



 **ESG REAL ESTATE LAB**

An aerial photograph of a busy city street, likely in Latin America, showing a mix of cars, vans, and a dedicated bicycle lane. The scene is overlaid with a teal tint. The bicycle lane is marked with a white bicycle icon and an arrow. A building with the word "Sportiva" is visible on the right side of the street.

The Power of Two Wheels: Bicycles in Latin America

November 2023

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Introduction

“From reducing transport emissions and road deaths to tackling obesity and noncommunicable diseases, improving rural connectivity and empowering women and girls, bicycles can make a crucial contribution.”

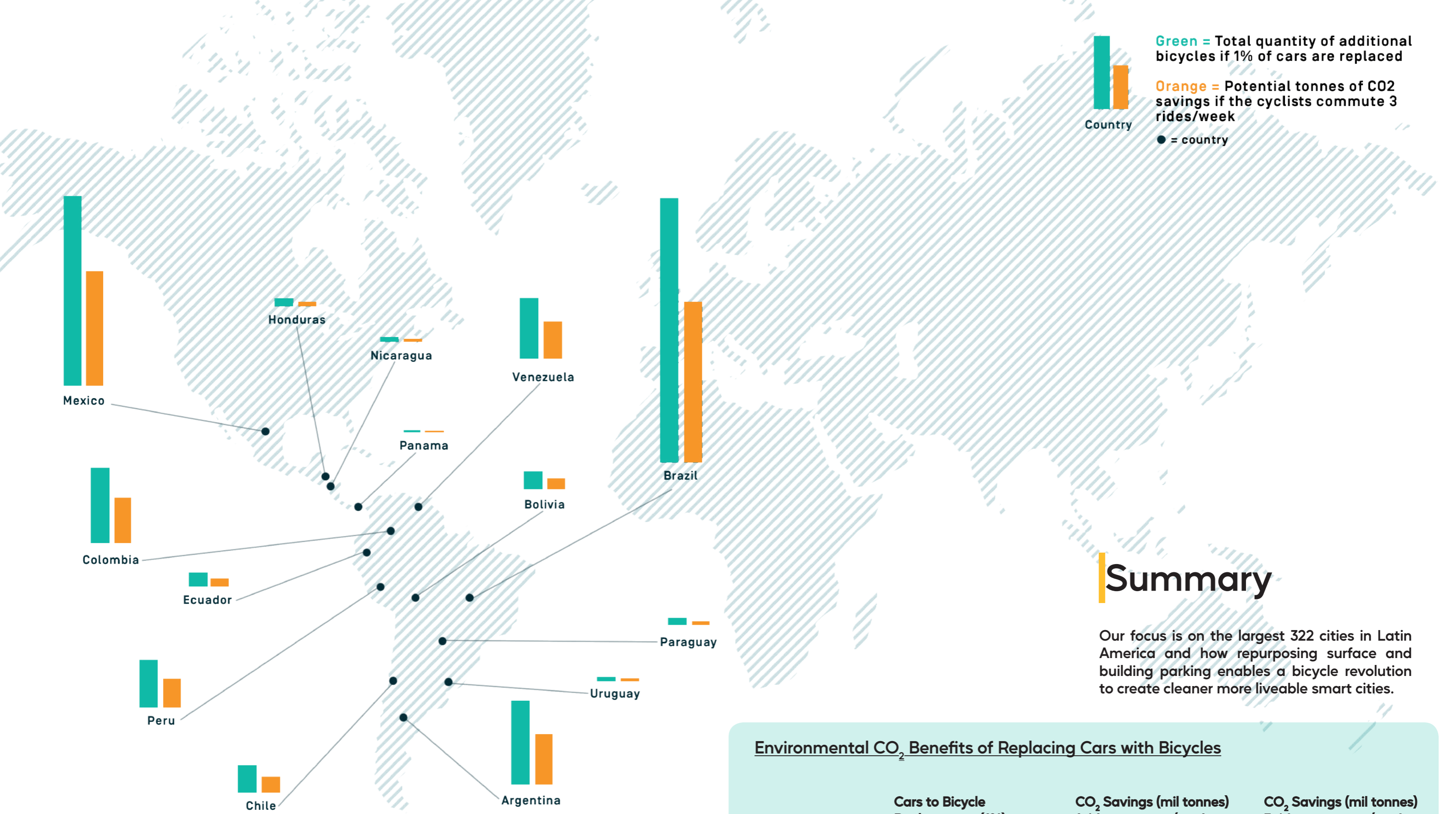
Maria Fernanda Espinosa, President of the United Nations General Assembly (2018 to 2019)

The urban landscapes of South and Central America are at a crossroads, grappling with the challenges posed by rapid urbanisation and the need for sustainable mobility solutions. In the pursuit of cleaner, more liveable, and technologically advanced cities, a new paradigm is emerging – one that places the bicycle at the forefront of urban transformation. This research report delves into a progressive initiative that seeks to reshape urban environments by repurposing surface and building parking spaces to foster a bicycle revolution.

Amid the intricate challenges posed by escalating automobile presence, this research pivots its attention toward bicycles, harnessing their potential as a driving force for positive change. Going beyond the surface of car concentration, we delve deep into the advantages of prioritising bicycles as a primary mode of urban transportation. By dissecting the barriers that hinder their seamless integration into daily life and understanding the transformative impact of repurposed parking spaces, this study seeks to lay the groundwork for a comprehensive shift towards a healthier, more dynamic urban landscape.

The subsequent sections of this report are a testament to our commitment to unravelling the manifold facets of this bicycle-oriented paradigm. Through a meticulous blend of data-driven insights, innovative methodologies, and strategic thinking, we strive to present a comprehensive understanding of the potential offered by repurposing parking spaces to support the bicycle revolution. This report aims to not only underscore the benefits of embracing bicycles but also to pave the way for a roadmap that Latin American cities can follow to foster a bicycle-centric metamorphosis.

