, area real estate values have increased 300





percent and local employment has surged as well.

In Seoul, Korea, the city demolished the the Cheongguecheon highway and reconstructed the riverway that had been buried underneath it as a greenway. Not only did the the temperature of the surrounding communities dropped by two degrees Celsius, but traffic flowed faster with speeds increasing 17 percent.

The City of Paris changed a six-lane highway into a four-lane boulevard and tramway – the Boulevard des Maréchaux – that resulted in a reduction in car use by 30 percent.

After the earthquake in 1989 in San Francisco, when part of the Embarcadero Freeway fell, the city decided to remove it instead of rebuilding. In its place, San Francisco constructed a boulevard with a trolley line and a waterfront park, resulting in an increase of property values and attracting

recognized TransMilenio bus rapid transit (BRT) system, replete with public space and bikeways, instead of undertaking a \$1.5 billion project to build 30 kilometers of elevated ring roads around the city. TransMilenio now carries 1.7 million passengers a day – not even double the kilometers of road (for double the money) could do that.

Clearly, the idea that unbuilding a highway might be the best way to improve traffic flow is no longer unprecedented. Forward-looking cities around the world have started to shift from promoting just mobility to promoting overall livability, or as it has been described in some cases,



San Francisco's Embarcadero Freeway once stood where the city now hosts its hugely popular Sunday Streets car-free days.

substantial economic development to that area. Additionally, Bay Area Rapid Transit ridership increased by 15 percent.

In Portland, Oregon, a section of Route 99W, known as Harbor Drive, that ran along the Willamette River was demolished and replaced with a waterfront park. Vehicle trips decreased by 9.6 percent on nearby roads and the formerly connecting bridges. One of the few remaining sections of the freeway is now a a pedestrian and bicycle access ramp to the park.

Bogotá, Colombia, made the choice to implement the internationally

“new urban values.” It seems that this approach may be the key to providing greater change in urban transport, mobility and quality of life. After all, there is more to cities than speed, efficiency and huge infrastructure. Many places are discovering that unbuilding some past statues to that alluring triumvirate may be the best way to help people and cities get to where they are going.



# Catch Us if You Can: The Rise of Commuter Races

Commuter races, which put a cyclist, transit user and driver in a law-abiding head-to-head race on rush-hour streets, are catching on around the world. These fun, media-friendly events are a simple way to demonstrate that biking, walking and transit are not only cleaner and greener, but also faster and less expensive than driving a car. Bogotá, New York City and Rio de Janeiro are just a few of the cities where commuter races have helped citizens rethink the way they get to work.

New York

## New York City

Sunnyside Queens to Columbus Circle - 6.75 km



20 minutes - \$0.0 CO<sub>2</sub> - 0.0kg



35 minutes - \$2.25 CO<sub>2</sub> - 0.76kg



47 minutes - \$30.18 CO<sub>2</sub> - 3.87kg



## Bogotá

From Calle 127, Avenida 19 to Calle 72, Carrera 7ma - 5.55km



20 minutes - \$0.0 CO<sub>2</sub> - 0.0kg



28 minutes - \$0.82 CO<sub>2</sub> - 0.79kg



39 minutes - \$24.02 CO<sub>2</sub> - 1.88kg



## Rio de Janeiro

Center of Brazil 18h to Piazza Antero de Quental - 9.5km



48 minutes - \$0.0 CO<sub>2</sub> - 0.0kg



62 minutes - \$1.50 CO<sub>2</sub> - 1.39kg



73 minutes - \$25.15 CO<sub>2</sub> - 3.30kg



Rio de Janeiro

The time of each trip was determined during each city's most recent commuter race. The cost calculations include average parking costs. The CO<sub>2</sub> emissions were determined using the carbon calculator at [rollingcarbon.org](http://rollingcarbon.org).



# Buenos Aires Bikes!

By Amalia Holub



Rain or shine, Vilma Carrillo rides her new purple bicycle between her law school class and her office in Buenos Aires' city center. Inspired by the local government's construction of secure bike lanes, and told by her doctor that she needed more exercise, Vilma overcame her fear of cycling and bought a bike. "I am very happy. I feel liberated," she said. "The new bike lanes are great."

