GETTING INTO GEAR

Institutional guidance for cycling infrastructure planning, implementation, & maintenance

A THOUGHT PIECE BY
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TOYOTA mobility FOUNDATION

The popularity of cycling has grown in cities worldwide over the last 20 years. Increasing cycling numbers in cities has the potential to reduce emissions from urban transportation while also improving overall mobility, accessibility, and health.

Research surrounding the promotion of cycling shows that implementing high-quality infrastructure can be one way to increase cyclist numbers and improve safety. Infrastructure is also the focus of many cycling advocacy efforts seeking to improve cycling conditions. Numerous cities have made strides to adopt this mode of transportation as a public policy and to implement cycling infrastructure for the first time.

Because urban cycling infrastructure takes place on public streets, local governments usually guide its implementation.

> ***However, the* FOCUS ON THE VISIBLE END GOAL *of physical infrastructure often obscures the* INSTITUTIONAL COMPLEXITY *within which local governments operate, including the institutions that enable and constrain their action.***

The concept of institutions broadly refers to both "formal" and "informal" institutions: laws, policies, rules, coordination mechanisms, norms, and best practices. Institutions are also manifest in formalized organizations (governmental agencies, non-governmental organizations) and the interactions between them. As cycling infrastructure planning and implementation emerges as a new activity, local governments usually have few institutions to guide their effort.

> ***While institutions are an invisible aspect of cycling infrastructure, their* DEVELOPMENT IS CRUCIAL *for its successful and sustained implementation.***
>
> ***Based on research in 10 mid-sized cities in Mexico where cycling infrastructure is a recent governmental activity, the following themes emerged as important factors for successful* INFRASTRUCTURE PLANNING, IMPLEMENTATION, *and* MAINTENANCE.**

This research studied the trajectories of cities with varying levels of institutional development and success with their cycling infrastructure programs. While this research is based in Mexico, many lessons were learned that can help other cities around the world that are interested in developing cycling infrastructure projects without any previous experience and where institutions to support this practice have not yet been developed.

Recommendations at-a-Glance

1 Incorporate high-level laws to support cycling infrastructure into state and municipal laws and regulations.

2 Institutionalize agencies with clear mandates and technical capabilities to support cycling.

3 Recognize cycling infrastructure design and planning as a specialized field that requires specialized knowledge.

4 Capacitate the agencies responsible for providing cycling infrastructure with the proper knowledge and skills.

5 Ensure all agencies work together to execute the implementation of cycling infrastructure.

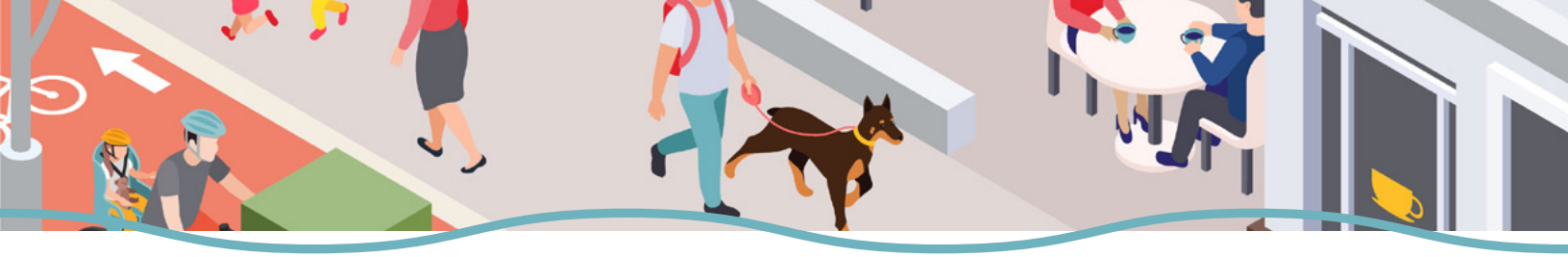
6 Grant specialized agencies responsible for designing and planning cycling infrastructure sufficient leverage to oversee its implementation.

7 Build rapport with the community to establish support for cycling infrastructure early on to ensure its long-term success.

8 Harmonize institutional frameworks across government agencies to support the implementation of cycling infrastructure.

9 Continue to coordinate across agencies to sustain and maintain cycling infrastructure.

10 Prioritize cyclist safety and accessibility in infrastructure planning to ensure lasting transformation of mobility practices.



