



EMPOWERING CITIES TO MAKE THE CASE FOR CLIMATE ACTION
**BENEFITS OF WALKING AND CYCLING
CASE STUDY**



**MEXICO
CITY**

**MASSIVE
BIKE PARKING
FACILITIES**



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Novo Nordisk and C40 have formed a research-based partnership aimed at ensuring that urban climate action is beneficial to both the environment and the health of urban citizens. This collaboration aims to generate new insights into a range of benefits of climate action – particularly the health of city populations. At the heart of the partnership, cities have a pivotal role in fighting climate change and poor health through increasing the active mobility of their population.

DRIVERS FOR ACTION

21 MILLION RESIDENTS

34.6 MILLION TRIPS PER DAY

PM_{2.5} CONCENTRATION 2X THE WHO RECOMMENDED VALUE

13.9% OF ADULTS WITH TYPE II DIABETES

72.5% OF ADULTS OVERWEIGHT



1.5X MORE CYCLING LANES BETWEEN 2013 AND 2017 (186KM)

CITY POLICY CONTEXT

AWARENESS CAMPAIGNS & ACCESSIBLE FACILITIES

6X MORE USERS BETWEEN 2013 AND 2017

300,000 CYCLISTS PER DAY IN 2017

City context

The metropolitan area of Mexico City is the 4th largest city in the world, with a population of approximately 21 million people. In recent years, concerns have been raised regarding the extreme levels of air pollution as the annual average concentration of fine particles (PM_{2.5}) is two times greater than WHO recommended levels.¹ Furthermore, with a reported prevalence of type 2 diabetes in 13.9% of adults², and 72.5% being overweight or obese³, the opportunity for the impact of active mobility in Mexico City is huge.



MODE SHARE IN THE CITY*
Origin Destiny Survey 2017*

Policies in place

The city is now looking to take significant action to increase active mobility. Mexico City's Climate Action Programme (2014-2020) establishes the need to promote intermodal mobility through schemes implemented in strategic zones, and the modernisation of existing infrastructure. The aim is to encourage citizens to walk or cycle for the first and/or last mile of their journey to/from a public transport hub.

The Programme has led to development of accessible infrastructure, including the recent creation of 186 km of cycling lanes, a city-administrated bike sharing system, EcoBici, and the transformation of a main avenue in the city centre, Madero Street, which is now permanently closed to cars. Furthermore, awareness campaigns with educational activities have also been running in schools and throughout the city, such as the open-street program: 'Muevete en bici'. From 2013 to 2017, the number of users increased by a factor of 6, reaching 300,000 cyclists per day in 2017.⁴



75% OF THE USERS DID NOT USE BIKES AS A MODE OF TRANSPORT BEFORE IMPLEMENTATION⁶

What is the timeline?

The first Massive Bicycle Parking Facility in Pantitlán started operations on September 2014. Due to the success of this facility, two others were built: La Raza opened on May 2016, and the third in La Villa-Basílica opened on August 2017. Periférico Oriente just opened in December 2018.

These locations are in the outer areas, near Modal Transfer Centres to facilitate switching to, -or from-, public transport. The city's Bike Infrastructure Department now wants to scale up this action and build more of facilities close to the main intermodal hubs.

Taking action: Mexico City Massive Bike Parking Facilities

Mexico City Massive Bike Parking Facilities are a local government initiative, and part of the comprehensive Bicycle Mobility Strategy to promote cycling for intermodal mobility and replace motorised journeys of 5 km or less. Currently, 5.3% of the cycling trips are combined with a previous mode of transport and 4.6% use another mode of transport after using the bike. By increasing intermodality options, users have the possibility to choose a sustainable transport mode for their first and last mile, and reach the public transport system in a safe and easy way.

The idea of building Massive Bicycle Parking facilities in Mexico City started in 2008 with the development of the Bicycle Mobility Strategy, developed by Mexico's National University with guidance from Gehl. The strategy established four actions: build safe cycling infrastructure; increase the accessibility of bikes; promote a cycling culture; and, promote intermodal travel.

Where are they located?

The Massive Bike Parking Facilities have been built in major Centers of Modal Transference (CETRAM in Spanish), connecting subway and bus lines, and carrying hundreds of thousands of passengers each day. The city has identified ten other intermodal centres which could host the future new bike parking. Existing facilities:

- > Pantitlán: 2014, 408 bicycles
- > La Raza: 2016, 416 bicycles
- > La Villa: 2017, 80 bicycles
- > Periférico Oriente: 2018, 80 bicycles

MEXICO CITY MASSIVE BIKE PARKING FACILITIES

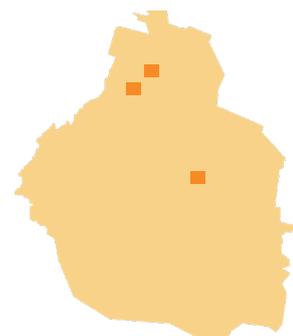
To effectively support cycling as part of a wider journey on the city's public transport network, there must be sites where cyclists can arrive and safely store their bike, with specific equipment and changing facilities. The sites must also be situated a short distance from the next mode of transport and have an adequate, properly signalled intersection with pedestrian and cycle network routes.