In the pages that ensue, we will journey through the nuanced interplay between urban development, sustainable transportation, and the intrinsic capacity of bicycles to reshape cities. By advocating for a strategic reimagining of parking spaces, we endeavour to propel Latin American cities toward a more balanced, healthier, and interconnected urban future, where bicycles emerge as the driving force behind transformative change.



Summary

Our focus is on the largest 322 cities in Latin America and how repurposing surface and building parking enables a bicycle revolution to create cleaner more liveable smart cities.

Environmental CO₂ Benefits of Replacing Cars with Bicycles

| | Cars to Bicycle Replacement (1%) | CO ₂ Savings (mil tonnes) 1 ride commute/week | CO ₂ Savings (mil tonnes) 3 ride commutes/week |
|---------------|----------------------------------|--|---|
| Latin America | 583,000 | 117.6 | 352.8 |
| Europe | 371,000 | 66.8 | 200.3 |
| North America | 260,000 | 52.4 | 157.2 |
| Total | 1.214 million bicycles | 236.8 million tonnes | 710.2 million tonnes |

Even a 1% change in travel activity from car to bicycle creates huge positive effects for cities and their residents.

The power of two wheels: bicycles in Latin America

Urban centres face escalating competition in attracting and retaining inhabitants and enterprises. With advancements in technology and transportation facilitating remote living and work opportunities, cities must provide compelling incentives for individuals to choose them over alternative options. To prevail, cities must offer a superior quality of life, a robust economy, and a diverse range of cultural and recreational possibilities. They must also prioritise sustainability, environmental stewardship, and address concerns such as affordability, safety, and traffic congestion. Ultimately, the cities that effectively cultivate appealing, liveable environments will triumph in attracting and retaining residents.

The concept of an intelligent city envisions a harmonious coexistence of people, businesses, and the environment. Achieving this requires a multifaceted encompassing numerous aspects, including air quality, transportation, and urban infrastructure. Enhancing air quality stands out as a crucial step towards this objective. By decreasing the number of vehicles on the roads, thereby reducing CO₂ and PM_{2.5} emissions, and promoting active transportation alternatives such as bicycles and mass transit, cities can foster healthier and cleaner surroundings for their residents.

The more hospitable cities become towards bicycles, the greener and healthier they will be. Improved city health translates into superior air quality...

This report centres not only on the distance covered but also on the ultimate storage destination for bicycles. Over the past few decades, we have witnessed a persistent increase in car parking facilities within cities, leading to a corresponding surge in car demand. As urban populations grow, so does the congestion caused by single-occupancy vehicles. We firmly believe that bicycles and active travel represent essential components of tomorrow's intelligent cities, countering this trend. Bicycles can help reduce the number of cars on the roads, liberate parking spaces for other purposes, enhance social cohesion, promote a healthier population, and generate positive economic and social benefits. It is encouraging that cities in Latin America are investing more in infrastructure, including bike lanes and expanded sidewalks. That is why our focus lies on both the distance travelled and the final destination.

It is vital to establish appropriate bicycle infrastructure within city structures and transportation hubs adjacent to mass transit

accesspoints. Asemphasisedbyvariousreports and studies, broader adoption of bicycles and the fostering of bicycle culture in Latin America yields numerous advantages, such as local community benefits, empowerment of the working class, infrastructure and policy support from local governments, the social impact of bicycles concerning affordability and accessibility, job creation within the bicycle industry, and the promotion of cycle-friendly workplaces. Additionally, nurturing a bicycle culture contributes to employment opportunities and the development of local manufacturing, ensuring a positive impact on the regional economy.

In this report, we will explore the role of bicycles in Latin America and their potential to revolutionise cities, enhance quality of life, and establish sustainable and inclusive communities. By examining the aforementioned aspects, we aim to underscore the significance of embracing bicycles as a solution for the challenges faced by Latin American cities and the positive effects they can have on the region's social, economic, and environmental well-being.



Urban living in Latin America

Latin America presents a significant opportunity for integrating bicycles into smart city development, forming an integral part of the broader effort to decarbonise large urban centres. This potential is particularly pronounced due to the region's dual characteristic of hosting a high concentration of large cities and a strong emphasis on urban living. This trend is vividly illustrated in Chart 1, below, which compares the demographics of major cities in Europe with those in Latin America.

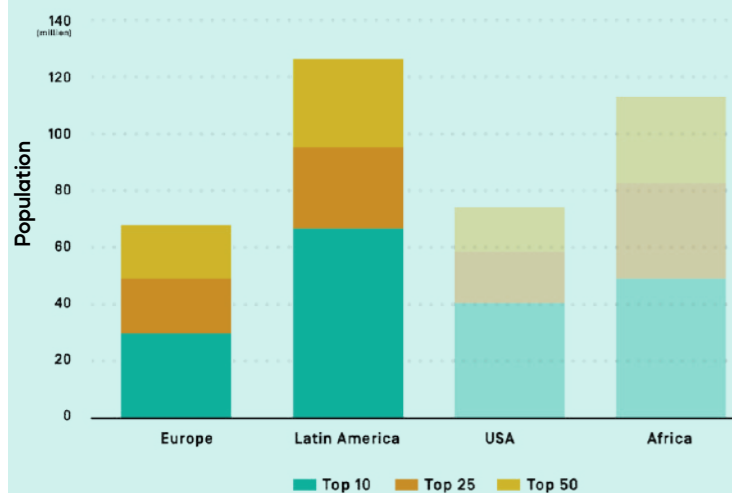
The ten largest cities in Latin America collectively house a population of 66.7 million. To achieve a similar population, count in Europe, we must consider the top 50 largest European cities, which accommodate 68.3 million residents. This striking contrast underscores the substantial urban presence in Latin America. Consequently, these ten highly populated urban centres wield significant influence in the global endeavour to reduce carbon emissions.

Chart 2, below, provides an alternative perspective emphasising the importance of focusing on the largest 20 cities in Latin America. Here we look at the Air

Quality Index (AQI) pollution data for 2022 in major European cities (depicted in blue) in comparison to the largest Latin American cities (represented in orange). This comparative analysis clearly illustrates that Latin American cities generally experience slightly higher pollution levels. As a result, these cities have a significant potential to benefit from each bicycle rider's contribution towards reducing car usage. This underscores the pressing need for the widespread adoption of bicycles as a highly impactful solution.



