

Reclaiming public space:

The economic, environmental, and social impacts of Bogotá's transformation

By: Lloyd Wright, University College London
Ricardo Montezuma, Human City Foundation

Much of the data and research presented in this document has been made possible by the extraordinary efforts of the team at Human City Foundation. A special thank you is thus extended to Adriana Hurtado, Carlos F. Pardo, Brenda Pérez, and Francesc Vila.

Contact details:

Lloyd Wright
University College London
Bartlett School of Planning
Wates House, Room 414
22 Gordon Street
London WC1H 0QB
UK
Email Lfwright@usa.net

Abstract

Over the course of a few short years, the city of Bogotá (Colombia) has dramatically transformed the quality of its public space. This session presents primary and secondary data documenting the economic, environmental, and social benefits of improved public space and urban mobility. Bogotá has benefited from a series of political leaders with a highly progressive view on the importance of urban space. This high degree of political will contributed to dramatic changes in several areas, including: 1. Reclamation of public space; 2. Improvement of public transport; 3. Promotion of non-motorised transport; and, 4. Implementation of auto restriction measures. The near simultaneous application of these policies has produced quantifiable benefits to the quality of life of city residents.

The research shows that property values in areas with urban upgrades have appreciated considerably when compared to a control group of similar properties. Additionally, the research shows employment benefits from the city's Sunday "ciclovía" (closing of streets to motorised vehicles) is significantly greater than week-day auto-related employment along the same corridors. Air quality monitoring shows emission reductions by as much as 40 per cent for some pollutants. Social indicators related to accidents, crime levels, and equity are also quite positive. Traffic deaths have been reduced from over 1,300 in 1995 to less than 700 in 2002.

Bogotá's transformation has attracted visits by city officials from over 50 nations. The replicability of Bogotá's successes will depend upon local circumstances, and especially upon levels of local political will. Further documentation of the economic, environmental, and social benefits stemming from Bogotá's efforts will help instil the confidence of city officials to move ahead with urban transformations of their own.

Author biographies

Lloyd Wright
University College London

Mr. Wright is currently completing doctoral research on car-free development at the Bartlett School of Planning at University College London. Mr. Wright was formerly the Latin American Director for the Institute of Transportation & Development Policy. He has also held positions with USAID, USEPA, and the United Nations.

Dr. Ricardo Montezuma
Director, Fundación Ciudad Humana (Human City Foundation)

Dr. Montezuma holds Master and Doctorate degrees in Management and Town Planning from the Ecole Nationale des Ponts et Chaussées de Paris. He was also an invited scholar of the French Institute of Urbanism in Paris. Dr. Montezuma is currently the Director of the Human City Foundation in Bogotá, Colombia.

Reclaiming public space:

The economic, environmental, and social impacts of Bogotá's transformation

By: Lloyd Wright, University College London
Ricardo Montezuma, Human City Foundation

Introduction

Transforming the urban fabric of any city is a daunting task. The alignment of public support, political will, financial resources, and human capacity is a rare event. To achieve a transformation on the scale of a mega-city in the developing world is virtually unknown. However, the city of Bogotá (Colombia) has indeed achieved a remarkable renaissance of its public space, and the city has done so in just a few years.

The research undertaken in this study seeks to quantify some of the economic, environmental, and social impacts emanating from Bogotá's experience. While Bogotá is visually a different city today than it was in 1997, the question remains as to whether the changes in mobility infrastructure and in public space have translated into quantifiable improvements on incomes and social advancement. Specifically, the research examines changes in property values, employment generation, ambient air quality, and benefits to particular income groups.

Components of Bogotá's renaissance

Bogotá would appear to be an unlikely location for a world leading example in urban regeneration. As a large, densely-populated city with 7 million inhabitants and approximately 230 inhabitants per hectare, Bogotá has its own share of developmental issues, including high levels of unemployment and four decades of civil conflict.

Since 1995, Bogotá has achieved notable successes across several thematic areas, including security, environmental protection, public services, urban mobility, and public space. Many of the measures analysed in this research were initiated during the administration of Mayor Enrique Peñalosa (1998-2000). However, some of the measures were supported by actions undertaken in previous administrations. Thus, the administrations of Mayor Jaime Castro (1992-1994) and Mayor Atanas Mockus (1995-1997, 2001-2003) played a key role as well. In fact, much of Bogotá's success can be attributed a remarkable chain of policy continuity that supported an improved urban environment across multiple political administrations.

Urban environments and urban mobility can rarely be successfully addressed through a single project or focus on a single transport mode. More typically, the synergies gained from a package of complementary measures are required to encourage behavioural change. For example, restricting private vehicle use may not succeed if high-quality public transport options are not available. Bogotá achieved significant synergies by simultaneously addressing several topics:

1. Reclamation of public space
2. Improvement of public transport

3. Promotion of non-motorised transport
4. Implementation of auto restriction measures

Reclamation of public space

This research looks predominantly at the economic and social impacts derived from the reclamation of public space. This reclamation includes the recovery of sidewalks, parks, plazas, and commercial areas. In most instances the public space had been lost either to invasions from informal traders or from parked vehicles. The reclamation process typically included several policy elements, such as new infrastructure development, area beautification, and enforcement of usage restrictions.