1 Incorporate high-level laws to support cycling infrastructure into state and municipal laws and regulations.

High-level laws mandating that municipalities support cycling through infrastructure and other measures are often passed at the state or national level to signal a commitment to cycling mobility. However, the experience in Mexican cities suggests that these laws make very little difference on their own for making progress at the street level.

Laws should designate clear responsibilities and funding mechanisms. Then, for laws to be operable, their mandates must be incorporated into the organizational structures of states and municipalities where implementation will take place.

Without a clear path from the law to operative structures where the* AUTHORITY AND JURISDICTION MATCH POWERS*, high-level laws surrounding cycling infrastructure are* MERELY SYMBOLIC*.

2 Institutionalize agencies with clear mandates and technical capabilities to support cycling.

SPECIALIZED AGENCIES (for example, municipal mobility offices) responsible for* DESIGNING *and* IMPLEMENTING *projects are vital for sustaining cycling infrastructure planning and implementation.

Their level of integration with other transport-related agencies, internal capacity, and level of project oversight are also determinants for their ability to implement cycling infrastructure projects and ensure quality and continuity.

When these agencies bring in specialized and enthusiastic professionals, especially cyclists with a user perspective, they play a crucial role in creating relationships among government bodies required to plan, design, and implement cycling infrastructure.

3 Recognize cycling infrastructure design and planning as a specialized field that requires specialized knowledge.

Cycling infrastructure is not always understood as a specialized field within local governments, especially when this is an emerging governmental practice. Infrastructure design and implementation often fall in the hands of traffic engineers and public works managers whose primary experience is in designing roads. In many cases, infrastructure is designed and implemented by people who have no previous training or references on how to implement cycling infrastructure.

> *The* **PERCEIVED SIMPLICITY** *of cycling infrastructure also leads to* **IMPROVISATION** *that does not meet cyclists' needs.*

Infrastructure that is unsafe or otherwise dysfunctional is counterproductive for achieving cycling policy goals.

Poor cycling infrastructure design and implementation create unsafe conditions and fail to achieve policy goals. Cycling infrastructure in Querétaro. Photo by Unión de Asociaciones Ciclistas de Querétaro.

4 Capacitate the agencies responsible for providing cycling infrastructure with the proper knowledge and skills.

There are many international manuals and best practices to guide cycling infrastructure design. However, implementing agencies in municipalities where cycling infrastructure is a new practice do not always have the bandwidth or the capacity to study and implement international guidelines. To ease the process of integrating international standards, local design requirements that integrate international best practices can be developed and integrated into local codes to ensure that all cycling infrastructure projects meet appropriate safety and accessibility requirements.

> ***Local adaptations can also ensure that the standards are CULTURALLY APPROPRIATE and REALISTIC for their unique contexts.***

To ensure that infrastructure meets the established requirements, design norms should be legally binding and enforced for every project. To further institutionalize good design, managers at implementing agencies, like public works, should be trained on these established guidelines.

5 Ensure all agencies work together to execute the implementation of cycling infrastructure.

> ***Even when mobility offices have been established in the municipal structure, OTHER AGENCIES ARE NEEDED to implement infrastructure projects successfully.***

These agencies are involved in the process through actions like permitting, contracting, building, and regulating. Implementation, therefore, requires both an understanding of the organizational landscape tangential to the cycling mobility realm and the engagement and buy-in of multiple agencies. The local public works department is usually the most important one to engage because they are most often in charge of executing or overseeing all infrastructure projects built within the municipal jurisdiction.

