

The Safe System Approach in Action

Vision Zero for Youth in
Mexico City

Case study

This case study is part of a package of materials accompanying the final report of a joint International Transport Forum–World Bank Working Group, entitled *The Safe System Approach in Action*.

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Introduction

This case study was prepared by a joint International Transport Forum–World Bank Working Group convened in 2020–2021. The case study forms part of a package of materials accompanying the Working Group’s final report, *The Safe System Approach in Action* (ITF, 2022a).

The Safe System approach to road safety takes as its starting point the ethical position that there is no acceptable level of road deaths and serious injuries. The report proposes a framework for designing, implementing and assessing projects with a Safe System focus. It draws on lessons from real-world case studies to offer guidance on implementing Safe System interventions.

The Working Group analysed 17 case studies in total, paying special attention to their Safe System content. While not every case study was a perfect example of the Safe System approach, all contained valuable lessons. In addition, several common themes emerged. A separate ITF Working Paper (2022b) sets out the thematic analysis.

This case study contains four parts. First, it provides context for the specific intervention and the road-safety problems it aimed to solve. Second, it outlines the interventions implemented to solve these problems and the results. The analysis is structured according to the five key components of the Safe System framework outlined in the main report (ITF, 2022a), namely:

1. **Establish robust institutional governance.** Permanent institutions are required to organise government intervention covering research, funding, legislation, regulation and licencing and to maintain a focus on delivering improved road safety as a matter of national priority.
2. **Share responsibility.** Those who design, build, manage and use roads and vehicles and provide post-crash care have a shared responsibility to prevent crashes resulting in serious injury or death.
3. **Strengthen all pillars.** When all road-safety pillars are stronger, their effects are multiplied; if one part of the system fails, road users are still protected.
4. **Prevent exposure to large forces.** The human body has a limited physical ability to tolerate crash forces before harm occurs; the system should prevent those limits from being exceeded.
5. **Support safe road-user behaviour.** While road-user errors can lead to serious harm, the Safe System focuses on roads and vehicles designed for safe interaction with road users. It supports humans not to make mistakes and tune their tasks as much as possible to their competencies.

Third, the case study identifies lessons from the project, again structured according to the five key components of the Safe System framework. Fourth, it offers conclusions.

Access the full set of case studies on the ITF website: <https://www.itf-oecd.org/safe-system-in-action>.

Context

The vast majority of child road deaths occur during the walk to or from school. In 2017–18, the Institute for Transportation and Development Policy piloted Vision Zero for Youth at a public middle school in the borough of Cuauhtémoc in Mexico City. The project engaged with parents, teachers, students and local authorities to build support for road-safety actions.

Road-safety themes: Speed management, Infrastructure interventions, Pedestrian and child safety, Partners, Local-government interventions

Road crashes are among the 10 leading causes of death in Mexico, with children and young adults the most vulnerable. In 2015, Mexico City became the first city in an emerging country to adopt Vision Zero and achieved initial success in reducing deaths (18% reduction of road traffic deaths, 24% fewer pedestrian deaths and 77% fewer cyclists). However, it lost that momentum after the first two years.

In Mexico City, 57% of children aged between 9 and 19 walk to school. After those aged 20 to 29 years old, this age cohort suffer the most injuries in road crashes. Almost 50% of children who die in crashes are pedestrians. In Mexico City, 85% of the children killed in road crashes are walking to or from school. The Institute for Transportation and Development Policy (ITDP) therefore focused on school journeys as a way to reinvigorate the city's Vision Zero agenda.

During the 2017-2018 school year, the ITDP, with support from the FIA Foundation and in collaboration with the city government and local communities, piloted Vision Zero for Youth (VZY) at a public middle school in the central borough of Cuauhtémoc (Secundaria No. 4 Moisés Sáenz) in Mexico City. The project replicated lessons from a VZY project in the United States led by the National Center for Safe Routes to School (NCSRS) and the FIA Foundation. It applies the concepts of Vision Zero to the school zone, promoting road safety, involving key players from school communities (parents, teachers, students and local authorities), to build grass-roots support for road safety actions (ITDP, 2018).

Funding

The project was funded by the FIA Foundation.

Actors and leadership

VZY was piloted by the ITDP, with support from the FIA Foundation and in collaboration with the city government and local communities. The project involved several stakeholders including members of the school community (faculty, students and parents), local authorities (Mexico City's Urban Management Agency), allied NGOs (CAMINA) and the private sector (AXA Insurance).