The areas chosen for analysis include some of the most notable transformations of urban space. In the city centre, Avenue Jimenez has been recovered through the renewal of Plaza San Victorino and the establishment of a public transit/pedestrian corridor. This corridor now includes a small water canal, improved street lighting, brick-textured street and pedestrian surfaces, vegetation, and wider pedestrian space (Figure 1). The area was previously a focus of much criminal activity.



Figure 1 The revitalisation of Avenue Jimenez in Bogotá has helped to create a more dynamic public space.

The city's "Carrera 15" (Avenue 15) was previously reminiscent of a North American strip mall, a collection of shops along a street dominated by car parking. Walking along Carrera 15 was a wholly unpleasant experience due to noise, traffic, and a narrow uneven walking space. Today, Carrera 15 hosts an attractive, wide pedestrian space featuring trees, benches, and improved street lighting. Two lanes of traffic and on-street parking have been removed in order to make this transformation possible.

In the more affluent north of the city, several dining and entertainment districts have been renovated through pedestrian improvement schemes. The "Zona Rosa T" (Pink Zone T) project involved closing two streets to traffic and thus forming a pedestrianised "T" shape along rows of restaurants and boutiques. The attractive area has become a focal point for nightlife in the city.

Finally, one of the most ambitious projects in terms of reclaimed space is still underway in Bogotá. The creation of the Third Millennium Park in the city centre has ambitiously sought to convert one of the most crime-ridden areas into a vast array of open space, recreational grounds, and educational centres.

Improvement of public transport

Like so many cities in the developing world, the provision of public transport had traditionally been left to a disparate group of private sector operators. With uncoordinated and relatively uncontrolled services, the operators fought amongst themselves to grab passengers. Thus, prior to the year 2000, public transport in Bogotá often meant an uncomfortable, unsafe, and generally unpleasant experience.

For over three decades, successive mayors had led the development of various metro and light rail plans. Fiscal realities, though, meant that none of these highly ambitious and highly costly plans were ever implemented. By contrast, the Peñalosa administration had seen the experience of Curitiba (Brazil) in using bus technologies as a high-quality mass transit option. Bus rapid transit (BRT) is a bus-based mass transit option that mimics the quality, capacity, and speed of rail options but at a fraction of the cost. The first phase of Bogotá's BRT system, known as TransMilenio, was planned, developed, and completed within Peñalosa's three years in office (Figures 2 and 3).

The system now features 58 kilometres of busways and 309 kilometres of feeder routes, moving over 800,000 passengers per day. TransMilenio is also making money, and does so while providing an affordable single fare of 1,100 pesos (approximately US\$ 0.38). Oversight for the system is provided by a non-profit public company, TransMilenio SA, but all operations are conducted through private sector concessions.



Figure 2 Bogotá went from this to...



Figure 3 ...this, in just three years.

Promotion of non-motorised transport

Bogotá's history of supporting sustainable transport modes actually extends well back to 1982 when Mayor Augusto Ramirez implemented the city's first official "ciclovía" (Gomescásseres, 2003), which is a closing of certain roads to motorised vehicles on Sundays. The bicycle Sunday event has grown and evolved since its inception. Today, 120 kilometres of roadway are closed on Sundays and holidays in Bogotá, giving way to an array of cyclists, joggers, skaters, and families (Figure 4).

Bogotá is credited with holding the world's largest car-free weekday event, covering the entire expanse of the city's 28,153 hectares. The first car-free day was held in February 2000. The day has become institutionalised through a public referendum. On 29

October 2000, 63 per cent of the voters in Bogotá approved a referendum to make the February car-free day event permanent.

Bogotá is also home to what is called the world's longest pedestrian corridor, "Alameda Porvenir". This 17-kilometre stretch of pedestrian and bicycle paths connects several lower-income communities to shops, employment, and public services.

The relatively flat terrain of the city and its moderate climate not only ease the role of pedestrians but helps Bogotá accommodate a rapidly growing presence of cyclists. At the same time that dramatic upgrades were made to pavements and mass transit in the city, the municipality also constructed a world-class bicycle network. A total of 260 kilometres and 16 routes of bicycle infrastructure are now supporting cyclists making up nearly four per cent of all trips in the city. Prior to the existence of the dedicated bicycle infrastructure, less than 0.4 per cent of the trips were made by bicycle. When completed in 2010, the entire bicycle network is expected to reach a total length of 376 kilometres.



Figure 4 Bogotá's "ciclovía" draws as many as two million residents to the streets each Sunday.

Implementation of auto restriction measures

Bogotá's success with non-motorised and public transport modes is also due to a highly synergistic implementation of transportation demand management (TDM) techniques, which have acted to discourage private vehicle usage. Each week day the city restricts 40 per cent of all autos entering the city during the morning (06:00 to 09:00) and evening (16:30 and 17:30) peak periods. The reduction is achieved by not allowing autos with license plates that end with certain numbers to enter on a particular day (Table 1). Emergency vehicles, diplomatic and presidential vehicles, and public utility vehicles are exempted.

Table 1 License plate restrictions in Bogotá

Day of week	License plates ending with these numbers are restricted from use
Monday	1, 2, 3, 4
Tuesday	5, 6, 7, 8
Wednesday	9, 0, 1, 2
Thursday	3, 4, 5, 6
Friday	7, 8, 9, 0



Figure 5 Bogotá has converted much of its previous parking space to public space.