Total population of the largest cities by continent



Air Quality Index (AQI) of the 20 largest cities by continent



Barriers to bicycle use:

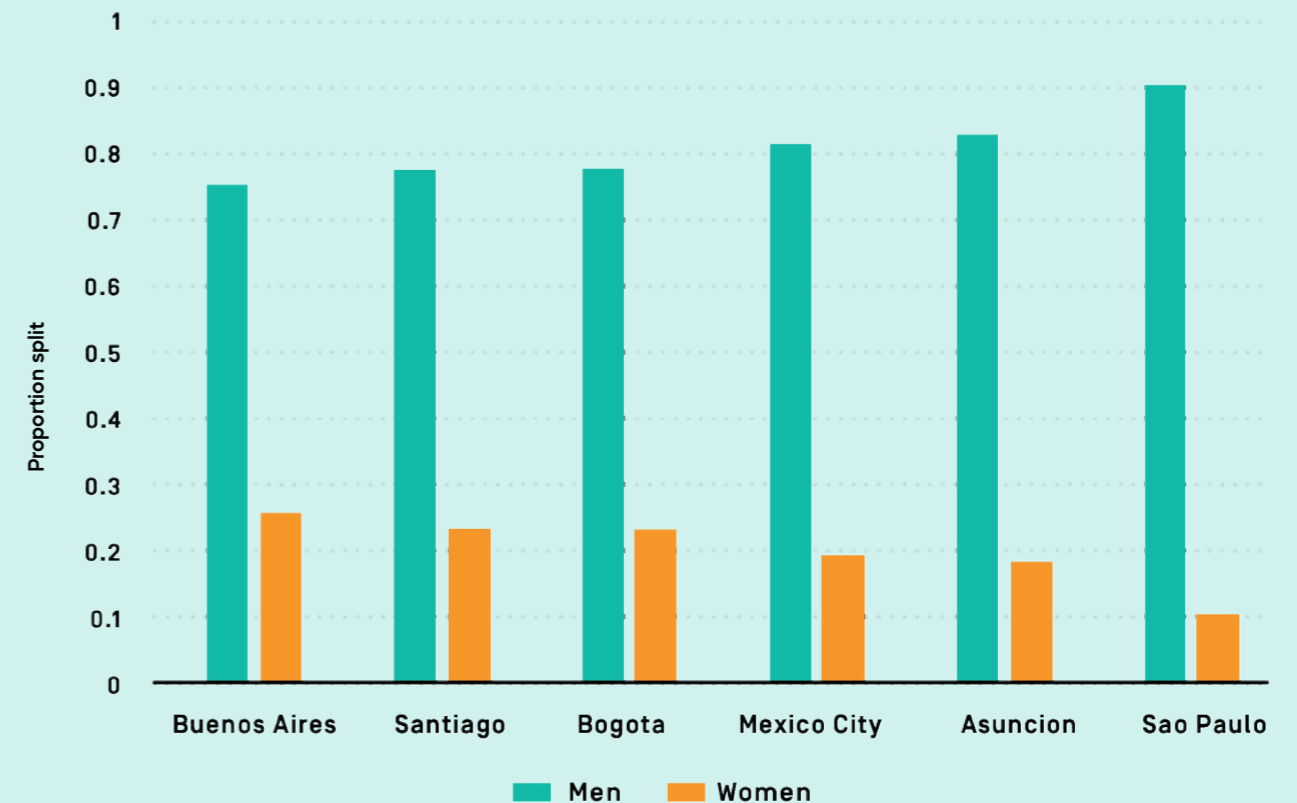
There are also significant barriers to entry across the continent that challenge the pace of bicycle adoption. As a result, fostering widespread bicycle usage in Latin America demands a nuanced approach, recognising the multifaceted barriers that impede its adoption. Challenges include pollution levels, a predicament more acute in densely populated urban centres. Worsening air quality not only poses health risks but also deters potential cyclists. Moreover, the pervasive heat across many Latin American cities presents a formidable obstacle. The sweltering climate, especially during the peak of the day, introduces potential heat-related health issues. Planning is another obstacle. There is inadequate road infrastructure and an absence of dedicated cycling lanes that leave riders vulnerable to accidents and collisions with motorised vehicles. Crucially, the dearth of comprehensive city-wide planning and infrastructure for cycling further hinders progress. Without a concerted effort to integrate bicycles seamlessly into existing transportation systems, the potential benefits of

increased cycling remain unrealised. Additionally, gender disparities in bicycle usage persist as a notable obstacle across the continent. Cultural norms and, in many cases, valid safety concerns often dissuade women from embracing cycling as a viable means of getting around. Women continue to be a relatively minor portion of total bicycle users.

By understanding and addressing these challenges head-on, we can turn to the invaluable insights and innovative strategies put forth by organisations and research initiatives dedicated to surmounting these hurdles. Their work not only offers tangible solutions but also serves as a catalyst for a more inclusive and sustainable urban mobility landscape across Latin America, ultimately fostering a greater cycling culture. Through this concerted effort, we can pave the way for a future where bicycles are not only a means of transportation but an emblem of progress and sustainability in the region.

Proportion of work trips by bicycle

REDEUSLAC, 2022: study into Gender Differences in Bicycle use in Latin American cities



Infrastructure and policy support

The nuances of bicycle support across Latin America are varied and complex. However, support is increasing across the following distinct focus areas.

Government Support and Policy Interventions:

Government support and effective policy interventions are crucial for the growth and sustainability of cycling in Latin American cities. Implementing and enforcing cycling infrastructure, such as dedicated bicycle lanes, bike racks, and traffic calming measures, can enhance safety and encourage more people to take up cycling. Financial incentives, tax breaks, and subsidies for purchasing bicycles or e-bikes can also make cycling more accessible to all.