In late 2007, the city legislature passed the "Public Bicycle Transportation System Law" after a group of representatives returned from a visit to Europe impressed by Barcelona's bicycle-share system, Bicing. The bill mandates the creation of a bicycle share network along with secure bike infrastructure. The city government has been focusing first on secure infrastructure: over the last year, 30 kilometers (km) of protected bike lanes have been constructed, with the full 100 km network slated for completion by the end of 2011. A bike-share pilot program of 500 bikes is expected to launch in early 2011.

Buenos Aires' "Public Bicycle Transportation System Law" is changing the way the city moves.



Pro-bike programs are helping to change the average citizens' impression of bicyclists.

In addition, the program called *Mejor en Bici* (Better by Bike), includes more bike parking in public plazas and transportation hubs, bike-to-work programs and online- and print-media outreach. Also as part of the program, the city passed a new law requiring parking garages to accept bicycles. It mandates that garage owners charge no more than 10 percent of the automobile price. At each step of the way, the Institute for Transportation and Development Policy has provided assistance with the program by recommending bike-lane routes and designs, locations for bike parking and public outreach strategies.

Buenos Aires' Secretary of Transportation, Guillermo Dietrich, who sets an example by riding to work on his white Dahon folding bicycle, explained, "Step by step, the people will join in and start to use the bicycle to commute to work. It is necessary to find an alternative in order to combat the chaotic traffic, and this is a healthy and practical initiative. We're convinced that the system will function just as it has in other major cities throughout the world."

So far, it seems like the government is right. "I went crazy with joy when I saw that they were putting in a bike lane just one block from where I live," said Ricardo Merkel, a 64-year-old photographer and lifelong cyclist. Ricardo used to drive his bike to more serene areas outside the city center, but now rides between his home and office daily. He enjoys his commute more, and after timing the trip in four different modes – by bike, on foot, by bus and in a car – he has found cycling to be faster than driving, and almost twice as fast as walking or taking transit.

Still, there is a lot of work to be done before Buenos Aires becomes a world-class bicycling city. To become a



functional part of the transportation system, bike lanes will have to be connected across a broad network that spans and links popular areas, not just installed along isolated corridors. The public needs to be convinced that such transportation initiatives are worthy of city funds, even as improvements are also needed in housing, unemployment, education and health. And for biking to become part of Buenos Aires' mainstream culture, the public's perception of bicyclists needs to change. Argentineans have tended to associate cycling, outside of a recreational context, with the poor rather than fun, simplicity, mobility, environmental responsibility and civic duty.

Still, early signs of change are beginning to appear: a major newspaper recently reported that bicycle sales are up 50 percent in Buenos Aires from the same time





**Left:** The protected bike lane along Libertador Avenue is a great first step, but a connected network of cycling infrastructure will be key, if Buenos Aires really wants to boost biking. **Below:** Bicycles sales are up 50 percent in Buenos Aires from the same time last year.

last year, signaling that the *Mejor en Bici* program is not only encouraging more cycling, but positively affecting local business owners too. The bicycle program, along with other sustainable transportation systems, like the city's first bus rapid transit line, which is slated to open in mid-2011, will prove essential if Buenos Aires wants to improve mobility and quality of life, while combating traffic congestion and climate change.

Those who already ride bikes on the streets of Buenos Aires do so for various reasons: to save time or money; for better health; or for the environment. Felix Busso, a young fashion photographer (who actually provided some of the images for this article), fell in love with bike culture when he visited San Francisco a few years ago. He now describes cycling as his way of life. "Above all, cycling gives you freedom: whether you have money or not, you can go where you want, when you want, and you don't have to be dependent on if your car works or when the bus will show up," he said, summing up the common sentiment of Buenos Aires cyclists. "The bike is like your feet but with wheels. It becomes an extension of your body – part of you. It's natural."





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