The city has also dramatically reformed its control on parking. On-street parking has been eliminated from most streets, with privately contracted firms providing off-street parking services. In many cases, the previous parking bays have been converted into more attractive public space (Figure 5).

Impacts of Bogotá's urban transformation

Cities such as Curitiba and Bogotá have garnered considerable international interest from planning professionals over the innovativeness of their urban changes. These cities undeniably have a new visual look. Attempting to quantify these results, though, is crucial to making the case for other cities to consider similar measures. This section presents a sampling of recent data collection efforts in Bogotá to determine the economic, environmental, and social effectiveness of the changes in public space and urban mobility.

Economic impacts

The pedestrianisation of city streets and the development of car-free events are often challenged for economic reasons. Dissenters will argue that a modern economy cannot function properly without motorised travel. Bogotá's car-free day event and the car-free Sundays provide an opportunity to measure the economic impacts directly.

Previous studies have examined changes in sales levels, property values, and occupancy rates from newly pedestrianised areas (Hass-Klau, 1993). In general, the experience shows that pedestrianisation efforts have produced favourable economic results, but the impact also depends on the quality of the project.

Likewise, positive economic gains can be realised in areas with new public transport systems (Cervero and Duncan, 2002) (Dueker and Bianco, 1999). “Transit-oriented development (TOD)” is a term used to describe the densification of development along public transit corridors. The value of businesses and residential areas along transit corridors tend to increase due to higher customer numbers and the added convenience of a shorter commuting time.

Property values

The research team first examined possible changes in property values due to changes in the quality of public space. Data from the Property Market Association of Bogotá (Lonja de Propiedad, Raiz de Bogotá) permitted a property value comparison between sites with urban improvements and sites without such upgrades. The data represents values calculated as part of an annual survey conducted by the association to approximate current commercial and residential property values. The data has been collected from 1989 through 2003, and thus permits a longitudinal comparison.

Table 2 lists example areas where urban interventions have taken place. These interventions include the closing of streets to pedestrian only access and the upgrading of sidewalks.

Table 2 Areas selected for analysis of property value changes

Area with urban intervention	Type of intervention	Project start date	Project completion
Zona Rosa T	Pedestrianisation	Jan 2001	May 2001
Carrera 15, between 73 rd Street and 77 th Street	Pedestrian upgrade (widening of sidewalks, benches, street lights, removal of parking)	July 1998	Nov 2000
Carrera 15, between 78 th Street and 85 th Street	Pedestrian upgrade	July 1998	Nov 2000

The following control areas were selected to provide a basis of comparison with the areas of intervention:

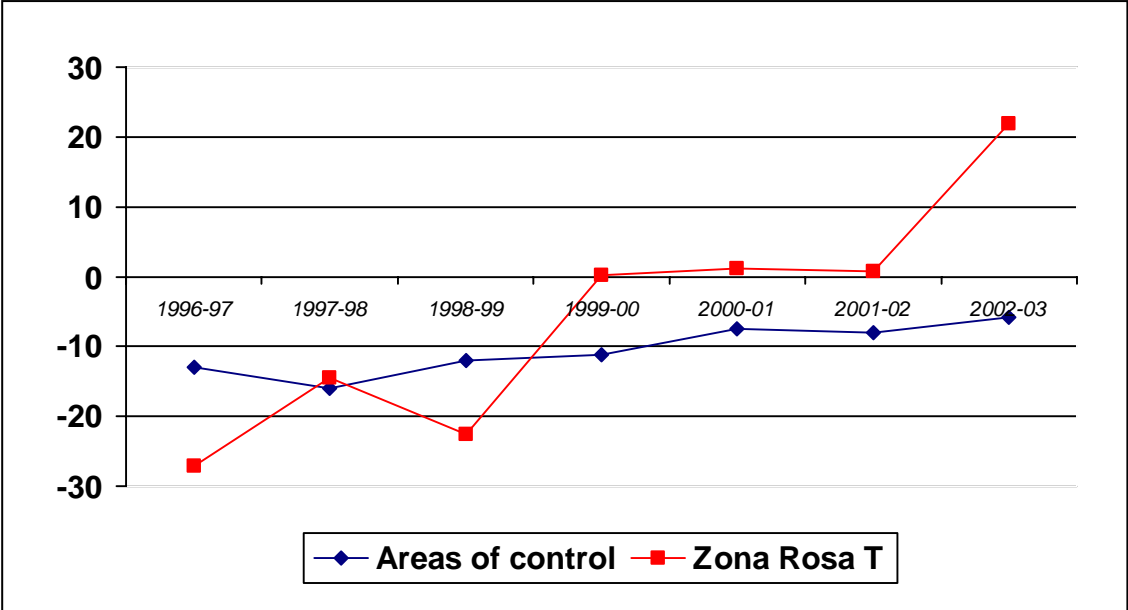
- Carrera 15, 114th Street to 127th Street
- Carrera 19, 101st Street to 127th Street
- Carrera 7, 109th Street to 116th Street
- 72nd Street, Carrera 7 to Carrera 11
- 90th Street, Carrera 12 to Carrera 14
- 109th Street, Carrera 15 to 19th Avenue
- 122nd Street, Carrera 15 to 19th Avenue
- 74th Street to 85th Street, Carrera 16 to Carrera 22

The control areas selected represent areas with similar economic and usage patterns as the areas of interest. However, the control areas have experienced no upgrades in terms of urban infrastructure.

