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# 1. **INTRODUCTION:** ONE CITY, ONE SYSTEM

The Strategic Mobility Plan for Mexico City 2019 fulfills the vision of Innovation and Hope, of an inclusive and equitable city for its 8.9 million inhabitants. This Plan aims to improve the quality of life, reduce social inequalities, reduce emissions of pollutants and greenhouse gases, and increase the city's productivity through the creation of an integrated mobility system that increases accessibility for the population, guarantees safe and dignified travel conditions for all people, and optimizes the efficiency of freight transportation.

This Plan was born from the discussions that, during the electoral and government transition period, took place in citizen forums and meetings with experts, and is based on the results of the Household Origin-Destination Survey of the Mexico City Metropolitan Area 2017 (INE-GI, 2017) and information published by different government agencies and organizations of Mexico City, academia, and non-governmental organizations. The interviewees agreed in describing mobility in Mexico City as a fragmented, highly inefficient system that deepens social inequalities:

## 1. INTRODUCTION: ONE CITY, ONE SYSTEM

- Travel times in Mexico City and the Metropolitan Zone are constantly increasing, both because the distances to be covered are greater and because the different means of transportation available are slowing down. Similarly, travel times and means of transportation in Mexico City and its metropolitan area are very unevenly distributed. This is partly because the destination areas are dispersed over a large territory, and partly because there are major shortcomings in coverage, connection and operation of mass transportation networks. Thus, there is the paradox that some of the areas best served by mass public transport networks are at the same time the most car-intensive, while the peripheries of scarce resources, highly dependent on these systems, suffer from slow, uncomfortable, unsafe and unreliable services.
  - Problems of inequality can be seen in the **unequal exercise of rights when moving around the city**. Groups of people in specific situations of vulnerability, such as women, people with disabilities, the elderly and children, face various barriers that reduce their possibilities of moving with safety and dignity in a city that is accessible and inclusive for all people. This situation of inequity is even greater for people who face multiple intersecting situations of vulnerability: gender, age, socioeconomic status, mode of transportation, as well as other characteristics that limit their possibilities to fully enjoy the city.
- There is no **integrated vision** of the mobility problem in Mexico City; rather, a fragmented scheme dominates in which each transportation subsystem (Metro, Metrobus, Electric Transport System, Passenger Transport Network, concessioned transport, bicycles) is planned and managed separately, which results in high operational inefficiencies and high costs in time and money for users.
- The city's mobility policies are disconnected from land occupation and land use policies and programs. This, together with the lack of a metropolitan vision of mobility and urban development, translates into longer travel distances, saturation of mass transportation systems, and an increase in the use of private motorized modes, with the consequent congestion of roads.
- There is no integrated traffic management aimed at providing fluidity to the movement of the different modes of transport, particularly surface public transport services in which most of the city's trips are made.
- Although there has been progress in recent years, the city's **cycling infrastructure** remains sparse, disconnected and concentrated in central areas, diminishing the potential for cycling over medium and short distances.
- The city does not have a comprehensive **freight transportation** policy aimed at making urban logistics more efficient, reducing congestion caused by this sector, reducing emissions, and reducing conflicts with other modes of transportation.
- These problems have direct effects on the **quality and safety** of people's travel, as well as on the environment, economic inequality and the development of the city itself.

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## 1. INTRODUCTION: ONE CITY, ONE SYSTEM

Thus, the vision of this Plan is to place people at the center of urban mobility policies. Under this premise, mobility systems, programs and projects are aimed at increasing accessibility, reducing travel times and guaranteeing comfortable and safe trips for everyone. Consequently, and in order to address the problems derived from the fragmentation, inefficiency and inequities of the current system, a cross-cutting strategy based on the redistribution of three structural components of urban mobility is proposed:

**Redistribution of modes**, favoring walking, cycling and public transportation, which together account for 77% of trips in the city and 80% of trips in the metropolis. **Redistribution of road space,** prioritizing the rapid and safe circulation of public transportation services and nonmotorized modes of transportation, while generating policies that prioritize the most vulnerable people.

Redistribution of resources, redirecting investments towards infrastructure that privileges public non-motorized and transportation, towards public policies that contribute to generate an inclusive, accessible, equitable city, while guaranteeing accessible rates to citizens.

With this redistributive approach -modal, spatial and budgetary- transversal to the entire urban mobility policy of Mexico City, we intend to address three main axes or strategic objectives:



**Integrate the** City's different transportation systems to promote walking, cycling and public transportation.



Improve existing transportation infrastructure and services in order to increase accessibility for citizens, reduce travel times, improve travel conditions, make the operation of the city's different mobility systems more transparent, and make freight transportation more efficient.



Protect people who use the different transportation systems, through the provision of inclusive, dignified and safe infrastructure and services.

## 1. INTRODUCTION: ONE CITY, ONE SYSTEM

## How is the strategy composed?

Addressing the mobility needs of the city requires taking immediate action, so a Strategic Mobility Plan for Mexico City has been proposed for 2019.<sup>1</sup> This is based on an action that the Mobility Law allows in Article 12, Section XXIV, which empowers the Secretariat to "coordinate with the dependencies and agencies of the Public Administration, actions and strategies that contribute to the protection of life and the environment in the provision of passenger and cargo transportation services, as well as to promote the use of alternative energies and road safety measures".

In this sense, the present strategy is not strictly the Plan for the 2018-2024 Administration. That role corresponds to the Integral Mobility Program (PIM) of Mexico City, which will require several months of preparation, including the evaluation of the 2013-2018 PIM, the diagnosis of the current situation, coordination with other agencies and districts, as well as an active process of citizen participation. At the time of its update, the PIM should be aligned with the objectives, policies, goals and forecasts established in the General Development Programs of Mexico City, the Urban Development Program of Mexico City, the Ecological Management Program of Mexico City and the Management Program of the Metropolitan Zone of the Valley of Mexico (ZMVM). In turn, this update should give way to a new version of the Integral Road Safety Program (PISVI).

This strategy is composed of 5 chapters. Chapter 2 presents a brief diagnosis of mobility in Mexico City, with emphasis on the mobility crisis that the city suffers. Chapter 3 describes the general mobility strategy of the 2018-2024 Administration of the Government of Mexico City. Chapter 4 establishes the objectives of the Strategic Mobility Plan, while Chapter 5 describes the strategies, goals and actions to be followed to achieve the objectives in the short term. Finally, Chapter 6 establishes the next steps for Mexico City's mobility planning in the 2018-2024 Administration, such as the update of the PIM and PISVI, in accordance with the provisions of the Mobility Law.

