



# TUMI INITIATIVE'S TRANSFORMATIVE STORIES

## GUADALAJARA METROPOLITAN AREA, MEXICO: PAVING THE WAY TOWARDS INTEGRATED SUSTAINABLE MOBILITY AND CLIMATE NEUTRALITY

The Metropolitan Area of Guadalajara (AMG) is the second most populated area in Mexico and is facing increasing urban sprawling. With the goal to become climate neutral by 2050, the Metropolitan Area is focusing on non-motorized transport and smart mobility to create safer streets for its residents.

### ABOUT GUADALAJARA

The Metropolitan Area of Guadalajara (AMG), home to a population of approximately 5 million inhabitants, is the second largest metropolitan region in Mexico after Greater Mexico City. Located in the central part of the Mexican State of Jalisco, it includes nine municipalities: Guadalajara, Zapopan, San Pedro Tlaquepaque, Tlajomulco de Zúñiga, Tonalá, Zapotlanejo, El Salto, Ixtlahuacán de los Membrillos, and Juanacatlán.

The Metropolitan Area of Guadalajara is also Mexico's second-biggest trading center and third industrial hub. The economic base is diverse with activities ranging from manufacturing and trade to personal services.



**Population Metropolitan area:**  
4,980,756 inhabitants (CONAPO, 2017)

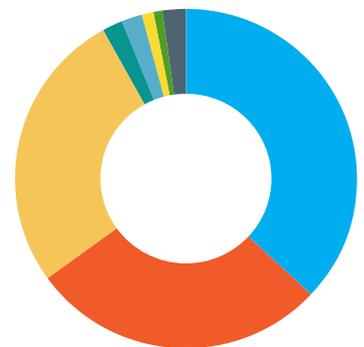
**Land area:** 3,365 km<sup>2</sup>

**Density:** 1,572 inhabitants/km<sup>2</sup>

#### MODAL SPLIT

(Source: Encuesta de Origen Destino, Steer Davies Gleave, 2007)

- 37% Walking
- 28% Informal transport / paratransit
- 27% Private transport (cars)
- 2% Bicycles
- 2% Special shared transport (Employee & school)
- 1% Taxi
- 1% Motorcycle
- 2% Other



**TARGETS by 2050:** Achieve 100 percent climate neutrality in the Metropolitan Area of Guadalajara

## MOBILITY IN THE AREA

According to the Institute of Mobility and Transport of the State of Jalisco, over 11.5 million daily trips took place in 2014. Forty-two percent of those trips were walking, 26 percent public transport, 24 percent private transport, and eight percent on other modes of transport. (PIMUS, 2014)

In recent years, the Metropolitan Area of Guadalajara has undergone rapid urbanization towards the periphery of the area. The dispersed urban layout resulting from migration was not accompanied by new mobility infrastructure, facilities or employment opportunities. Consequently, the travel patterns are converging to the center of the Metropolitan Area, contributing to increasing traffic congestion, noise, and air pollution.

The Metropolitan Area public transport is comprised of two north-south mass transport corridors and an east-central corridor: the light rail transit (LRT) line 1 and one route of BRT MacroBús along Independencia Road cover the city from north-south, while the LRT line 2 runs the east-central corridor. Due to increasing demand, these lines no longer meet the needs of users. As part of Jalisco's General Program for Transport, the state has planned a series of actions, including infrastructure and route distribution to integrate the different public transport modes. The program includes a collective transport system, and coordinates the mass transportation modes, including the integration of the LRT's Line 3, proposes the expansion and modernization of Line 1 and the Macrobus BRT system, as well as creating the Peribus BRT system. Construction of the LRT Line 3 started in 2014 and expected to open in mid-2019 thanks to public investments provided by the Federal Government.

The Metropolitan Area of Guadalajara has a Sustainable Urban Mobility Plan, created by the Mobility and Transportation Institute of Jalisco in 2015 which highlights its commitment to sustainable mobility in the Metropolitan Area, promoting non-motorized mobility and the use of public transportation to limit the use of private transportation.

Besides more infrastructure, the Metropolitan Government has identified a need for more qualified transport personnel, improved technology to facilitate the operation and provision of services such as monitoring systems, and identification of better routes as key elements to improve public transportation.

## TOWARDS A METROPOLITAN AGENCY FOR MOBILITY INFRASTRUCTURE

Acknowledging the growing importance of tackling mobility issues, the proposal to create a Metropolitan Agency for Mobility Infrastructure was approved in early 2019. The new Agency is expected to manage mobility services in three main priority areas: active mobility, smart mobility, and safe mobility. The Agency will also aim to streamline practices and technical standards while facilitating continuity in strategies and actions across the nine municipalities that make up the Metropolitan Area of Guadalajara.

The newly formed Agency is mandated to manage and identify opportunities to scale up Guadalajara's bicycle sharing system, expand and maintain cycling infrastructure, optimize speed limit enforcement and road signalization, and upgrade and enhance the traffic light intersections. These initiatives are financed from budgetary allocations following the Law of Expenditure of the State of Jalisco and the results-based management model.

## BICYCLE SHARING AND CYCLING INFRASTRUCTURE

MIBICI, the public bicycle-sharing system of the Metropolitan Area of Guadalajara, was launched in November 2014 with 860 bicycles and 86 bicycle stations in eight neighborhoods.

MIBICI offered residents a much needed non-motorized transport option and a new way to experience the city while providing a complementary mode of transport to massive transit as stated in the State Plan of Development PED Jalisco 2013-2033. In the period between 2014 and 2019, the system has gathered over 60,000 registered users, installed 236 stations with over 2,000 bicycles and accounted for more than 8.5 million rides (MIBICI, 2019).