Figure 6 is a graphical representation of the change in property values between the Zona Rosa T area and the average of the areas of control. All values in Figure 6 represent real values adjusted to 2003 levels of the Colombian peso. As evidenced from the values in Figure 6, the overall property market had been depressed due to macro-economic issues within the Colombian economy.

However, beginning a year before the Zona Rosa upgrades in 2001, the Zona Rosa property values begin to diverge significantly from the eight control areas. By the 2002 to 2003 period, this divergence is even more pronounced with property values in the Zona Rosa surging 22 per cent while the property values in the control areas fall by nearly 6 per cent. During the entire period of 1999 through 2003, the average annual percentage change in property values for the Zona Rosa was 6.0 per cent while this value for the control areas was -8.1 per cent. The beginning of the divergence in property values between the Zona Rosa and control areas commenced the year before the project was implemented, which coincides with the date of the project’s announcement. However, caution should be exercised in assuming that the property value gains in the Zona Rosa are exclusively due to the pedestrianisation upgrades. A modelling analysis utilising all key variables affecting property valuation would be necessary before assigning a strict causal relationship.

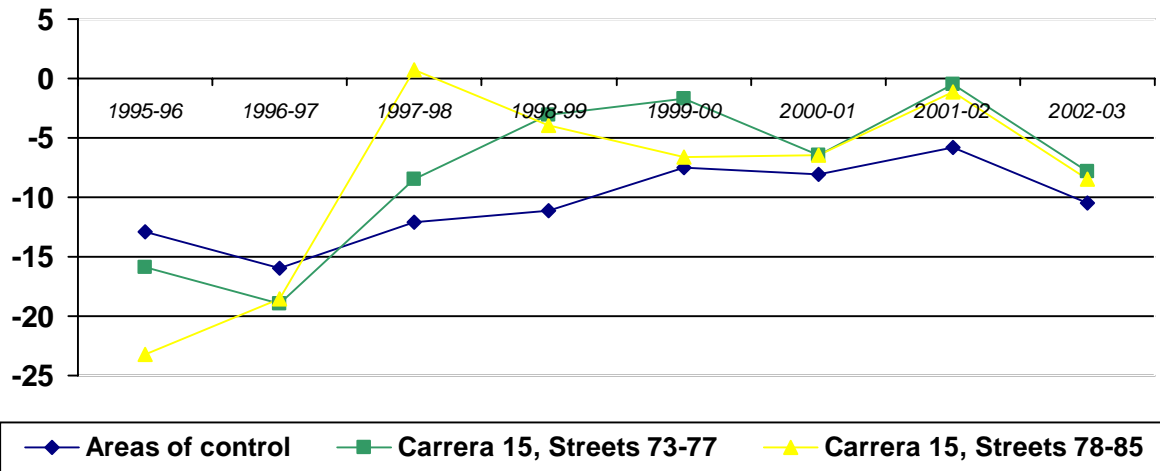
Figure 6 Property value changes in the Zona Rosa of Bogota, rate of annual change (1996-2003)



Source: Lonja de Propiedad (2003)

The property value changes of same eight control areas were also compared to property value changes along Carrera 15, which had undergone a major pedestrian improvement scheme. While this scheme was not a full pedestrianisation of the street, two lanes of traffic were reduced. Additionally, street parking was eliminated to make way for a wider pedestrian area along with benches and tree plantings. Figure 7 provides a comparison of the changes in property values.

Figure 7 Property value changes on Carrera 15, rate of annual change (1995-2003)



Source: Lonja de Propiedad (2003)

At the beginning of the street rehabilitation process on Carrera 15, the trends in property value changes were actually lower than those in the control areas. However, as the construction was near completion, property value changes on Carrera 15 significantly exceeded those in the control area. This trend has continued to the present day, although the differences in property value changes are not as pronounced as was the case with the Zona Rosa.

Employment

Beyond property value changes, the research team also attempted to capture employment impacts from Bogotá’s “ciclovía”, the Sunday closing of roads to motorised vehicles. Employment along the “ciclovía” stems from two major categories: 1. Municipal staff managing the “ciclovía”; and, 2. Vendors working along the “ciclovía”.

Table 3 lists the number and type of municipal support staff who enable the operation of the “ciclovía”. A typical Sunday involves approximately 1,900 volunteers, whose ages range from 15 to 17 years. These young scholars are completing a national social service activity that is required prior to graduation from secondary school. In total, the volunteers oversee traffic control on more than 500 key intersections (Montezuma, 2002).

Table 3 Management staff for the Bogotá “ciclovía”

Position	Number of employees
General coordinator	1
Supervisors	5
Route managers	22
Ciclovía guardians	165
Aerobics point managers	12
Aerobics instructors	42
Maintenance helpers	24

Social service volunteers	1,900
Police assistants	300
Professional traffic agents	30
Emergency service professionals	5
<i>Total</i>	<i>2,506</i>

Source: Alcaldía Mayor de Bogotá (1998)

Table 4 provides a summary of the type and number of vendors along the “ciclovía”. Through a survey in 2004, a total 1,517 kiosks were counted along the “ciclovía”. The total employment in the kiosks was estimated at 2,033, an average of 1.34 employees per kiosk.¹ The average income per vendor during a single “ciclovía” was 34,482 Colombian pesos (US\$ 12.31).