<sup>&</sup>lt;sup>1</sup> The idea of a strategic plan is a form of planning carried out in other cities around the world for different time horizons, such as Stockholm, Melbourne, Madrid, Querétaro, among others, and has been adapted to respond to the immediate needs of Mexico City.

Mexico City's mobility system is in a state of deep structural crisis that can be summarized in three fundamental aspects: institutional fragmentation and fragmentation of the different mobility systems; severe inefficiencies and neglect of public, non-motorized and freight transportation infrastructure and services; and inequity in travel times and travel conditions.

# A fragmented system

Although there have been advances in the promotion of sustainable mobility in the country and Mexico City, which have been accompanied by the creation of legal frameworks for this purpose, these have not solved the problems of coordination and institutional fragmentation that prevent the establishment of a comprehensive mobility policy. This has obstructed the proper planning and management of infrastructure networks and of the different modes and services, both public and private, that circulate in them.

Transportation in Mexico City is composed of the Secretariat of Mobility, two deconcentrated bodies and four public transportation companies with independent administration. To this must be added the public policy to promote bicycle mobility and the Ecobici public bicycle system (which are under the Ministry of the Environment), the parking meter system operated by ecoParq (under the Ministry of Mobility) and the one operated by Ope- vsa (under Metropolitan Services).

This fragmentation is also intersectoral: mobility policy lacks adequate coordination with land use and land occupation policies and programs, which basically define the travel pattern of a city. This lack of coordination also has its correlate at the metropolitan level, since there is no vision that integrates planning, management and control of transportation infrastructure and services.

The 2018-2024 Administration has found that the Ministry of Mobility, head of the sector, has not fully exercised the functions of planning and comprehensive management of mobility, since there is little coordination between public transport agencies, the relationship with private public transport concessionaires is conflictive, the cycling infrastructure network is discontinuous and does not connect to the peripheries, while in the case of freight transport there is simply no policy aimed at improving the city's logistics system. In addition, there is a chronic lack of transparency in decision-making and use of public resources.

Thus, in order to comply with the present mobility strategy, the 2018-2024 Administration will carry out an institutional restructuring of the sector, which in the medium term will result in an integrated policy and more efficient public services to the general public. This restructuring begins by establishing as one of the objectives of the incoming government the coordination of the entire sector through the Secretariat of Mobility, the physical, operational, payment mode and image integration of all public transport systems, the promotion of intermodality, as well as a vision of mobility strongly linked to urban development policies, environment, infrastructure and social development of Mexico City and its metropolitan area.

## An inefficient system

Public transportation operated by the government of Mexico City offers a deficient and insufficient service to the population, which affects the majority of people, especially the lower income sectors living in peripheral areas. On the one hand, the Metro, light rail, trolleybuses and the Red de Transporte de Pasajeros (RTP) service,<sup>2</sup> operated by the Mexico City government, suffer from failures that affect 29% of the trips in the metropolis, as a result of the low investment in maintenance and infrastructure in recent years.

The Sistema Transporte Colectivo Metro estimates that 101 trains, corresponding to 27% of the total fleet, are out of operation, while its operational failures, which in 2017 alone reached 22,195,<sup>3</sup> are increasingly continuous. The Sistema de Transportes Eléc- tricos (STE) has a more acute crisis. Its 300 trolleybuses exceed 20 years of useful life, while its vehicle fleet has been reduced by 12% since 2017 and of the remaining only 63% is in operation. In turn, one third of the light trains are out of operation for different reasons.<sup>4</sup> In the RTP bus system, the panorama is no different: although it acquired new units in the last two years, 27% of its public service fleet is out of operation.<sup>5</sup> Only Metrobús escapes this situation, since it has received investment for its growth, although it presents important problems of saturation in stations and buses that increase waiting times and significantly reduce the quality of trips.

<sup>&</sup>lt;sup>2</sup> Formerly Mobility System 1.

<sup>&</sup>lt;sup>3</sup> Information from STC-Metro (2018).

<sup>&</sup>lt;sup>4</sup> Electric Transportation System information, as of October 2018.

<sup>&</sup>lt;sup>5</sup> Passenger Transportation Network information, as of September 2018.



## Illustration 1: Status of public transport operated by Mexico City, 2018.

Source: Prepared with information from STC-Metro, Metrobus, STE and RTP.

In addition to the above, there is concessioned transportation, which transports 67% of the city's passengers and 82% of those of the metropolis, and which operates without formal planning or an adequate fleet. On the contrary, it is unsafe, polluting and has far exceeded its useful life, all of which translates into poor service quality. In turn, the business model that governs this sector, in which profits are individual and exclusively per passenger transported, produces competition on the streets for users, resulting in passengers boarding and alighting in unauthorized places, increased congestion and a large number of traffic incidents each year.

# Table 1: Trips made on a weekday by the population aged six years and over, by type and mode of transport used in at least one of its segments (millions of trips)

MODO	MILLONES DE VIAJES		DISTRIBUCIÓN PORCENTUAL			
MODO	ZMVM	CIUDAD DE MÉXICO	MUNICIPIOS CONURBADOS	ZMVM	CIUDAD DE MÉXICO	MUNICIPIOS CONURBADOS
Transporte público	15.57	8.62	6.88	45.1%	49.8%	40.3%
Transporte privado	7.29	4.06	3.17	21.1%	23.5%	18.5%
Bicicleta	0.72	0.24	0.48	2.1%	1.4%	2.8%
Caminando	11.15	4.50	6.52	32.3%	26.0%	38.2%
Otros	0.04	0.02	0.02	0.1%	0.1%	0.1%
TOTAL	34.56	17.30	17.09	100%	100%	100%



# Illustration 2: Percentage distribution of trips by public transport in the Metropolitan Zone of the Valley of Mexico, 2017.

Source: INEGI, 2017.