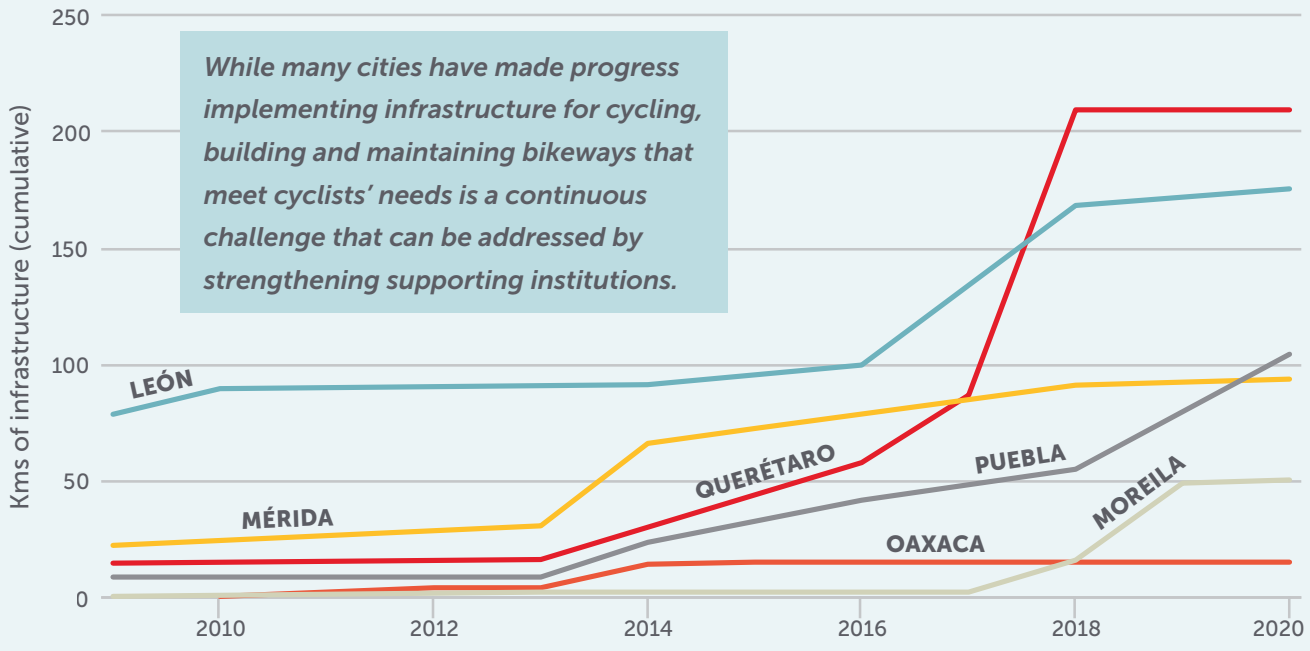
6 Grant specialized agencies responsible for designing and planning cycling infrastructure sufficient leverage to oversee its implementation.

Once mobility offices or their equivalent have been created within the municipal structure, they usually plan and design cycling projects. The projects are then given to public works, who typically build them directly or through external contracts. Without authority to oversee and sign off projects, the mobility office may not have the power to ensure that projects are built according to design.

Therefore, mobility offices need to be granted **OVERSIGHT POWERS** *where they have the* **LEVERAGE** *to make sure their projects are implemented as designed.*

For example, leverage can be granted through legally binding design codes they can enforce **(see point 4)** or by granting them control over the project budget.

Cycling infrastructure implementation in selected Mexican cities



This guide is based on research conducted in 10 Mexican cities where cycling policy is a recent activity for the local governments. The figure above illustrates the trajectories of some of the cities included in the research. The cities studied have varying degrees of success in implementing cycling infrastructure.

7 Build rapport with the community to establish support for cycling infrastructure early on to ensure its long-term success.

The establishment of support for cycling infrastructure projects requires consideration of the initial entry into communities to establish trust, anticipate concerns, and build relationships. Cycling infrastructure is often placed on valued street space. Placing infrastructure on city streets requires changing their everyday uses. The reorganization of streets to incorporate cycling often includes loss of parking spaces and lane reduction for motorized traffic. The socialization of these projects, where authorities engage with local stakeholders like neighbors and businesses to explain the project and allow people to voice concerns and cooperatively make adjustments, is also a crucial step.

SOCIALIZATION AT ALL STAGES *of the process can increase the chances of projects being* **ACCEPTED** *and* **MAINTAINED***.*

Community cycling activism in Oaxaca (left) and civil society engagement in León (top and bottom right). Oaxaca photo by Claudina de Gyves. León photos by Jessica Salman.

8 Harmonize institutional frameworks across government agencies to support the implementation of cycling infrastructure.

In establishing cycling infrastructure as a government practice, many different institutions will need to be reformed. In the process of changing laws, regulations, and organizations, rules and responsibilities can overlap and even contradict each other. Institutional ambiguity means that changes will not necessarily be enacted.