Table 4 Vendor activities by type on “ciclovía”

Vendor activity	Per cent of total vendors
Food and/or beverages	73.6%
Bicycle repair only	9.4%
Bicycle accessories / repair	6.8%
Consumer goods	4.3%
Antiques	3.4%
Other	2.6%

The “ciclovía” employment figures were then compared to an estimate of automobile-related employment along the same corridor. Automobile-related employment was deemed to be any of the following business activities:

- Service station (petrol only)
- Service station (full services)
- Car washing facility
- Vehicle renting or sales
- Auto repair shops

A total of 70 establishments catering to motorised vehicles were identified along the entire 120 kilometres of the “ciclovía”. Table 5 lists the type of automobile-related establishments along the “ciclovía”. In total, these automobile-related businesses generate employment for an estimated 274 persons.

Table 5 Automobile-related businesses along the “ciclovía”

Type of business	Number of businesses along the “ciclovía”	Average number of employees per business
Service station (petrol only)	13	5.7
Service station (full services)	6	4.1
Auto repair shop	9	3.4
Car washing facility	17	4.7
Vehicle renting or sales	25	2.6

¹ Based upon interviews with 241 different kiosk workers.

The comparison between the two employment figures is quite dramatic. The “ciclovía” provides 7.4 times the amount of private sector employment as automobile-related businesses do along the same corridor. This figure becomes 16.5 times automobile-related employment if the municipal management functions are included. While it is uncertain whether this ratio would continue to hold if the “ciclovía” was further extended in either physical length or time, the result is interesting from the perspective of employment benefits of small-scale activities.

Environmental impacts

The city’s environmental agency, known as DAMA (Departamento Técnico Administrativo del Medio Ambiente), maintains air quality monitoring equipment in 14 different locations of the city. The pollutants included in the air monitoring programme are particulate matter (PM-10), nitrogen oxides (NOx), sulphur oxides (SOx), carbon monoxide (CO), and ozone (O₃).

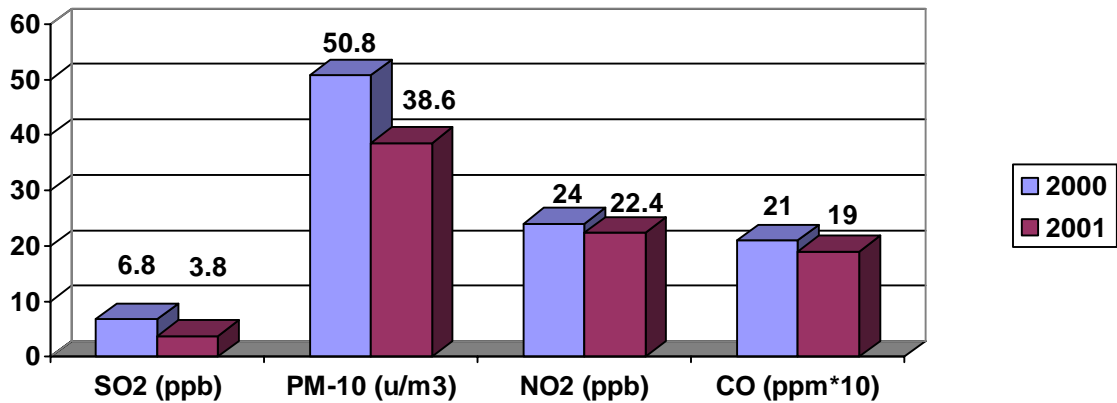
The monitoring programme is aimed at providing basic data on air quality at the ambient level. Thus, the programme does not capture the micro-level impact of pedestrian improvements along individual streets. Instead, the data indicates the overall impact of the entire package of measures taken in the city, including the impact of TransMilenio, cycle ways, pedestrian improvements, and car restriction measures. Table 6 outlines the most likely sources of emission reductions resulting from the urban improvements undertaken in Bogotá.

Table 6 Mechanisms for reducing emissions in Bogota

Emission reduction mechanism	Description	Examples
1. Mode shifting	Shifting travel to less polluting options	<ul style="list-style-type: none"> ▪ Private motorized vehicle users shifting to public transport ▪ Motorised vehicle users shifting to non-motorised transport
2. Distance travelled	Reducing the number of trips or reducing the distance travelled	<ul style="list-style-type: none"> ▪ Densification of land use around public transport, leading to shorter journeys being required for shopping, work, etc. ▪ More efficient transport services providing more direct routes
3. Fuel efficiency	Improving the technical efficiency of the vehicles	<ul style="list-style-type: none"> ▪ Shifting from older public transport vehicles to newer vehicles with improved emission control technologies and cleaner fuels ▪ Improved maintenance

Figure 8 summarises ambient air quality levels both before and after the implementation of the TransMilenio system. The reduction in sulphur dioxide is the most pronounced with a 44 per cent reduction achieved in just a one-year period.