The crisis of the mobility system is also reflected in increasing levels of road saturation that have led several studies to rate Mexico City as the most congested city in the world in 2016 (Table 2). Thus, the speed of circu- lation has been steadily reduced, estimated at 11 kilometers per hour on average in central areas of the city (IDB, 2018b). To this situation we must add that the urban expansion model is widespread, fragmented and of low density, that the lack of public transport supply does not allow the generation of viable alternatives to the use of private automobiles, and that every day there are more motorcycles on our streets. This increase in private motorization increases travel times, presses for an increase in spending for the expansion of road infrastructure and exacerbates the environmental problems associated with urban transportation. It is worth remembering that automobiles are one of the main sources of air pollution, as they contribute 52% of PM10 particle emissions, 55% of PM2.5 particle emissions and 86% of carbon monoxide and nitrogen oxide emissions (SEDEMA, 2018).

This crisis is present in the roads and especially in their intersections, which have many management and design deficiencies, in part generated by their construction under paradigms focused on providing fluidity to private automobile traffic, which did not take into account all forms of mobility, as well as by erroneous operational decisions. This infrastructure, particularly hostile to pedestrians and cyclists, generates serious problems for road safety and the quality of life of people in specific situations of vulnerability, especially women, who account for 54% of walking trips (INEGI, 2017).



### Table 2: TomTom Congestion Index

Source: Own elaboration based on TomTom Traffic Index 2017.

In this scenario, demand management to reduce car use without improving and expanding the supply of public transportation will have adverse or undesirable effects on citizens, such as increasing travel costs or promoting overcrowding in public transportation. In this regard, it should be noted that the long-term solution is not the increase in road supply either, as it tends to generate the phenomenon of induced traffic<sup>6</sup> (increased levels of motorization resulting from the expansion of road surface) and to create urban barriers that fragment and deteriorate public space. For this reason, the strategy will focus on improving and promoting the use of public and non-motorized transport in the city.

<sup>&</sup>lt;sup>6</sup> For further reference of the phenomenon see Litman (2018), Duranton & Turner (2011) and Galindo (2006).

# An inequitable system

The crisis of the mobility system in Mexico City has a strong component of inequality, since average travel times are longer for public transportation, which is used mostly by lower income sectors and in which 50% of the city's trips are made, compared to those made by car. For example, a trip in the Metro takes 39% more time than a trip in a private car, a similar situation to travel times in collective transportation, which are 54% longer, in suburban buses 33% longer, and in RTP 22% longer (Illustration 3).



## Illustration 3: Average travel times by mode of transport in the MCMA, 2017.

Source: Own elaboration with data from INEGI (2017).

This type of mobility inequality has a clear spatial pattern between the center and the urban periphery. Thus, most public transport trips start between 4 and 7 a.m. in travel districts located in the less affluent peripheries of the MCMA (Figure 4). This pattern is reversed from 4 to 9 p.m., when most trips start in the center and part of western Mexico City (Illustration 5).

# Illustration 4: Public transport trip start time by travel district from 4 am to 9 am in the MCMA (percentage of total trips)



# Illustration 5: Public transport trip start time by travel district from 4 pm to 9 pm in the MCMA (percentage of total trips)



Source: Own elaboration with data from INEGI (2017).

This pattern is a clear indication of the long travel times by public transport from the center to the periphery so that people can reach their destinations on time, which implies high personal and social costs (Illustration 6).

Illustration 6: Average travel times by public transport for women and men in the MCMA, 2017.



Source: Own elaboration with data from INEGI (2017).



Source: Own elaboration with data from INEGI (2017).

This translates into barriers that tend to affect women more strongly, due to the problems of insecurity and harassment in public transportation, which drives them to resort to the use of cabs for comfortable, fast and safe transportation.<sup>7</sup> Likewise, it accentuates economic inequality, as spending on public transportation in conurbation municipalities is double that incurred in Mexico City (8.4% vs. 4.3% of household spending<sup>8</sup>). Reducing these inequalities in mobility is an action of social justice that becomes of paramount importance for the proper functioning of the city and to guarantee the right to the city of its inhabitants. Mobility in Mexico City must have a perspective that allows identifying the diverse experiences and needs that are experienced during the trips, in order to offer a variety of options according to the displacements, times and nature of the transfers, schedules and types of transportation.

<sup>&</sup>lt;sup>7</sup> Ninety-one percent of private transportation trips by women are made by private automobile, while for men it represents 89%. In the case of trips in public transport, including cab, 17.5% of women's trips are made in cabs (street, site or app) while for men it only represents 9.7% (INEGI, 2017). <sup>8</sup> Data from Negrete (2015).

# 3. OVERALL STRATEGY OF MOBILITY OF MEXICO CITY

Taking into account the problems described above, the 2018-2024 Administration of Mexico City proposes the following General Mobility Strategy for Mexico City.

# Vision

In the 2018-2024 period, people will be at the center of urban mobility policies in Mexico City. Under this premise, mobility systems, programs and projects will be oriented to increase accessibility, reduce travel times and guarantee comfortable and safe trips for all citizens.

# The 3 mobility redistributions in Mexico City

To address the problems derived from the fragmentation, inefficiencies and inequities of Mexico City's current mobility system, this Strategic Plan is based on the redistribution of three structural components of urban mobility:

- Redistribution of modes
- Redistribution of road space
- Redistribution of resources

# **Redistribution of modes**

We will seek to reverse or at least maintain the current modal split, which has shown a steady increase in the share of private motorized modes, resulting in an increase in vehicle congestion and thus longer travel times. Therefore, through investment in infrastructure, maintenance, recovery and fleet renewal, public transport, walking and cycling, which together account for 77% of trips in the city and 80% of trips in the metropolis, will be favored.

# 3. GENERAL MOBILITY STRATEGY FOR MEXICO CITY

### **Redistribution of road space**

The city's road space is limited and must be distributed according to criteria that benefit the majority, vulnerable groups, or solve specific mobility problems. It is impossible to have streets that efficiently accommodate all modes of transport in Mexico City, as they would have to be at least 45 meters wide. For this reason, prioritizing the modes that transport the most people and pollute the least is the most efficient, sustainable and fair for the city. For this reason, through the construction of connected networks of exclusive or preferential use lanes and the implementation of traffic calming schemes, the smooth and safe circulation of public transport services and non-motorized modes of transport will be favored, generating complementary programs aimed at increasing accessibility and safety for the most vulnerable people on the road.

This preferential option for sustainable modes does not rule out the implementation of interventions aimed at facilitating the circulation of private motorized modes or freight. However, these will always be carried out within the framework of a policy based on respect for basic principles of sustainability, road safety, protection of vulnerable groups and improvement of public space.