Factors contributing to its success are stations being solar powered and located in key places of business and interest. Integration with other modes of transport was also a key consideration along with public acceptance; stations were built to facilitate intermodal transportation, connecting to light rail lines and the MacroBus BRT, and many public consultations were organized to gather feedback from the residents.

The launch of MIBICI rounded out the Metropolitan Area's efforts to expand the cycling infrastructure in 2014 and to improve signalization. As of early 2019, the Metropolitan Area counts on 132.2 kilometers of cycling infrastructure. By focusing on expanding the MIBICI program to more areas and improving cycling infrastructure, the Metropolitan Area is strategically trying to reduce urban congestion, air, and noise pollution, and other adverse impacts of motor traffic, while enhancing road safety, and actively promoting convenient public transport.

## SPEED CONTROL AND SMART INTERSECTIONS

In the Metropolitan Area of Guadalajara, road and rail transport is the second largest source of CO<sub>2</sub> emissions, after the energy sector. In 2016, land transport contributed 6.38 MTCO<sub>2</sub> Eq, namely 35 percent of the total emissions generated in the Metropolitan Area according to the inventory from the Metropolitan Planning Institute (IMEPLAN).

The Metropolitan Area of Guadalajara is also developing a Metropolitan Climate Action Plan, to achieve the goal of becoming a climate neutral metropolitan area by 2050, thus aligning with the commitments made in the Paris Agreement. IMEPLAN, through the Metropolitan Agency for Mobility Infrastructure, proposes to implement a Smart Traffic Lights Program in the Metropolitan Area. They have identified strategic intersections across the Metropolitan Area that could be improved with smart technologies that would optimize traffic flows to lower fuel consumption and emissions, reduce travel time and enable more efficient, environmentally, climate-friendly mobility.

For instance, by upgrading 29 of the 1,993 existing traffic light intersections with smart technologies, the Metropolitan Area could reduce 1.12 percent of the yearly CO<sub>2</sub>-Eq emissions from the transport sector. Due to congestion in these locations, it is currently estimated that emissions amount to 830.00 tons of CO<sub>2</sub> / year. Through the implementation of the smart traffic lights program, 511.46 tons of CO<sub>2</sub> / year would be generated, hence reducing emissions by 318.54 tons of CO<sub>2</sub>/year.

Speed control is also a priority for the Metropolitan Area of Guadalajara. Speed cameras placed in strategic locations are expected to help regulate the driving speed of motorists road accidents and fatalities caused by excessive speed.

## THE WAY FORWARD: TOWARDS AN INTEGRATED PUBLIC TRANSPORTATION SYSTEM

While limited public funding for transport infrastructure remains a significant challenge, technical cooperation is instrumental in advancing towards this goal: GIZ, the German development agency, will support with the update of the Metropolitan Area's Sustainable Urban Mobility Plan, while C40 will assist on the BRT Peribus Integrated System.



IMEPLAN is in the process of seeking financing necessary to achieve an Integrated Transportation System, for instance through the Prosperity Fund with a project that seeks to introduce integrated ticketing. By enabling the use of a single card for various types of public transport, passengers' experience will improve and consequently, multimodality is expected to increase.





## KEY CONTACTS

### Metropolitan Planning Institute of the Metropolitan Area of Guadalajara Institute (IMEPLAN)

Mario Silva Rodríguez, Director General  
<http://imeplan.mx/en/home>

### ICLEI World Secretariat

EcoMobility Team - [ecomobility@iclei.org](mailto:ecomobility@iclei.org)  
[www.iclei.org](http://www.iclei.org) | @ICLEI @EcoMobility

### TUMI Initiative

Daniel Moser [daniel.moser@giz.de](mailto:daniel.moser@giz.de)  
[transformative-mobility.org](http://transformative-mobility.org) | @TUMInitiative

## ACKNOWLEDGEMENTS

**Author:** Tu My Tran

**Contributors:** Silva Rodríguez, Gabriela Canales Gallardo, Clara Diez de Sollano Enríquez, Paulina García Bucio

**Editor:** Dana Vigran

## ADDITIONAL READINGS

IMEPLAN documents retrieved from  
<http://imeplan.mx/en/home>

MIBICI information retrieved from  
<https://www.mibici.net/es/>

**Layout:** Matteo Franceschi

**Photos:** Gobierno del Estado de Jalisco

**Icons:** Gregor Cesnar and Google / Flaticon

The [Transformative Urban Mobility Initiative \(TUMI\)](http://transformative-mobility.org) enables leaders in developing countries and emerging economies to create sustainable urban mobility. It offers technical and financial support for innovative ideas. In TUMI the German Federal Ministry of Economic Cooperation and Development (BMZ) has brought together some of the world's leading institutions working on sustainable mobility with city networks and think tanks to implement projects on site where they are needed most. Partners include ADB, CAF, WRI, ITDP, UN-Habitat, SLoCaT, ITDP, ICLEI, GIZ, KfW and C40. [transformative-mobility.org](http://transformative-mobility.org)

The ICLEI Case Stories series ([iclei.org/en/publications.html](http://iclei.org/en/publications.html)) focuses on urban sustainability activities of cities, regions, and towns that are part of ICLEI projects across the world. Email: [urban.research@iclei.org](mailto:urban.research@iclei.org) © TUMI/ICLEI 2018-2019.