Infrastructure:

The region has seen tremendous growth in infrastructure developments. We have seen leadership across a variety of different megacities like Bogota in Colombia and other large urban centres like Curitiba, Brazil and Montevideo, Uruguay:

Curitiba, Brazil:

Curitiba with 1.96mln residents has been recognised for its innovative transportation system, which includes a well-developed cycling infrastructure. The city has dedicated bike paths, integrated bus and bike lanes, and bike-sharing programs that make it easier for residents to commute by bicycle. Curitiba has been a world leader in sustainable living since the 1970s when it started planning for a greener more mobile world. A true Latin American leader!

Montevideo, Uruguay:

Montevideo is known for its cycling culture and has been investing in bicycle infrastructure. The city has bike paths, bike-sharing programs, and initiatives to promote cycling as a sustainable mode of transport. Uruguay has long been a sustainability pioneer – implementing strategies for a growing population while becoming sustainable in many different areas. Having ½ its population living in or near the capital Montevideo has allowed it to be a sustainable city pioneer, and the bicycle has been an important aspect of this leadership and movement.

| City | Country | Bike lanes (km) | 1,000 people per bike lane km |
|----------------|-----------|-----------------|-------------------------------|
| Sao Paulo | Brazil | 700 | 14 |
| Bogota | Colombia | 564 | 14 |
| Rio de Janeiro | Brazil | 450 | 13 |
| Santiago | Chile | 400 | 12 |
| Mexico City | Mexico | 370 | 25 |
| Buenos Aires | Argentina | 277 | 47 |
| Lima | Peru | 250 | 31 |
| Salvador | Brazil | 250 | 11 |
| Cali | Colombia | 192 | 12 |
| Fortaleza | Brazil | 150 | 16 |

Ridesharing:

Bicycles have become an integral part of the mass transportation system in Latin American cities. They complement existing public transportation networks, providing convenient first and last-mile connectivity. The introduction of bike-sharing programs has further enhanced accessibility and convenience, allowing people to easily access bicycles at affordable rates. Such initiatives encourage more individuals to embrace cycling and reduce dependency on private vehicles.

Mexico City, Mexico has taken steps to enhance its cycling infrastructure in recent years. It has implemented dedicated bike lanes, and a public bike-sharing system called "Ecobici".

Buenos Aires, Argentina has implemented a free public bicycle-sharing system also called "Ecobici".

Bicycle on Sundays / Bicycle Nights:

Muévete en Bici – Mexico City:

Mexico City's "Muévete en Bici" opens certain streets to cyclists on Sundays and sees more than 20 million people participate in open street events annually.

Ciclovia Nocturna - Medellín, Colombia:

Medellín, Colombia has made significant strides in improving its cycling infrastructure and promoting cycling as a mode of transport. The city has implemented an extensive network of bike lanes, bike-sharing programs, and events like "Ciclovia Nocturna," where certain streets are closed to traffic and open for cyclists at night.

Ciclovia - Bogotá, Colombia:

Bogotá has been a pioneer in promoting cycling and has one of the most extensive bicycle infrastructure networks in Latin America. The city's "Ciclovia" program, which closes major roads to motorised vehicles on Sundays and holidays, allows cyclists to enjoy 75 miles of car-free streets/roads.

Ciclo recreoía – Santiago, Chile:

Santiago's "Ciclo recreoía" opens certain streets exclusively for cyclists and pedestrians on Sundays and holidays.





Environmental impact



As we noted in our earlier report, bicycles/e-bikes contribute to reducing carbon emissions and improving air quality. In this light, the bicycle has an important role to play in combating climate change and promoting sustainability.

Reducing carbon footprint:

With growing concerns about climate change and air pollution, bicycles offer a sustainable mode of transportation, significantly reducing carbon emissions. By choosing bicycles over motorised vehicles, Latin Americans contribute to the reduction of greenhouse gases and the improvement of air quality. This shift towards cycling aligns with global efforts to combat climate change and promote sustainable living.

The growing urban city populations in Latin America are already larger than the biggest cities in Europe and North America. Accordingly, there are tremendous opportunities to convert local populations towards bicycle use and away from ICE cars. The potential decarbonisation and estimated CO₂ reduction potential is nearly as large as similar car-to-bike conversions in Europe and North America.

Progressive approach:

In certain aspects, Latin American cities have leapfrogged European and American cities, adopting innovative solutions for bicycle-related challenges. We are seeing more cities that are implementing much-needed secure end-destination storage facilities, allowing cyclists to safely park their bicycles while they go about their daily activities. This proactive approach demonstrates Latin America's ability to embrace modern technologies and adapt to the needs of its growing cycling community. For example, in 2021 Bogotá added ~80 kilometres to its existing 550-kilometer bicycle infrastructure that spans the Transmilenio route (*Inter-American Development Bank (IDB), 2022*). This augmentation was accomplished by converting lanes on spacious roads, originally meant for cars, into exclusive bicycle paths. Notably, these changes occurred virtually overnight. The use of provisional materials for these paths provided the city with the agility to promptly modify and adjust them as needed.

Social impact



The bicycle has an important role to play not only for the environment but also for its impact on public health and well-being. Cycling can enhance social inclusivity and accessibility in urban areas, along with affordability and accessibility in daily commuting.

Affordability and Accessibility:

One of the most prominent advantages of bicycle use in Latin American cities is its affordability. In contrast to the high costs associated with car ownership, bicycles provide a cheaper alternative for daily commuting. This affordability allows economically disadvantaged populations to access job opportunities, enabling them to support themselves and their families. Bicycles act as great equalisers, bridging the transportation gap and facilitating social mobility. Certain disadvantaged groups may still struggle to afford the cost of a bicycle – however, there have been welcome moves from NGOs and charities providing bicycles and e-bikes to those who really need them. All these factors are helping provide accessibility to employment and economic security for families and individuals.

Community and Social Cohesion:

Bicycle use fosters a sense of community and social cohesion. Cyclists often form groups or join cycling clubs, creating opportunities for social interactions, support networks, and community engagement. Events like cycling rallies, group rides, and advocacy campaigns further strengthen the bond between cyclists and the broader community. As we have previously noted, cars take up more space. The bicycle relieves car stress and creates more peaceful cities that foster local community building and help local businesses flourish.