Illustration 7: Required width of a street to accommodate all modes of travel

Note: This only shows an ideal street type that accommodates wide sidewalks, tree-lined areas, bike lanes and parking. and a Bus Rapid Transit (BRT) line. The image is purely indicative, so it can take many different

configurations, in accordance with adopted standards or priorities.

Source: Prepared with Streetmix.net based on Stockholm Urban Mobility Strategy Vision 2030.

#### **Redistribution of resources**

To address the crisis in the city's mobility system, reduce inequalities and focus on the needs of the majority, the 2018-2024 Administration will redirect investments in the sector towards infrastructure that favors the smooth and safe movement of public and non-motorized transport, and towards public policies that contribute to generating an inclusive, accessible and equitable city, as well as guaranteeing affordable fares for citizens. In practice, for every peso invested in road infrastructure, 6 pesos will be invested in maintenance and more infrastructure for public transportation, bicycles and pedestrians. This investment will at least double the investment made during the last administration in these areas.

# 4. STRATEGIC OBJECTIVES OF SHORT-TERM MOBILITY

This Strategic Plan is structured around three complementary axes:



Axis 1: Integrate. The physical, operational, mode of payment and image integration of the City's different transportation systems will be carried out, favoring intermodality and promoting travel by foot, bicycle and public transportation. Infrastructure and services will be understood as a whole linked to urban development, environmental, economic and social development policies, both at the local and metropolitan levels.



Axis 2: Improve. The state of abandonment and deterioration of the existing transportation infrastructure and services will be addressed in order to increase accessibility conditions for citizens, reduce travel times, improve travel conditions, make the operation of the city's different mobility systems more transparent, and make the transportation of goods more efficient.



**Axis 3. Protect.** The integrity of the people who use the different transportation systems will be protected through the provision of inclusive, In turn, these three axes are crossed by six crosscutting principles common to all the programs and projects to be developed within the framework of this Plan:



**Sustainability**, through the promotion of the use of low-carbon modes and technologies.

dignified and safe infrastructure and services.

MEXICO CITY STRATEGIC MOBILITY PLAN 2019 Innovation, through the introduction of technologies and procedures aimed at maximizing the efficiency of the transportation network, improving the planning, management and monitoring of programs and projects, providing transparency in the operation of systems and use of resources, as well as facilitating processes for citizen participation and attention.

**Equity**, through the development of initiatives aimed at favoring the most vulnerable sectors of the city, particularly those living on the outskirts of the city with scarce resources.

**Gender**, addressing both violence against women in the city's different transportation systems and their specific travel needs.

**Transparency** in the discussion and development of policies, programs, projects and the use of resources.

**Quality** in the provision of infrastructure and services.









# 4. SHORT-TERM STRATEGIC MOBILITY OBJECTIVES

## Table 3: Axes and principles of the Mobility Strategic Plan



Table 4 shows the general structure of the Strategic Plan. However, it will be explained in more detail below. every detail.

### Table 4: Structure of the 2019 Strategic Mobility Plan.

AXI S	STRATEGY	TARGET 2019
INTEGRATE	1.1 System integration public transportation	100% of the public transportation managed by Mexico City (Metro, Metrobus, RTP and Sistema de Transportes Eléctricos) integrated into a single prepaid system. The network has a unified image, a single map and optimized connections between mass transit stations.
	1.2. Expansion of the coverage of mass transit networks	5% increase in the mass transit network administered by Mexico City and start of construction of the Cablebus system.
	1.3 Integral reform of the trans- concessioned freight	100% of concessioned transportation has GPS available to the public for monitoring operations and verifying routes.
	1.4 Integration of bicycle use. cleta to the mobility system	Expansion of 15% of the bicycle lane network. 100% increase in the supply of bike stations next to mass transit stations.
IMPROVE	2.1 Rescue and improvement of public transportation	100 new units in STE, 800 new units in RTP; major maintenance of subway trains; remodeling of 2 CETRAM; crowding management program in at least 5 Metrobus stations, and implementation and/or recovery of exclusive lanes for public transportation.
	2.2 Traffic and parking management	Integration of automated traffic light systems; integration of parking meter systems.

# 4. SHORT-TERM STRATEGIC MOBILITY OBJECTIVES

AXI S	STRATEGY	TARGET 2019
IMPROVE	2.3 Regulation of private mobility services	Proposal for comprehensive regulation of cab services and publication of guidelines for the operation of untethered bicycle systems and electric scooters.
	2.4 Promoting innovation and technological improvement	Installation of the Mexico City Mobility Control and Innovation Center, release of open public transportation data. Integral programs to promote electromobility and roadmap towards intelligent mobility in Mexico City.
	2.5 Freight transportation	Publication of Mexico City's Strategic Freight Transportation Plan.
	2.6 Improving care citizen	Expansion of the coverage of care centers.
PROTECT	3.1 Safe and universally accessible walking and cycling infrastructure	Interventions at 32 intersections in the city, 40 kilometers of bicycle lanes and 15 24-hour crosswalks.
	3.2 Road safety policies oriented to behavioral change	Implementation of the Decalogue of the Good Driver and of the points system and civic sanctions.
	3.3 Gender perspective, prevention and attention of harassment in the mobility system	Improving the perception and safety levels of female public transportation users through the development of a strategy on gender perspective and harassment prevention in Mexico City's mobility system.

AXIS 1: INTEGRATE

## Strategy 1.1 Integration of the public transportation system

#### Current

situation The City's public transportation system is highly fragmented, as there is no physical, operational or fare integration among its various components. There is only partial integrated use of the payment system. Its adoption in Mexico City has been slow and is limited to the Metro, Metrobus and Tren Ligero, with integration to the Ecobici public bicycle system; while trolleybuses, RTP buses and microbuses of concessioned transport continue to use cash collection. This situation represents a nuisance for users, as well as limits the financial control of the systems and hinders their integration. Fragmentation is also expressed in the lack of a unified image that allows the population to identify all means of public transportation within the city. The maps of the Metro, Metrobus and Light Rail systems, among others, display information only about their systems, without showing the multiple transportation options that exist. Similarly, there are mass public transportation stations that are within walking distance and belong to different lines (Metro) or different systems (Metro and Metrobus), which do not have a physical integration that facilitates safe, comfortable and fast connections.