Figure 8 Average ambient emission levels in Bogotá, before and after TransMilenio



Source: Hidalgo (2003)

Social impacts

Traffic accidents and deaths

The various urban and mobility measures undertaken in Bogotá all contributed to increased order of vehicular traffic in the city. For example, the separation of public transport vehicles into dedicated busways helps to eliminate many conflicts that ultimately result in congestion and accidents. Likewise, the grade-separated infrastructure for both pedestrians and cyclists also minimises accidents.

The Bogotá Municipality has collected data on traffic impacts for both the entire city as well as along the corridors of the TransMilenio system. Due largely to increasing car ownership and an expanding fleet of private buses, traffic accident deaths in Bogotá reached a historical peak of 1,387 in 1995. With the various mobility changes in the city, this figure was reduced to 697 by 2002 (Figure 9).

Figure 9 Traffic deaths in Bogotá, 1995-2002

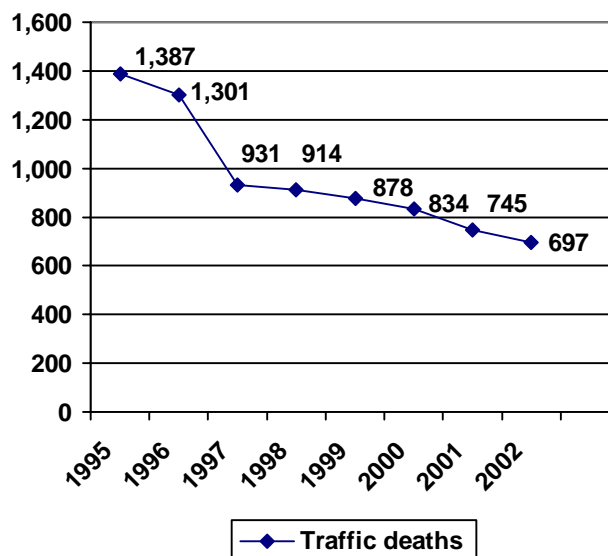
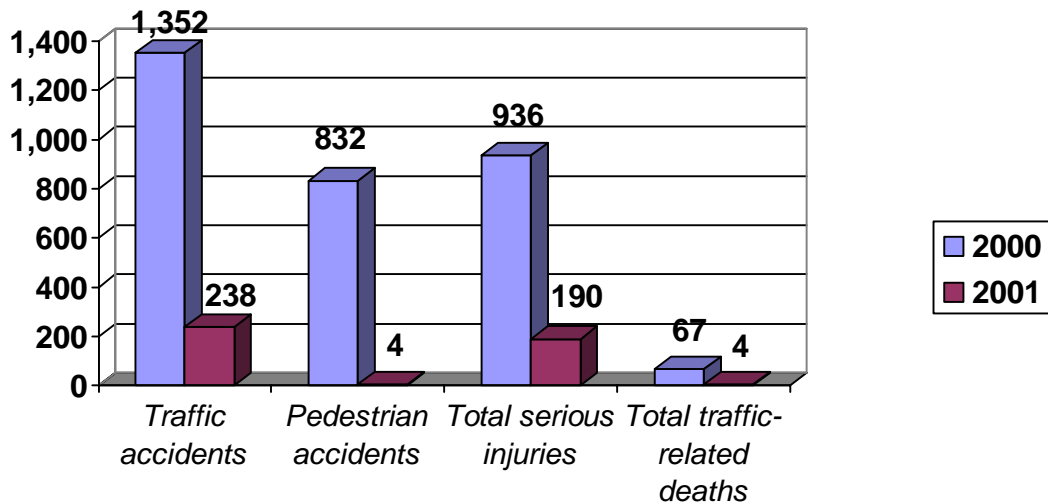


Figure 10 summarises data on traffic accidents along the TransMilenio system. The table indicates substantial reductions in the number of accidents between vehicles as well as accidents involving pedestrians. TransMilenio has achieved great success in reducing pedestrian accidents due to the use of improved zebra crossings and pedestrian overpasses.

Figure 10 Reduction of accidents along TransMilenio corridor



Crime levels

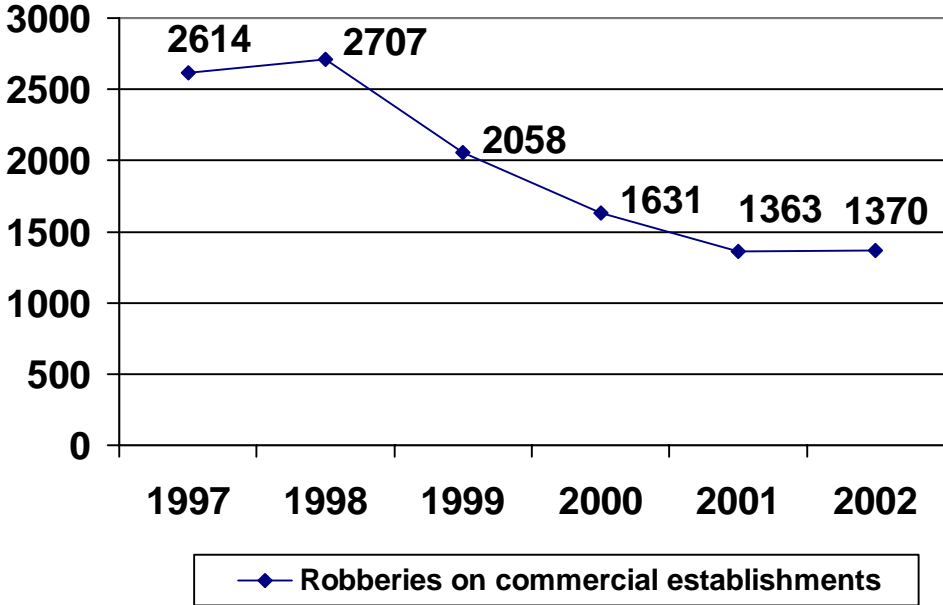
The quality of the urban environment can be influential upon the levels of crime and insecurity in a city. Previous research provides indications that the physical urban environment closely relates to influencing behaviour, both positive and negative behaviours (Kuo and Sullivan, 2001) (Wilson and Kelling, 1982). This relationship is attributed to several key linkages:

- A more vibrant urban environment attracts more persons to the streets and thus creates a certain safety in numbers
- Greater community pride means that delinquent behaviour is less tolerated; residents take ownership of their urban space and become more protective
- Improved physical attributes such as vegetation, street furniture, and cleanliness create a psychological barrier to committing certain crimes in the first place
- Improved physical design can create fewer opportunities for certain types of criminal activity to be effective, e.g., fewer hidden areas.

Figures 11, 12, and 13 provide several different indicators on city-wide crime levels over the period of urban changes in Bogotá. However, it should be noted that these reductions were achieved through a range of measures, including restricted hours on bars and nightclubs, improved policing, better inter-agency co-operation, and social programmes for at-risk populations. The improvement in the urban environment is also frequently cited as a contributing factor, but the extent of the linkage is still being investigated. Again, as in the case of urban mobility, the fact that Bogotá simultaneously addressed the crime issue through a multi-faceted

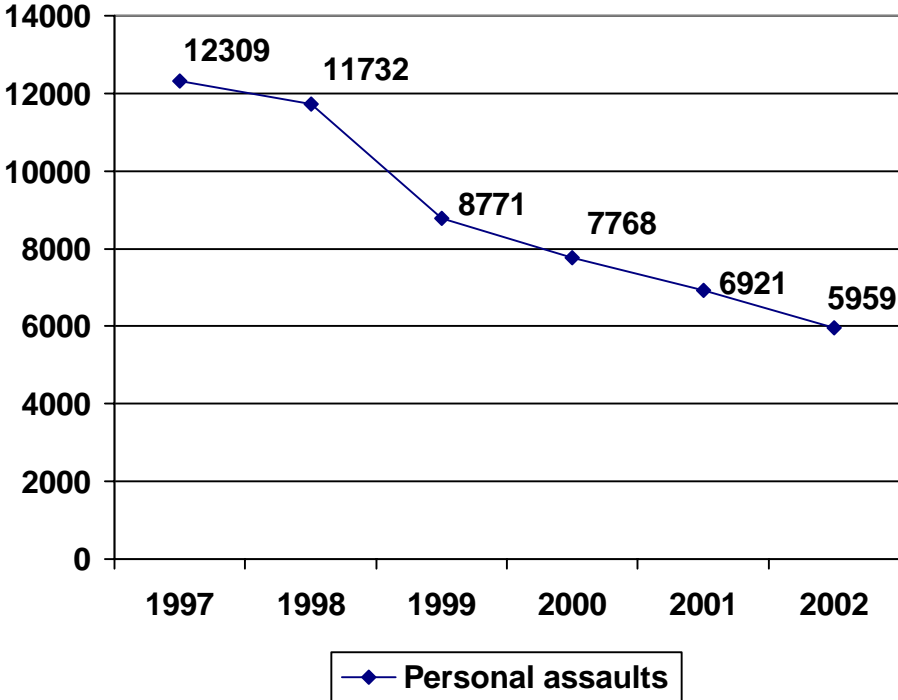
approach means that there are likely synergistic effects between the different mechanisms.

Figure 11 Number of robberies on commercial establishments in Bogotá, 1997-2002



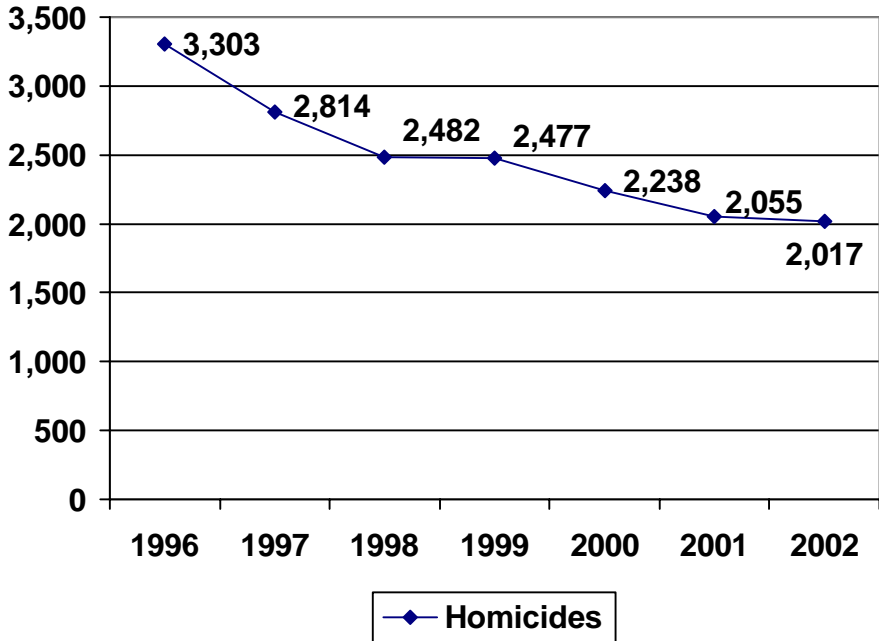
Source: Secretaría de Gobierno (2003)