NGOs:

A variety of NGOs (non-governmental organisations) and grassroots organisations are playing a crucial role in promoting cycling culture by providing bicycles, organizing workshops on bicycle maintenance, and advocating for cycling-friendly infrastructure. These initiatives contribute to improved bicycle usage and infrastructure development.



Education and Awareness:

Promoting cycling education and raising awareness about the benefits of cycling can lead to a more inclusive and informed society. Schools can introduce cycling education programs, teaching children about road safety, bike maintenance, and the environmental impact of different modes of transportation. This can help instil a cycling culture from a young age and shape future generations' attitudes towards sustainable transportation.

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Economic impact



Cycling offers a wealth of economic benefits. Some are well-being related (such as healthier people lowering overall healthcare costs), some are economic (like increased eco-tourism and increased foot traffic in city centres/neighbourhoods), and some are cost reductions (examples include less wear and tear on infrastructure and reduced municipal outlays on roads).

Tourism and Economic Opportunities:

Latin American cities with a thriving cycling culture can attract tourists interested in exploring the city on two wheels. Bicycle tourism not only promotes local businesses, such as bike rentals, repair shops, and cycling-friendly accommodations but also encourages sustainable tourism practices. This can lead to economic growth and job opportunities within the cycling industry.

Lower Healthcare Costs:

Cycling promotes physical activity and improves overall health and well-being. Regular cycling helps combat sedentary lifestyles and reduces the risk of obesity, cardiovascular diseases, and other lifestyle-related illnesses. Encouraging a culture of active transportation through cycling can lead to healthier communities. This is a positive for individuals, companies, and the overall healthcare costs borne by society.

Less Wear and Tear on Infrastructure:

The use of bicycles in Latin American cities reduces wear and tear on existing road infrastructure. As bicycles exert minimal pressure on roads compared to motorised vehicles, this mode of transportation can help extend the lifespan of road surfaces, reducing the need for constant repairs and maintenance. This cost-saving benefit indirectly benefits the entire community.

Job Creation in the Cycling Industry:

There is also a real economic impact from local bicycle manufacturers and local e-bike solutions. The growing bicycle ecosystem is creating demand for locally sourced products and locally manufactured bicycles furthering the decarbonisation of the local environment.

Local industry:

There are many industries associated with the bicycle, but perhaps the most obvious are local bicycle manufacturers. These are well-known brands in their local communities and countries. Below we highlight five companies keeping people moving in Brazil, Argentina and Colombia:

Caloi (Brazil):

Caloi is one of the most well-known bicycle manufacturers in Brazil. They produce a wide range of bicycles, including mountain bikes, road bikes, city bikes, and electric bikes. Caloi has been manufacturing bicycles in Brazil since 1898 and has a strong presence in the local market.

OGGI (Brazil):

OGGI is a Brazilian bicycle brand known for its high-quality mountain bikes, road bikes, and e-bikes. They focus on designing and manufacturing performance-oriented bicycles for enthusiasts and professional riders.

Venzo (Argentina):

Venzo is an Argentine manufacturer that produces a variety of bicycles, including mountain bikes, road bikes, BMX bikes, and electric bikes. They offer a range of models suited for different riding styles and have a presence in the local and international markets.

Durban Bikes (Colombia):

Durban Bikes is a Colombian brand specialising in folding bicycles. They design and manufacture foldable bikes that are compact, portable, and convenient for urban commuting and travelling.



Case study - Curitiba, Brazil

| | |
|----------------------------|-------|
| City population (million) | 1.9 |
| Metro population (million) | 3.5 |
| Car quantity (million) | 1.2 |
| City area (sq km) | 435 |
| Cars per 1,000 population | 631 |
| Cars per sq km | 2,759 |

Case study - Sao Paulo, Brazil

| | |
|----------------------------|-------|
| City population (million) | 12.2 |
| Metro population (million) | 21.6 |
| Car quantity (million) | 7.9 |
| City area (sq km) | 1,521 |
| Cars per 1,000 population | 647 |
| Cars per sq km | 5,193 |

Potential CO₂ savings and reduced distance travelled if 1%, 5% or 10% of cars were replaced with bicycles

| | Potential CO ₂ savings (million tonnes) | Reduced distance travelled (million kms) |
|--|--|--|
|--|--|--|

| | | |
|-----|------|-------|
| 1% | 2.9 | 11.5 |
| 5% | 14.6 | 57.7 |
| 10% | 29.1 | 115.5 |

Potential CO₂ savings and reduced distance travelled if 1%, 5% or 10% of cars were replaced with bicycles

| | Potential CO ₂ savings (million tonnes) | Reduced distance travelled (million kms) |
|--|--|--|
|--|--|--|

| | | |
|-----|-------|-------|
| 1% | 17.0 | 67.3 |
| 5% | 84.9 | 336.7 |
| 10% | 169.7 | 673.4 |

Case study - Bogota, Colombia

| | |
|----------------------------|-------|
| City population (million) | 7.4 |
| Metro population (million) | 10.8 |
| Car quantity (million) | 2.7 |
| City area (sq km) | 1,587 |
| Cars per 1,000 population | 365 |
| Cars per sq km | 1,702 |

Case study - Santiago, Chile

| | |
|----------------------------|-------|
| City population (million) | 4.8 |
| Metro population (million) | 7.1 |
| Car quantity (million) | 2.5 |
| City area (sq km) | 641 |
| Cars per 1,000 population | 519 |
| Cars per sq km | 3,902 |

Potential CO₂ savings and reduced distance travelled if 1%, 5% or 10% of cars were replaced with bicycles

| | Potential CO ₂ savings (million tonnes) | Reduced distance travelled (million kms) |
|-----|--|--|
| 1% | 13.0 | 51.6 |
| 5% | 65.0 | 257.9 |
| 10% | 130.0 | 515.7 |