**Goal:** 100% of public transport managed by the City of Mexico (Metro, Metrobus, RTP and Electric Transport System) integrated into a single prepaid system. The network has a unified image, a single map and optimized connections between mass transit stations.

Equipment will be purchased for trolley buses and RTP network buses to adopt prepaid cards. This will be reinforced with the implementation of a dense network of recharge points.

A single image will be developed for all mass transit systems administered by Mexico City. In the medium term this image will consider the current concessioned transportation services.

Work will be done to create a schematic inte-

#### Lines of action to achieve the goal

The map will be disseminated in all systems, replacing the current maps, as well as online for easy reference (Illustration 8). This map will be disseminated in all systems, replacing the current maps, as well as online for easy consultation (Illustration 8).

Opportunities will be identified to improve the physical connection between mass transit stations and improvements will be implemented to surface connections through a public space design that shortens distances and improves accessibility and safety conditions.



# **AXIS 1: INTEGRATE**

# Illustration 8: Preliminary outline of a single public mass transit map



Note: Target design image. Source: Prepared by Pablo Peña.

# **AXIS 1**:

Table 5: Examples of Metro stations with the possibility ofsurface or subway connections



Who is responsible

Public transportation agencies and the Secretariat of Mobility.

# Strategy 1.2 Expansion of the coverage of mass transportation networks



### Current

situation Today there are 349 kilometers of Metro and Metrobus operating within Mexico City. 4.5 million people live within walking distance of them, leaving large parts of the eastern and mountainous areas of the city without direct access to mass transit networks. This generates long travel times and the multiplication of transfers for a large part of the low-income population living in the peripheries. Failure to increase the supply of mass transit will increase the motorization of the population and with it an increase in the levels of vehicular congestion.

**Goal:** 5% increase in the mass transit network administered by Mexico City and start of construction of the Cablebus system.

## **AXIS 1: INTEGRATE**

# Illustration 9: Extension of mass public transport to the periphery and marginalized zones



Source: Own elaboration with data from CONAPO (2010).

#### Lines of action to achieve the goal

Cablebús, a cable car system connected to mass transportation networks, will be created to serve low-income areas located in mountainous areas that are difficult to access and have urban barriers around them. In the first phase, the analysis, evaluation and implementation of four lines is proposed.

The implementation of two Metrobus lines will be planned and the construction of a 20-kilometer extension of line 5 from the Terminal de Autobuses de Pasajeros de Oriente to the Glorieta de Vaqueritos will be completed, which will connect the southern part of the city with central areas of the city.

Work will begin on an eight-kilometer mass transit connection between the Constitución de 1917 and Santa Martha Metro stations, with a possible extension projected to the State of Mexico in conjunction with the Federal Government.

#### Who is responsible

Within its territory, it is the responsibility of the government of Mexico City. In the event of extensions to the Metro network that cover the surrounding municipalities, it will be the responsibility of the Federation and the State of Mexico.

# **AXIS 1**:

## Strategy 1.3 Integral reform of concessioned transport

#### Current

situation Mexico City's concessioned transportation is the means of transport that transports the most people in Mexico City, concentrating 67% of daily trips in public transportation (INEGI, 2017). However, trips are made in small, highly con- taminant, uncomfortable and unsafe units, most of which have already reached the end of their useful life. The lack of control mechanisms for the operation, coupled with the highly atomized business scheme of the man- truck, in which profits come exclusively from fare collection, produce competition for demand and excess supply at off-peak hours, which in turn translates into high operational inefficiencies, congestion and aggressive driving, which leads their units to be involved in a large number of traffic incidents.

**Goal:** 100% of concessioned transportation has GPS available to the public for operation monitoring and route verification.

#### Lines of action to achieve the goal

Installation by concessionaires of Global Positioning Systems (GPS) in their units and interconnection to the Mobility Control and Innovation Center. This will make it possible to monitor routes, frequencies, driving habits and speed monitoring. At the same time, the information gathered will be a fundamental input for a possible restructuring of routes within the framework of the integration of public transportation services.



The Ministry of Mobility will promote monthly verifications of the routes that accumulate the most faults, accidents and complaints. These verifications and selection of routes, with the justifying information, will be announced to the public in advance in order to make governmental action transparent and to give concessionaires the opportunity to correct the detected faults.

Who is responsible Secretariat of Mobility.

# + AXIS 1: INTEGRATE

# Strategy 1.4 Integration of bicycling into the mobility system

## **Current status**

Bicycle use is not integrated into the city's mobility system and transportation policies. Currently, the Mexico City government's cycling infrastructure public policy is carried out by the Ministry of Environment, through the Directorate of Culture, Design and Cycling Infrastructure (DCDIC). This area is in charge of planning cycling infrastructure, as well as the operation of cycling events and supervision of Ecobici. This generates a fragmentation in the implementation of a comprehensive mobility policy by increasing bureaucratic costs and inter-institutional coordination with the Secretariat of Mobility and, in some cases, duplicating planning functions.

The implementation of mass bike racks in public transport stations has shown to have important benefits for the promotion of active mobility, although there are few of them and the card for their use is not interoperable between each of the bike racks. Therefore, it is necessary to unify the operation system so that with the same card it is possible to use any mass bicycle parking facility in Mexico City.

In addition, the Mexico City Administration 2013-2018 developed a Bicycle Plan focused on the expansion of cycling infrastructure through increased bicycle lanes, mass bicycle parking and expansion of Ecobici.

**Goal:** Expansion of 15% of the bicycle lane network. 100% increase in the supply of bicycle parking spaces next to mass transit stations.

### Lines of action to achieve the goal

- Construction of two massive bicycle parking lots, which will increase by 100% the supply of accessible, free and safe parking spaces next to Metro stations.
- Operational integration of the mass bicycle parking network.
- Expansion of 30 kilometers of the city's bicycle lane network.
- Incorporation of planning and development of cycling mobility policies into the functions of the Secretariat of Mobility.
- Completion of cycling infrastructure plan.

### Who is responsible

It is the responsibility of the Secretariat of Mobility to propose cycling infrastructure projects and work together with the municipalities for their construction.



**AXIS 2:** 

# Strategy 2.1 Rescue and improvement of public transportation

#### Current

situation The public transportation systems administered by the city have various maintenance problems that mean that a large part of their vehicle fleet is not in operation, that they offer poor service to the population, face continuous breakdowns, low frequency and overcrowding both inside trains, trolley buses and buses as well as at stations.