Figure 12 Number of personal assaults in Bogotá, 1997-2002



Source: Secretaría de Gobierno (2003)

Figure 13 Number of homicides in Bogota, 1996-2002



Source: Secretaría de Gobierno (2003)

Equity and distributional effects

As noted earlier, the Sunday “ciclovía” is a significant generator of employment, both in terms of the private selling of goods and services as well as the public management of the road closings. The survey work conducted on the “ciclovía” also provides evidence of strong distributional benefits as well. Of the 2,033 persons recorded working in “ciclovía” kiosks, an estimated 96 per cent of these persons are from the three lowest economic strata in the city.² Approximately 85 per cent of the “ciclovía” kiosk workers did not have education beyond secondary school.

For one-third of the surveyed kiosk workers, the “ciclovía” represented their only current form of employment. The average worker, though, was not only providing for themselves but other family members as well. The survey indicated that the average kiosk worker was providing financially for 3.2 other dependents at home. Thus, the “ciclovía” is a powerful example of how some small-scale employment opportunities can generate significant multiplier benefits.

Conclusions

This article briefly summarised the research efforts that are underway to better quantify the economic, environmental, and social changes occurring in Bogotá, Colombia. The initial results are quite striking in terms of the size and range of the benefits. However, it must be cautioned that in many cases the causal links between an urban intervention and the measured impacts on such factors as

² Residents of Bogotá are categorized into six different economic groupings based upon the location of their residence.

property values, employment, crime, and emission levels are difficult to establish with complete certainty.

This methodological challenge is particularly acute in the case of Bogotá where significant synergies exist between multiple measures taken together. The complementary nature of simultaneously reclaiming urban space, promoting non-motorised transport, implementing higher-quality public transport, and restricting private vehicle use means that the size of the ensuing benefits are likely to be increased. The whole of the measures combined is likely to be greater than the sum of the measures implemented independently.

Bogotá's legacy, though, will perhaps best be measured by its impact on other cities around the world. Over one thousand city officials from over 50 countries have visited the new Bogotá in the past few years. Cities as diverse as Accra (Ghana), Cape Town (South Africa), Dakar (Senegal), Dar es Salaam (Tanzania), Delhi (India), Dhaka (Bangladesh), Guatemala City (Guatemala), Jakarta (Indonesia), Leon (Mexico), Lima (Peru), Mexico City (Mexico), and Santiago (Chile) are now either planning or implementing some of the measures that they witnessed through visits to Bogotá.

The success of these new efforts will likely depend on many local factors. Bogotá was unusual in the high degree of political will and political continuity that existed across several different administrations. Thus, the degree to which other cities can replicate Bogotá's experience is possibly more dependent on the political environment than just the physical nature of their urban regeneration efforts. However, Bogotá does seem to have made one very dramatic point: A large developing-nation city in difficult social and economic conditions can transform its urban space and the lives of its inhabitants within a matter of a few years. Bogotá's ultimate message is one of inspiration for city officials who believe in something better.

References

- Alcaldía Mayor de Bogotá (1998), Ciclovía programme: A carnival on the streets of Bogotá every Sunday and holiday, Bogotá: Alcaldía Mayor de Bogotá.
- Cervero, R. and Duncan, M. (2002), Land value impacts of rail transit services in San Diego County. Report to the National Association of Realtors & Urban Land Institute.
- Dueker, K. and Bianco, M. (1999), Light rail transit impacts in Portland: The first ten years, *Transportation Research Record* 1685, 171-180.
- Gomescásseres, T. (2003), Deporte, juego y paseo dominical: La recreación en los espacios públicos urbanos, el caso de la ciclovía de Bogotá. Masters thesis at the Nacional University of Colombia, Faculty of Human Sciences.
- Hass-Klau, C. (1993), Impact of pedestrianization and traffic calming on retailing: A review of the evidence from Germany and the UK, *Transport Policy*, 1(1):21-31.
- Hidalgo, D. (2003), TransMilenio: A high capacity – low cost bus rapid transit system developed for Bogotá, Colombia. Presented at the 55th World Congress of the International Public Transport Union (UITP), May 2003, Madrid, Spain.
- Kuo, F. and Sullivan, W. (2001), Environment and crime in the inner city: Does vegetation reduce crime, *Environment and Behavior*, 33(3): 343-367, May 2001.
- Lonja de Propiedad (1993), El valor del suelo urbano en Bogotá, Bogotá: Lonja de Propiedad.
- Montezuma, R. (2002), People power: The citizens behind Bogotá's urban revolution, *Sustainable Transport*, Number 14, Fall 2002.
- Secretaría de Gobierno (2003), Data statistics on crime and accidents. Unpublished.
- Wilson, J. and Kelling, G. (1982), Broken windows, *Atlantic Monthly*, 249(3): 29-38.