Potential CO₂ savings and reduced distance travelled if 1%, 5% or 10% of cars were replaced with bicycles

| | Potential CO ₂ savings (million tonnes) | Reduced distance travelled (million kms) |
|-----|--|--|
| 1% | 8.2 | 32.5 |
| 5% | 41.0 | 162.5 |
| 10% | 81.9 | 325.1 |

Case study - Mexico City, Mexico

| | |
|----------------------------|-------|
| City population (million) | 9.2 |
| Metro population (million) | 21.3 |
| Car quantity (million) | 5.7 |
| City area (sq km) | 1,485 |
| Cars per 1,000 population | 619 |
| Cars per sq km | 3,838 |

Case study - Montevideo, Uruguay

| | |
|----------------------------|-------|
| City population (million) | 1.3 |
| Metro population (million) | 1.9 |
| Car quantity (million) | 0.4 |
| City area (sq km) | 201 |
| Cars per 1,000 population | 308 |
| Cars per sq km | 1,990 |

Potential CO₂ savings and reduced distance travelled if 1%, 5% or 10% of cars were replaced with bicycles

| | Potential CO ₂ savings (million tonnes) | Reduced distance travelled (million kms) |
|--|--|--|
|--|--|--|

| | | |
|-----|-------|-------|
| 1% | 15.6 | 61.9 |
| 5% | 78.0 | 309.5 |
| 10% | 156.0 | 618.9 |

Potential CO₂ savings and reduced distance travelled if 1%, 5% or 10% of cars were replaced with bicycles

| | Potential CO ₂ savings (million tonnes) | Reduced distance travelled (million kms) |
|--|--|--|
|--|--|--|

| | | |
|-----|------|------|
| 1% | 2.2 | 8.5 |
| 5% | 10.8 | 42.7 |
| 10% | 21.5 | 85.4 |

End-of-trip facilities, critical for successful bicycle TRANSFORMATION

One way to achieve success and create a more bicycle-friendly city is via sustainable certifications like ActiveScore. ActiveScore is a comprehensive assessment tool that evaluates the quality and accessibility of active travel facilities in real estate. The primary aim of the certification is to increase awareness about the benefits of quality active travel facilities.

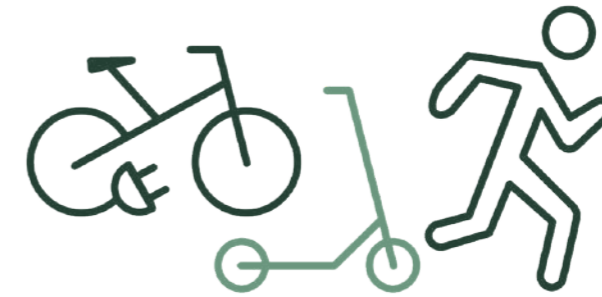
ActiveScore aims to educate all parties involved in a project, from the building owners and investors to the architects and contractors responsible for its construction. By raising awareness and understanding of the benefits of active mobility, all parties can work together to create a comprehensive and sustainable project that benefits everyone involved. Overall, ActiveScore serves as an important tool for promoting active travel and sustainable building practices.



I. Enhancing proposed building plans (infrastructure)

When analysing proposed building plans, identify potential areas for design improvements to maximise the structure's potential for active travel.

ActiveScore's 3 pillar approach



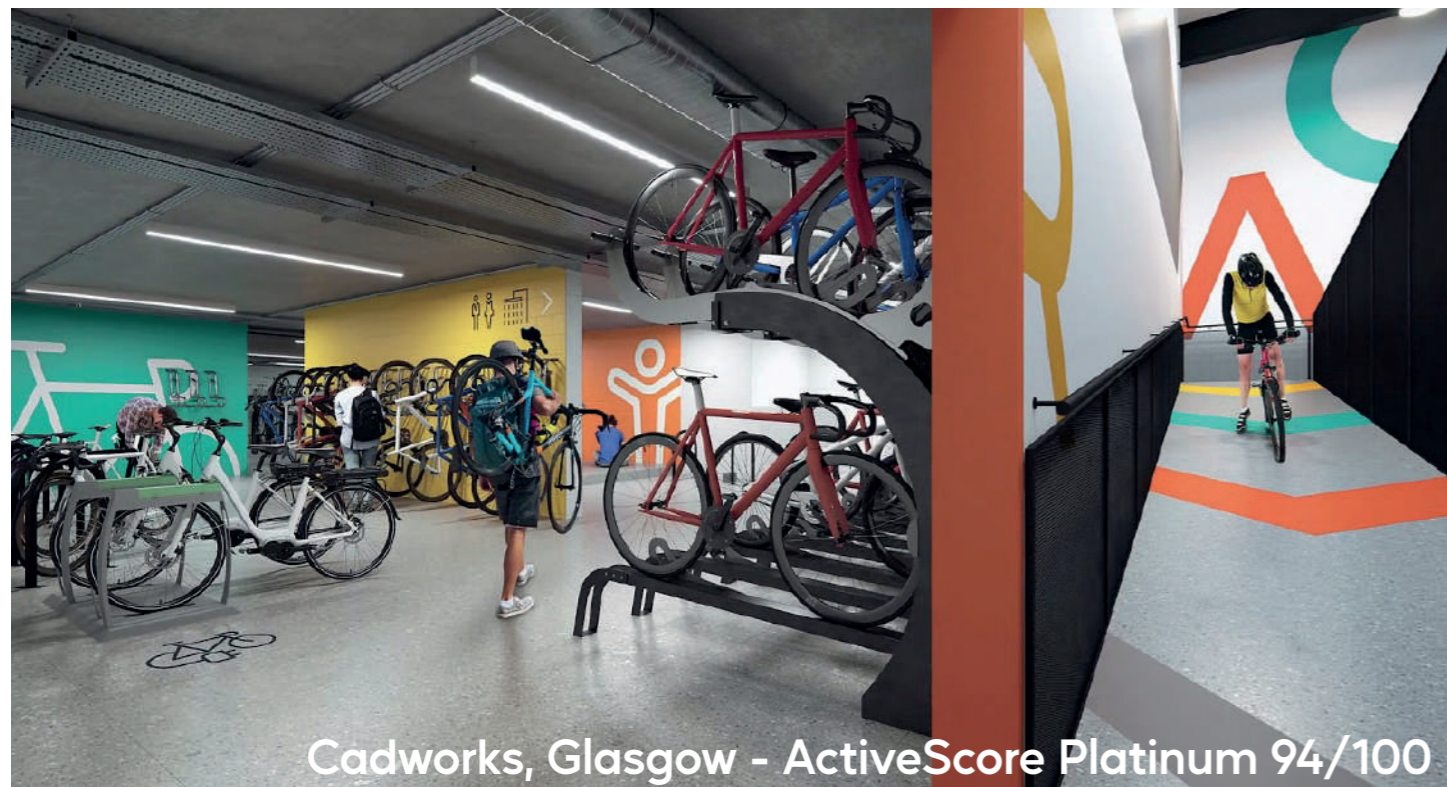
II. Retrofitting existing buildings to be more active travel-friendly (services)