Thus, the Metro presented 22,195 breakdowns during 2017, while the operating fleet does not exceed 73% of the total number of existing trains (STC-Me- tro, 2018). In the case of light rail, only two out of three units are currently providing service, which translates into low frequencies for a highly saturated system.

For its part, the entire trolleybus fleet has already exceeded 20 years of operation. Thirty-three percent of the units are out of circulation due to maintenance work, which has contributed to a drop in passengers transported from 72.6 million in 2012 to 55 million in 2018.<sup>9</sup> Meanwhile, at RTP, despite the recent purchase of 100 units, the current fleet does not meet demand or provide reliable service. Fifty percent of its fleet is out of operation due to lack of maintenance, a deficit that is exacerbated by the continued provision of buses to respond to emergencies, which means withdrawing supply of units from many routes.

The exception is Metrobús: its operation is strictly controlled, while its fleet is generally in good condition due to a consistent maintenance policy. However, the system suffers from heavy congestion at peak hours at both buses and stations, which extends waiting times and negatively affects the quality of the trip.

**Goal:** 100 new units in STE, 800 new units in RTP; major maintenance of Metro trains; remodeling of 2 CETRAM; congestion management program in at least 5 Metrobus stations, and implementation and/or recovery of exclusive lanes for public transportation.



<sup>9</sup> Electric Transportation System information as of September 2018.

## AXIS 2: IMPROVING

#### Lines of action to achieve the goal

Fleet renewal and maintenance program for the entire public transportation system managed by the city. To this end, during 2019, investments will be made to increase the fleet of RTP, STE and the maintenance of the Metro network, including work on tunnels, rails, cabling and trains.

Implementation of exclusive lanes to increase bus speeds, whether operated by RTP or private concessionaires.

Program to improve the management of user flows during high demand hours in Metrobus stations. During 2019, 5 critical stations will be intervened.

#### Who is responsible

Sistema Transporte Colectivo Metro, Sistema de Transportes Eléctricos, Red de Transporte de Pasajeros and Metrobús.

### Strategy 2.2 Traffic and parking management

#### **Current status**

There are 18,000 primary intersections in Mexico City, of which only 3,200 are signalized. The infrastructure of the traffic signal network is grouped into three subsystems (EYSSA, SEMEX and IN-MER) that have not been s i g n i f i c a n t l y modified or updated in recent years. These are dispersed throughout the territory, are not integrated, and lack a communication system among them.

The city has two different parking meter systems, Ecoparq and Opevsa, which operate differently. At the same time, parking meter concessionaires use different mobile applications for payment, which makes them difficult to use and causes confusion among users. Both systems have been discredited in the eyes of the public due to a lack of transparency in the resources collected. This has affected the legitimacy of the meters, despite the benefits they offer to the city's mobility system.



# **AXIS 2**:



## Illustration 10: Parking Meter Systems in Mexico City

Source: Own elaboration.

**Goal:** Integration of automated traffic light systems; integration of parking meter systems.

## Lines of action to achieve the goal

Integration of the city's traffic light system, aimed at facilitating vehicular flows and protecting the most vulnerable people on the road.

Integration of a parking meter system, with a single image and payment system and a supervision scheme that guarantees proper operation and transparency in the collection and use of resources.

Information on the system's web page with detailed data on the operation of the system and the resources it generates.

#### Who is responsible

The Secretariat of Mobility in conjunction with the Secretariat of Public Safety, the Secretariat of Finance and Metropolitan Services.

# + AXIS 2: IMPROVING

# Strategy 2.3 Regulation of private mobility services

### **Current status**

There are several cab systems in the city, both formal and informal: traditional cabs, site-operated taxis, app-operated cabs, bicycle cabs and motorcycle cabs. These services cover the same type of travel needs, but are regulated differently, causing distortions that affect the quality of service and the safety of users. With the entry into operation of cabs via mobile applications, the Taxi, Mobility and Pedestrian Fund of Mexico City was created, which has not been transparent in terms of the contributions it has received from different companies or its use, as has been reported in different media.

At the same time, there are services that cover last-mile transportation needs, such as motorcycle cabs, which are not regulated and present various safety problems due to the use of vehicles not designed to provide such services.

On the other hand, technological innovation has led to the emergence of untethered bicycle systems and electric scooters that expand the transportation options of citizens and are convenient for short trips. However, their use is usually associated with an undue occupation of public space, conflicts with other road users, particularly pedestrians, and an increase in the number of traffic incidents. In this sense, there is a real possibility of a massive increase in the use of these systems, leading to the obstruction of pedestrian traffic, unsafe use of these vehicles, and the discrediting of the use of bicycles as a sustainable means of mobility.

**Goal:** Proposal for comprehensive regulation of cab services and publication of guidelines for the operation of untethered bicycle systems and electric scooters.

#### Lines of action to achieve the goal

Analysis of problems and proposal for reformulation of legislation to eliminate unequal regulatory treatment in the different cab services, in order to provide safety to users and drivers and maximize the benefits of the city's mobility system.

Study, modification and publication of "Guidelines for the planning, implementation and operation of individual public transportation by bicycle without anchorage for Mexico City" prepared by the 2012-2018 Administration. Update of the manual with material concerning electric scooters.

The operation of the Taxi, Mobility and Pedestrian Fund of Mexico City will be made transparent through its electronic page, which will contain all the information related to the amounts collected and the works that have been carried out with it.

Who is responsible Secretariat of Mobility.



**AXIS 2:** 

# Strategy 2.4 Promoting innovation and technological improvement

#### Current

situation The operation and monitoring of public transportation, as well as other mobility services such as parking meters, traffic lights, among others, is fragmented and is a barrier to providing adequate services to the population and to traffic management. This generates operational inefficiencies and difficulties in guaranteeing the safety of the population, as well as in acting in a coordinated manner in the face of eventualities and emergencies that affect the city's mobility.

In addition, there is a large amount of data that the different mobility services generate or can generate, which can serve both as input for the development of new platforms and technologies and to improve people's travel experience. However, this data is currently not fully available to the public and researchers in formats that can foster innovation and move towards intelligent mobility. This is crucial at a time when there is a strong push towards the use of ridesharing systems and the eventual arrival of autonomous or semi-autonomous vehicles, which need a regulatory framework to capture their benefits in the city's mobility system and mitigate possible negative externalities.