Each of the current Massive Bike Parking Facilities are protected by both CCTV and a 24 hour surveillance to avoid theft. The building also offers toilets, children's playgrounds and exercise facilities for greater comfort. They are accessible with Mexico City's transport card to facilitate an intermodal trip with subway or BRT.

7 OF 10 TRIPS ARE MADE BY PUBLIC TRANSPORT

**4 EXISTING FACILITIES
12 OTHER POTENTIAL**

330,000 USES OF THE MASSIVE BIKE PARKING FACILITIES IN 2018.



Benefits of Mexico City Massive Bike Parking Facilities

The Massive Bicycle Parking Facilities had more than 4,000 registered users and 330,000 uses in 2018. As inhabitants of Mexico City spend on average 30% of their income on public transport, the free bike parking provides direct savings for the first and last miles of citizens' journeys.⁸

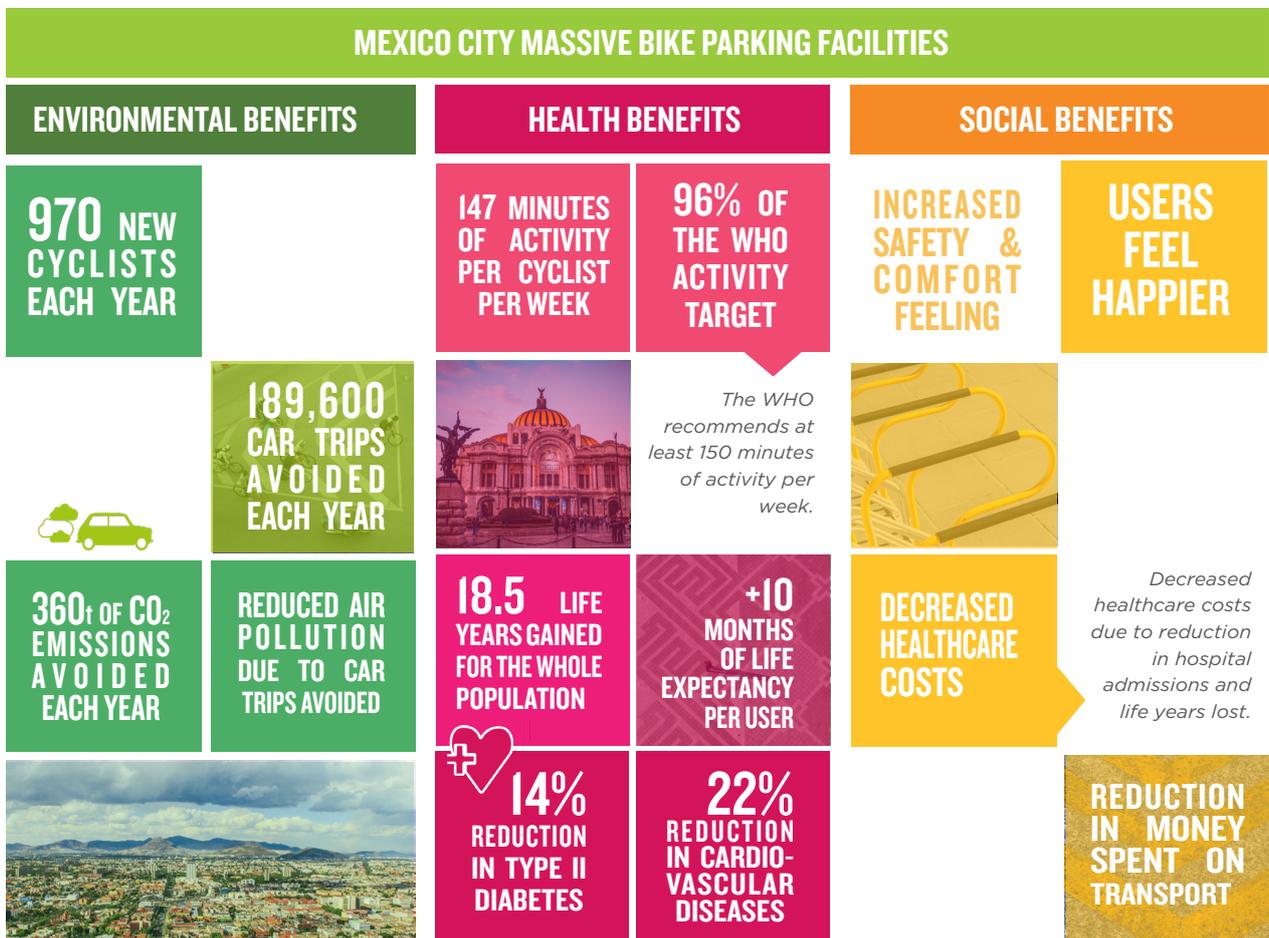
The city also carried out perception surveys on users of the ECOBICI bike sharing scheme and found that 36% of users noticed improvements in physical activity and 8 out of 10 people felt improvements in their quality of life, feeling happier and saving money compared to other options.⁹ The analysis from the C40 Walking and Cycling Benefits tool revealed that if fully used, the three Massive Bike Parking Facilities could decrease the prevalence of getting type 2 diabetes by 14% for the users and the risk of dying from cardio-vascular diseases by 22%. The users would also benefit from a 10 months increase in life expectancy.