When analysing existing buildings, suggest changes to increase the ActiveScore rating, while considering the existing structure's limitations.



III. Design building designs for sustainable growth (future-proofing)

Promote active travel through future-focused architecture. Design active travel amenities with an eye towards future growth and evolving needs.



Cadworks, Glasgow - ActiveScore Platinum 94/100

Integration into policy

In the current urban development landscape, the emphasis on promoting active mobility tends to be directed towards the infrastructure connections within cities or neighbourhoods, with little consideration given to the buildings themselves. However, individuals travel from one building to another, and therefore, the end destination should play a crucial role in facilitating active travel.

City transformation - BENEFITS of more bicycles and fewer car parks

Smarter cities prioritise the needs of people, not vehicles.

Step 1:
Transform car parks into bicycle parking

Step 2:
Increase bicycle parking

Step 3:
Ensure adequate end destination storage/utilities for active travel

So, what happens when we reduce public and private car park spaces in the city?

Simple – we reduce cars in the city. Limited access to parking is an effective way to reduce car use, and greater distances between car parks and destinations deter driving. Today, we are changing car parks into bicycle parks, just like we changed from horse parking to car parking in the early Twentieth Century.

As we build networks promoting active lifestyles with considered bicycle facilities, there are two direct results – fewer cars on the street and less traffic congestion. This in turn leads to powerful environmental, social, and economic benefits. Let's review the positive outcomes from increased bicycle commuting:



Economic:

The economic benefits can be far-reaching, impacting commuters (more pleasant streets), infrastructure (reduced wear and tear), local businesses (increased footfall, longer dwell time), and traffic (reduced congestion, cleaner air, fuel savings).

- Saves fuel (more active commuting and reduced traffic)
- Saves time (traffic congestion)
- Preserves road infrastructure
- Supports local businesses
- Enhances economic competitiveness
- Improved air quality (air pollution negatively affects society via decreased productivity, healthcare costs and loss of tourism)
- Reduces the costs of car ownership (fuel, parking, and vehicle maintenance)
- Reduces absenteeism





Environmental:

- Reduces Air Pollution
- Saves on Road Infrastructure

Social:

There are many positive social arguments for enabling cycling. If cars are for the working class and up, one could see bicycles as a means to enable low earners to become upwardly mobile. Also, spending more time on bicycles and less time in cars, could help improve overall health.

- Improves safety for pedestrians and cyclists due to reduced car traffic and improved infrastructure for non-motorised transportation.

- Improves affordability for all sub-economic groups.
- Increases mobility and accessibility for low-income individuals.
- Promotes walkability and liveability.
- Improves public health and fitness through increased physical activity.
- Enhances a sense of community and social cohesion through shared bicycle programs and group rides.
- Reduces absenteeism.
- Reduces congestion, making our roads safer and more efficient for all users.

We will continue to research all the financial, environmental, and social impacts in our next research report.



"As more people look for ways to live a more sustainable lifestyle, we see bicycling as an increasingly important amenity. By providing secure bike parking, shower facilities, and bike sharing programs, we're able to create a more attractive and environmentally-friendly community for our tenants."

Tim Ryan - President, U.S. Real Estate, Canadian Pension Plan Investment Board

The bicycle ecosystem

Manufacturers:

Bicycle manufacturers play a vital role in the ecosystem by designing, producing, and distributing bicycles. They develop a wide range of bicycles to suit different needs and preferences, including mountain bikes, road bikes, urban bikes, electric bikes, and more. Manufacturers focus on innovation, quality, and affordability to meet the demands of users.

Users:

Users are the core of the bicycle ecosystem. They include individuals who choose bicycles as their mode of transportation, sport, leisure, or exercise. Users can range from commuters and recreational cyclists to professional athletes and enthusiasts. They contribute to the demand for bicycles and shape market trends.

Infrastructure:

Bicycle infrastructure refers to the physical facilities that support safe and convenient cycling. This includes dedicated bicycle lanes, bike paths, bike parking facilities, and bike-sharing systems. Infrastructure is a crucial enabler within the bicycle ecosystem as it

provides a safe and accessible environment for cyclists. Well-designed and interconnected infrastructure encourages more people to use bicycles as a viable mode of transportation.

Non-Governmental Organisations (NGOs):

NGOs and advocacy groups are essential enablers within the bicycle ecosystem. They work to promote cycling, improve infrastructure, advocate for bicycle-friendly policies, and raise awareness about the benefits of cycling. NGOs often collaborate with local governments, community organisations, and manufacturers to influence positive change and create a supportive environment for cycling.

Retailers and Distributors:

Retailers and distributors are key intermediaries between manufacturers and users. They sell bicycles, accessories, and related products to consumers. Bike shops, online retailers, and distributors ensure that users have access to a variety of bicycle options and provide services such as repairs, maintenance, and customer support.

Education and Training:

Education and training programs contribute to the bicycle ecosystem by promoting safe cycling practices, teaching bicycle maintenance skills, and raising awareness about the benefits of cycling. These programs can be organised by NGOs, government agencies, schools, or cycling clubs, helping users develop the necessary knowledge and skills to ride bicycles confidently and responsibly.