*Therefore, **HARMONIZING** legal frameworks and mandates, policies, rules, and regulations is a **CHALLENGE** and a **REQUIREMENT** for successfully institutionalizing the practice of building infrastructure for cycling mobility.*

9 Continue to coordinate across agencies to sustain and maintain cycling infrastructure.

The need for coordination among the many actors planning and implementing infrastructure goes beyond the building phase. Coordination mechanisms are needed, for example, to sustain and maintain the infrastructure that has already been built.

*When cities are in the early stages of infrastructure development, many infrastructure projects are budgeted, planned, and conceived **WITHOUT CONSIDERING** the continued need to **MAINTAIN** existing infrastructure and without establishing clear responsibilities for its **CONTINUITY**.*

When this coordination is lacking, there is a risk of losing hard-won spaces for cycling, for example due to wear and tear or through road maintenance projects where cycling infrastructure is removed without replacement. Maintaining cycling lanes is also important for their day-to-day use. This includes fixing potholes, removing rubble, and keeping them unobstructed from cars, stands, and other blockages. Therefore, clear responsibilities for continuity, operation, and maintenance should be decided and assigned in the early stages.

10 Prioritize cyclist safety and accessibility in infrastructure planning to ensure lasting transformation of mobility practices.

For cycling to become a **VIABLE** *and* **SAFE** *mobility option, the built infrastructure must center cyclists'* **SAFETY** *and* **ACCESSIBILITY** *needs.*

In cases where cyclists' safety and accessibility are not at the center of infrastructure planning, design, and implementation, cycling infrastructure can reinforce automobility and is not necessarily shifting the mobility paradigm in a city. Even cities that build large volumes of infrastructure can be counterproductive by implementing dangerous and dysfunctional projects that perpetuate cyclists' marginal status.

These are examples of dysfunctional project design that ignores cyclists' needs and safety. Cycling infrastructure in León (top left and above) and Querétaro (bottom left). León photos by Ciclismo Clásico León. Querétaro photo by Unión de Asociaciones Ciclistas de Querétaro.

Conclusion

Cycling infrastructure can seem more straightforward than other forms of mobility infrastructure because of its relatively low cost and apparent simplicity. However, designing and implementing infrastructure that meets policy goals requires specialized knowledge and capacity.

> ***When cycling infrastructure development is a new practice for local governments, EFFORT, TIME, and RESOURCES are needed to mature this as a governmental activity by CREATING SUPPORTING INSTITUTIONS.***

Institutional development and organizational capacity are crucial to sustaining infrastructure implementation and ensuring its quality. The presence of organizations with clear mandates and technical capabilities and their ability to coordinate and create standards and procedures that become institutionalized are determinant factors for the successful implementation of cycling infrastructure.

About the Author

Rebeca de Buen Kalman is a researcher broadly focused on environmental policy. Her recent work focuses on non-motorized mobility, exploring questions surrounding civil society-led advocacy, policy adoption, institutionalization, implementation, and effectiveness. She is currently a postdoctoral researcher at the Evans School of Public Policy and Governance and a Fellow for Ocean Nexus at EarthLab, based at the University of Washington. Rebeca has a PhD in Public Policy and Management from the University of Washington, an MSc in Water Science, Policy, and Management from Oxford University, and BSc from the Universidad Nacional Autónoma de México.

Read the full report at
toyotamobilityfoundation.org/cyclingpolicydissertation.

About the Toyota Mobility Foundation

The ***TOYOTA MOBILITY FOUNDATION (TMF)*** *was established in August 2014 by the Toyota Motor Corporation (TMC) to support the development of a more mobile society in which* ***EVERYONE*** *can move* ***FREELY****.*

TOYOTA mobility FOUNDATION

The Foundation underscores TMC's ongoing commitment to continuous improvement and respect for people. It utilizes Toyota's expertise and technologies to support strong mobility systems while eliminating disparities in mobility. TMF works in partnership with universities, governments, non-profits, research institutions, and other organizations, creating programs that are aligned with the UN Sustainable Development Goals (SDGs) to address mobility issues around the world. Learn more at **toyotamobilityfoundation.org**.