The new cycling trips could also avoid 360 tCO₂ emissions, by removing 189,600 car trips from the road each year. The benefits of building these facilities impact not only cyclists, but also those living in the surrounding area, due to the public space recovery. Both in Pantitlán and La Raza, more than 5,000 m² of public plazas were built with lights, playgrounds, tables and outdoor gyms. Additionally, there is a bikeschool every Saturday where children can learn how to ride a bike. The implementation of these projects also improved the area's general safety, with 24/7 CCTV and security guards.¹⁰

Who is involved?

The resources invested in the existing bike facilities were provided by Mexico Ministry of Environment, who worked together with: the General Direction of Urban Forests and Environmental Education; the Direction of Culture; Design and Cyclist Infrastructure; the Ministry of Mobility; the Ministry of Urban Development and Housing; and the System of Collective Transportation. In the case of Pantitlán and La Raza, all the information related to the construction complies with the transparency criteria of Mexico City's Public Works Law and the information is freely available for citizens.

Predicted benefits of Mexico City Massive Bike Parking Facilities, issued from the C40 Walking and Cycling Benefits tool, used by the City of Mexico at C40 Masterclass in Copenhagen in September 2018. The benefits quantify the impact of all four existing facilities, if they are fully used.



CHALLENGES

FINANCIAL SUPPORT	POLITICAL SUPPORT	FUTURE CHALLENGES
<p>The Bike Infrastructure Department identified a number of potential sites to implement similar Massive Bike Parking Facilities, located near intermodal centres which service hundreds of thousands of passengers daily. However, there is a lack of financial and political support. The Massive Bike Parking Facilities are not included in current transport station plans, despite growing demand from cyclists for safe spaces to park their bikes; as it stands, only small, external spaces are provided. While the majority of trips in the city are made by public transport, more than 80% of public infrastructure investments are dedicated to cars and other motorised transport.⁷</p>	<p>Financial support is also limited due to the relatively poor evidence to make the case for these facilities. The implementation of a new administration in Mexico City this year presents an opportunity to continue the commitment to increasing active mobility, although this is in no way guaranteed. Therefore, Mexico City was able to use the teachings of the Masterclass to produce an evidence base to help make the case for investment in more projects and inclusion in transport plans.</p>	<p>The project gained the support of the new administration in the city, however, as this is a new team taking this project on, there is a potential challenge in ensuring the learnings from the Masterclass are fully taken on board, maintained and used in the future if required. This therefore could pose a potential risk for the effective implementation to all of the parking facilities. This will be mitigated by the continued support of C40 through the Walking and Cycling Network, and the guidance documents that will be available online for any city officials to access.</p>

NEXT STEPS

The Mexico City team presented the results from the Masterclass to the new administration with the information gathered from intercept surveys, which was met with a very positive response. The strategy detailed several metro stations where bike parking facilities could be built, based

on the distance from residential areas to transport hubs. Approval was given for the construction of six to ten new facilities for the next six years of the new administration, doubling the number that currently exists in the city. Four new facilities should already open by the end of 2019.

LESSONS LEARNED

This is a great example of how the support from the C40 Benefits Research Programme, in collaboration with Novo Nordisk, was used to accelerate action and drive real change, even across governmental administrations.

This shows that the additional benefits of climate change interventions are a powerful and effective way of engaging with the necessary stakeholders to enable ambitious interventions on the ground.

REFERENCES

Notes:

¹ WHO Air Quality Datasets 2018. <https://www.who.int/airpollution/data/cities/en/>

² International Diabetes Federation, *Diabetes Atlas, Diabetes prevalence (% of population ages 20 to 79)*, 2017.

³ OECD (2019), *Overweight or obese population (indicator)*. doi: 10.1787/86583552-en, Accessed on 11 January 2019

^{4,6,8,10} Data provided by Mexico City for 2018 Masterclass

⁵ CDMX *Hacia una ciudad ciclista*, CDMX, 2016, http://www.cms.sedema.cdmx.gob.mx/storage/app/media/libro_ciclista.pdf

⁷ *Cyclists and Walkers Lead Mexico City on the Road to*

⁹ *London School of Economics, What can the rest of the world learn from Mexico City's EcoBici bike-sharing scheme?*, 2017

Methodology for the Benefits Calculation: C40 Walking and Cycling Benefits tool, used by the City of Mexico at C40 Masterclass in Copenhagen in September 2018. The benefits quantify the impact of the cumulated four existing facilities, if they are fully used. More information on the [Benefits](#) webpage.

Pictures: Ministry of Environment of Mexico City – Enrique Abe