The bicycle ecosystem is a complex and interconnected system that relies on collaboration and synergy between manufacturers, users, enablers, and various stakeholders. By working together, they contribute to the growth, sustainability, and accessibility of cycling as a mode of transportation, recreation, and sport.



City data: (list of the largest 322 Latin America cities)

Argentina:

Buenos Aires
Cordoba
Rosario
Mendoza
San Miguel de Tucuman
La Plata
Mar del Plata
Salta
Santa Fe
San Juan
Resistencia
Santiago del Estero
Corrientes
Posadas
Moron
San Salvador de Jujuy
Bahia Blanca
Parana
Merlo
Neuquen
Jose C. Paz
Quilmes
Pilar
Formosa

Bolivia:

La Paz
Santa Cruz de la Sierra
Cochabamba
Sucre
Oruro

Brazil:

Sao Paulo
Rio de Janeiro
Salvador
Fortaleza
Belo Horizonte
Brasilia
Curitiba
Manaus
Recife
Belem
Porto Alegre
Goiania
Guarulhos
Campinas
Nova Iguacu
Maceio
Sao Luis

Duque de Caxias

Natal
Teresina
Sao Bernardo do Campo
Campo Grande
Jaboatao
Osasco
Santo Andre
Joao Pessoa
Jaboatao dos Guararapes
Contagem
Ribeirao Preto
Feira de Santana
Sao Jose dos Campos
Uberlandia
Sorocaba
Cuiaba
Aparecida de Goiania
Aracaju
Londrina
Juiz de Fora
Belford Roxo
Joinville
Niteroi
Sao Joao de Meriti
Ananindeua
Florianopolis
Santos
Ribeirao das Neves
Vila Velha
Serra
Diadema
Campos dos Goytacazes
Maua
Betim
Caxias do Sul
Sao Jose do Rio Preto
Olinda
Carapicuiaba
Campina Grande
Piracicaba
Macapa
Itaquaquecetuba
Bauru
Montes Claros
Canoas
Mogi das Cruzes
Sao Vicente
Jundiai
Pelotas
Anapolis

Vitoria

Maringa
Guaruja
Porto Velho
Franca
Blumenau
Foz do Iguacu
Ponta Grossa
Paulista
Limeira
Viamao
Suzano
Caucaia
Petropolis
Uberaba
Rio Branco
Cascavel
Novo Hamburgo
Vitoria da Conquista
Barueri
Taubate
Governador Valadares
Praia Grande
Varzea Grande
Volta Redonda
Santa Maria
Santa Luzia
Gravatá
Caruaru
Boa Vista
Rio Verde
Ipatinga
Sumare
Juazeiro do Norte
Embu
Imperatriz
Colombo
Taboao da Serra
Jacarei
Marilia
Presidente Prudente
Sao Leopoldo
Alvorada
Itabuna
Sao Carlos
Hortolandia
Mossoro
Itapevi
Sete Lagoas
Sao Jose

Chile:

Santiago
Puente Alto
Antofagasta
Vina del Mar
Valparaiso
Talcahuano
San Bernardo
Temuco
Iquique
Concepcion
Rancagua
La Pintana

Colombia:

Bogota
Cali
Medellin
Barranquilla
Cartagena
Cucuta
Bucaramanga
Pereira
Santa Marta
Ibague
Bello
Pasto
Manizales
Neiva
Soledad
Villavicencio
Armenia
Soacha
Valledupar
Itaguei
Monteria
Sincelejo
Popayan
Floridablanca
Palmira
Buenaventura

Ecuador:

Guayaquil
Quito
Cuenca
Santo Domingo de los Colorados

Honduras:

Tegucigalpa
San Pedro Sula
Choloma

Mexico:

Mexico City
Tijuana
Ecatepec
León
Puebla
Ciudad Juárez
Guadalajara
Zapopan
Monterrey
Ciudad Nezahualcóyotl
Chihuahua
Mérida
Naucalpan
Toluca
Cancún
Saltillo
Aguascalientes
Hermosillo
Mexicali
San Luis Potosí
Culiacán
Querétaro
Morelia
Chimalhuacán
Reynosa
Torreón
Tlalnepantla
Acapulco
Tlaquepaque
Guadalupe
Durango
Tuxtla Gutiérrez
Cuautitlán Izcalli
Veracruz
Ciudad Apodaca
Ciudad López Mateos
Matamoros
General Escobedo
Irapuato
Xalapa
Tonalá
Mazatlán
Nuevo Laredo
San Nicolás de los Garza
Ojo de Agua

Xico

Celaya
Tepic
Ixtapaluca
Cuernavaca
Villahermosa
Ciudad Victoria
Ensenada
Ciudad Obregón
Ciudad Nicolás Romero
Soledad
Ciudad Benito Juárez
Playa del Carmen
Santa Catarina
Gómez Palacio
Uruapan
Los Mochis
Pachuca
Tampico
Tehuacán
San Francisco Coacalco
Nogales
Oaxaca
La Paz
Campeche
Monclova
García
Chilpancingo
Puerto Vallarta
Tapachula
Buenavista
Coatzacoalcos
Ciudad Madero
Cabo San Lucas

Nicaragua:

Managua
Boaco
Panama City
San Miguelito

Paraguay:

Asuncion
Ciudad del Este
San Lorenzo

Peru:

Lima
Arequipa
Callao
Trujillo
Chiclayo
Iquitos
Huancayo
Piura
Chimbote
Cusco
Pucallpa
Tacna
Santiago de Surco
Ica
Juliaca

Uruguay:

Montevideo

Venezuela:

Caracas
Maracaibo
Maracay
Valencia
Barquisimeto
Ciudad Guayana
Maturin
Barcelona
Ciudad Bolívar
Cumana
Puerto La Cruz
Petare
Barinas
Turmero
Merida
Cabimas
San Cristobal
Alto Barinas
Santa Teresa del Tuy
Guarenas
Coro
Valera
Baruta
San Fernando de Apure
Guatire
El Tigre
Porlamar
San Felipe

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