Regarding the promotion of clean technologies, the existence of a network of 203 kilometers of catenary in operation in the city operated by the Electric Transportation System represents a great opportunity to promote electromobility in Mexico City. This opportunity can be complemented with policies and programs aimed at promoting the use of electric vehicles in private and charging systems.





## AXIS 2: IMPROVING

#### Lines of action to achieve the goal

Creation of a Mobility Control and Innovation Center in coordination with the Traffic Engineering Directorate, the C5 of the Public Safety Secretariat, and the Digital Public Innovation Agency (ADIP). This control center will include at least the following systems: a) Centralized control of the integrated system of automated traffic lights; b) Monitoring center for the integrated public transportation network; c) Integration of monitoring of different mobility services: ecoParq, Ecobici, etc.; d) Communication with public safety and emergency services.

Release of data generated by the different mobility systems for public use, through an open data platform.

Integral program to promote electromobility, which in the first year will have funds for the acquisition of new trolleybus units.

Development of Mexico City's Comprehensive Intelligent Mobility Program focused on technologies, organization and projects aimed at interconnecting infrastructure, means of transportation and freight services to increase accessibility, improve safety, reduce environmental impact and increase the efficiency of networks and modes.

#### Who is responsible

Ministry of Mobility, Ministry of Public Safety, Digital Agency for Public Innovation and Electric Transportation System.

# **AXIS 2:**

## Strategy 2.5 Freight transportation

#### Current

situation Freight transportation constitutes 9% of the vehicle fleet registered in Mexico City<sup>10</sup> and is one of the sectors with the least implemented policies to optimize its operation, despite the goals set forth in the Comprehensive Mobility Program 2013-2018. This translates into operational inefficiencies, high emissions of polluting and greenhouse gases<sup>11</sup>, high congestion in logistic corridors and destination concentration zones, as well as conflicts with other road users.

Goal: Publication of Mexico City's Strategic Freight Transportation Plan.

#### Lines of action to achieve the goal

A Strategic Plan will be prepared that will address at least four essential aspects related to freight transportation: a) improvement of logistics processes (routes, schedules, transfers); b) introduction of new technologies; c) urban strategy for the location of dispatch centers; d) urban design oriented to the coexistence of freight transportation with other modes.



<sup>&</sup>lt;sup>10</sup> It is important to note that 99% of tractor-trailers and 70% of buses circulating in the city are under federal jurisdiction (SEDEMA, 2018).

<sup>&</sup>lt;sup>11</sup> Freight transportation accounts for 23% of PM2.5 particulate matter emissions, 17% of carbon monoxide, 34% nitrous oxides and 17% of carbon dioxide emissions in the MCMA (SEDEMA, 2018).
# AXIS 2: IMPROVING

# Strategy 2.6 Improving Citizen Services

#### **Current status**

Service problems have been detected in the 16 service modules in the mayor's offices for obtaining licenses and circulation cards. Among the existing problems is the unnecessary expenditure of time and space for the generation of corrupt practices. On the other hand, the mobile service modules set up for these procedures show agility and few problems of dishonesty in carrying them out.

Goal: Expansion of the coverage of service modules.

#### Lines of action to achieve the goal

We will strengthen customer service by implementing 30 new customer service modules, which will allow the process of obtaining licenses and vehicle registration cards to be carried out in an agile and transparent manner.

#### Who is responsible

Secretariat of Mobility.



### AXIS 3: PROTECT

Moving around the city should be a dignified and safe activity for all people. Today, certain groups lack the necessary conditions to move around in a dignified and safe manner, due to the means of transportation they use, the existence of defective or inaccessible infrastructure, as well as specific threats or vulnerabilities they face as a group. To the above must be added situations that violate women's rights by not being able to enjoy the conditions to travel with dignity, due to harassment in public transportation. For this reason, the 2018-2024 Administration has proposed to transform safety and dignify people's transportation, particularly for those in vulnerable situations.

# Strategy 3.1 Safe and universally accessible infrastructure for walking and cycling

#### **Current situation**

People who move on foot or by bicycle are in a situation of vulnerability because they do not have a safe infrastructure to carry out their transfers. Thus, in 2016 there were 11,502 road incidents that generated 2,918 injuries and 659 deaths in Mexico City; almost half of the victims corresponded to pedestrians and cyclists (CONAPRA, 2017). Many times these incidents are due to a poor infrastructure that favors the movement of motorized vehicles without properly designed and signposted traffic routes and crossings for pedestrians and cyclists. At the same time, walking usually encounters enormous urban barriers generated by large roads or other obstacles that lengthen routes, make them inaccessible to people with reduced mobility and hinder permeability between neighborhoods. This problem significantly affects women, who make more than half of the trips on foot in the city, particularly to carry out care work for other members of the household.

These problems are aggravated by deficient road signage, whether due to non-existence, lack of maintenance, errors in placement, abandonment of work elements, which affect the entire population. This results in inappropriate or risky behavior for all those who use public roads, increased congestion, and deterioration of public space. In general, these situations occur at road intersections, making them high-risk points in terms of road safety or areas of slow traffic and high congestion.



# AXIS 3: PROTECT



#### Illustration 11: Cycling infrastructure in Mexico City, 2017.

Bicycle lane Bicycle lane Bicycle bus

Source: SEDEMA-IG-BID, 2018.

In terms of cycling infrastructure, Mexico City has 194 kilometers of bicycle lanes, which are dis- tributed and concentrated in the municipalities of Miguel Hidalgo, Cuauhtémoc and Benito Juárez. Although a significant number of bicycle trips are made in the municipalities of Xochimilco, Tláhuac and Iztapalapa, these areas do not have the necessary infrastructure to meet the demand for safe bicycle mobility.

**Goal:** Interventions at 32 intersections in the city, 40 kilometers of bicycle lanes and 15 24-hour crosswalks.

AXIS 3: PROTECT

#### Lines of action to achieve the goal

In the short term, 32 intersections will be intervened, selected according to various criteria including road safety, pedestrian and cyclist flow, level of service and congestion, and characteristics of the public space. Depending on the characteristics of each one, geometric adaptations will be made, vertical and horizontal signaling will be installed, traffic light phases will be optimized, obstacles will be removed, measures will be taken to ensure universal accessibility, and public space will be improved. Interventions will be evaluated and, depending on their success, will be expanded to the rest of the city.



#### Illustration 12: Mexico City's conflictive intersections

Source: own estimates based on level of service and actions. dents.

> Forty kilometers of bicycle lanes will be implemented, which will help provide continuity to the existing network and connect the city's downtown area with the suburbs that currently do not have this type of infrastructure.

> Elevated crosswalks will be set up taking advantage of the Metro stations along the urban barriers represented by Calzada de Tlalpan, Avenida Zarago- za and Avenida Central (in the State of Mexico). The turnstiles will be relocated to provide free,

AXIS 3: PROTECT

AXIS 3: PROTECT

#### Who is responsible

The implementation of this strategy will be in charge of the Secretariat of Works in collaboration with the Secretariat of Mobility and the different municipalities involved. The Sistema de Transporte Colectivo Metro will be responsible for the 24-hour crosswalks.

## Strategy 3.2 Road safety policy aimed at behavioral change

#### **Current status**

While considered a valuable technology, the speed camera and photo enforcement program has suffered from a lack of transparency in its implementation, coupled with the absence of rigorous evaluation mechanisms, making the contribution of this system to the city's road safety policy unclear. Without a detailed analysis of sanction patterns, it is difficult to assert that the increase in the number of speed camera fines means a change in the positive behavior of car drivers. In the same way, considering the high-income representation of highincome people in the use of cars in the city, it is possible that there is a differentiated effect of fines by income level. Today there are only indications that there are higher recidivism rates among higher value cars, which would indicate the existence of such an effect.

**Goal:** Implementation of the Decalogue of the Good Driver and of the points system and civic sanctions.

#### Lines of action to achieve the goal

In order to make sanctions more effective in terms of behavioral change, to be more equitable in their effects, and to visualize the importance of road safety and education, the current system of fines will be complemented with the points system already established in the traffic regulations. Considering the current situation and the existing administrative capacity, a first stage of transition to a non-monetary system is proposed, and a second stage of consolidation.

A general road education strategy will be formulated, focused on 10 rules of road coexistence aimed at mutual respect for all road users, with emphasis on the protection of the most vulnerable people.<sup>12</sup>



<sup>12</sup> Studies in Mexico have shown that communication campaigns on road safety education do have an impact on the information available to those who have been subjected to them (Hidalgo-Solorzano, *et al.*, 2008).

#### AXIS 3: PROTECT

In the case of violations detected with speed cameras, monetary fines will be replaced by sanctions focused on behavioral change, which will include training courses and community work.

Preventive educational actions will be implemented, consisting of courses and training materials focused on different types of users and population groups. For example, the "Road Command" program, which existed in a reduced form between 2016 and 2017, will be restarted. This program used street theater to illustrate and raise awareness among spectators about individual behaviors and actions aimed at creating a culture of respect among all road users (IDB, 2018a).

Specific road safety campaigns and strategies will be developed, focusing on high-risk and high-incidence groups.

#### Who is responsible It

is the responsibility of the Secretariat of Mobility to propose the road safety strategy, while its implementation will be carried out in conjunction with the Secretariat of Public Safety.

# Strategy 3.3 Gender perspective, prevention of and attention to harassment in the mobility system

#### Current

situation Gender inequality, harassment and other forms of violence against women in transportation and public spaces should be considered public problems that require priority attention by the Mexico City government. Harassment, abuse and sexual aggression that women face when moving around the city in different modes of transportation is a daily reality, which generates wide inequalities among the population and translates into multiple barriers that prevent women from fully exercising their rights. Although there are actions such as temporary awareness campaigns in the subway that have achieved a certain degree of awareness or women-only subway cars or buses, within the "Viajemos Seguras en el Transporte" program, these measures are insufficient and in some cases may have counterproductive effects in the long term (IDB, 2017), such as the consolidation of a culture of violence and segregation in public transportation. In this sense, a large part of the situations of genderbased violence and harassment in public transport are due to the lack of cross-cutting, coordinated, congruent and long-term public policy strategies to address these problems in a comprehensive manner, based on policies, campaigns, information, infrastructure, regulations and sanctions that systematically include the gender perspective.



AXIS 3: PROTECT

**Goal:** Improve the perception and safety levels of female public transportation users through the development of a strategy on gender perspective and harassment prevention in Mexico City's public transportation system.

#### Lines of action to achieve the goal

A comprehensive strategy will be designed and implemented to prevent and address harassment and gender-based violence in all modes of mobility in Mexico City in a coordinated manner within the city government and with other strategic sectors. This includes the implementation of an action protocol to address cases of gender-based violence in the public transport system.

Information and awareness campaigns aimed at different audiences will be carried out to curb harassment in public transportation vehicles and stations. These campaigns will be replicated with the personnel and operators of all modes of the system.

Interventions will be developed in the infrastructure and equipment of the city's transportation network to improve safety conditions for female users. In the update of the Integral Mobility Plan, specific actions will be detailed to include a gender perspective in the mobility policy, both to attack violence against women in the mobility system and to specifically address their travel needs.

#### Who is responsible

This is an inter-institutional action that will be carried out jointly by the Secretariat of Mobility, the Secretariat of Women, the Secretariat of Urban Development and Housing, public transportation agencies and the Secretariat of Public Safety in association with organized civil society, international organizations, and other areas of the sector responsible for mobility.

# 6. FOLLOWING PHASES: IMPLEMENTATION, MONITORING AND UPDATING OF PROGRAMS

The present strategy is a guide that indicates the direction to be taken to achieve the objectives set for the first year of government, and is therefore equipped with a monitoring system and a degree of flexibility that allows it to make corrections along the way.

The next step is to analyze the details of its implementation and follow up on it, which will allow us to rethink the strategy to achieve the medium and long-term objectives set for the 2018-2024 six-year period.

#### Illustration 13: Next steps in Mexico City's mobility planning process



Subsequently, the Integral Mobility Program and the Integral Road Safety Program will be prepared in accordance with the provisions of the Mexico City Mobility Law and in line with the Mexico City General Development Program and the Mexico City Urban Development Program, the city's guiding planning ordinances.

We will work on specific plans and programs for electromobility, intelligent mobility, freight transportation and cycling infrastructure, and mobility with a gender perspective and prevention of harassment against women. Similarly, detailed studies and analyses will be conducted on major urban projects and large-scale interventions in Mexico City to ensure that they will have a positive impact on the city's mobility system.

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# Plan estratégico de movilidad de la Ciudad de México 2019

Una ciudad, un sistema.