Interventions and results

Establish robust institutional governance

Mexico City has steadily improved its institutional governance to strengthen road safety management by introducing a new Mobility Law (which clearly delineates the powers and responsibilities of different government agencies); adopting a Vision Zero policy; publishing new traffic regulations, and implementing a Comprehensive Road Safety Programme (2016-2018) that led to a paradigm shift in road safety aiming to build a Safe System that protects all road users, but especially the most vulnerable. The city has also published several instruments to outline the design features that streets should have, while the updated 2015 traffic regulations have increased penalties for speed limit violations, including a six-point penalty on the driver's licence for violating the 20 km/hr speed limit in school zones.

These activities set the context for the VZY project, which can be broken down into seven steps:

1. **Planning** – Analyse national and international best practices on safe routes to school and set a roadmap for the project.
2. **School zone selection** – identify priority intervention school zones. Consider road risk-related and other important criteria such as community size, socio-demographic indicators, proximity to primary roads or dangerous crossings but also the commitment of the school community to be actively involved.
3. **Road risk assessment in the school zone** – identify road infrastructure to be improved, define a baseline for intervention, involve the community and raise understanding of road risks.
4. **Intervention in the school zone** – Lead a temporary intervention on road infrastructure, using a co-design methodology that promotes community participation as a steppingstone to permanent interventions in the area, accompanied by actions to strengthen law enforcement.
5. **Evaluation of the intervention** – Consult with the school community and carry out a road risk assessment to identify the impact of the intervention on the safety of the school zone.
6. **Pilot expansion** – Use findings and lessons learned from steps 2-5 to expand the pilot application (in Mexico City to a total of five schools). Work with authorities and school communities and other partners.
7. **Replicability** – Analyse the experience from steps 1-6 to develop tools and recommendations to guide a city-wide policy for safe routes to school.

ITDP engaged the school community early on in the process to promote active participation and foster the future appropriation and sustainability of the project. ITDP held information sessions on road safety with parents and worked with teachers to integrate road safety principles into lessons for the students.

With ITDP's guidance and select teachers, the students created a one-day street redesign in the school zone focused on dangerous intersections and collision risk areas. The students created posters and signs with key messages about road safety, as well as traffic barriers with crates and buckets to simulate a safer street crossing.

With the help of volunteers from AXA Insurance and the involvement of the city's Management Agency, ITDP successfully advocated for the permanent implementation of the temporary changes: widening sidewalks, reducing pedestrian crossing length, installing speed humps and adding bollards.

Share responsibility

ITDP leveraged its relationship with the school community and several government institutions to create a micro-Safe System within a localised area (the school zone). Stakeholder involvement was key to the success of the pilot, with the project including members of the school community (faculty, students and parents), local authorities (Mexico City's Urban Management Agency), allied NGOs (CAMINA) and the private sector (AXA Insurance). ITDP focused on promoting collaboration between these local advocates, raising awareness and mobilising strategic actors and providing engagement opportunities through workshops, events and capacity building. This helped ensure political will was built through bottom-up as well as top-down advocacy approaches.

The pilot has set the stage for further replication with schools across the city which will also include traffic conflict analysis to better evaluate current challenges and track progress over time. ITDP piloted a traffic conflict analysis method from the CDC "Traffic Conflict Technique Toolkit" (Swanson et al., 2020).

Strengthen all parts

This key component has been covered under the previous two components but the barriers to a stronger road-safety system and the ways to overcome them are discussed in the 'Lessons' section.

Prevent exposure to large forces

New standards for the physical elements of roads and infrastructure have been developed in Mexico, and these instruments informed the school zone redesign intervention. Human vulnerability, especially of pedestrians and cyclists, played a key role in the redesign of the streets surrounding the school. The interventions designed by the students focused on altering street geometries and installing safe infrastructure to reduce crossing distances and drivers' turning speeds, improve vulnerable road users' visibility and increase pedestrian space.

The road re-design proposed as part of the intervention focused on implementing traffic calming interventions. ITDP carried out road safety inspections before and after the intervention to assess road risk, using a road safety inspection guide to help local authorities identify possible low-cost, high-impact implementation measures to increase road safety.

The road re-design sought to enforce the 20 km/h speed limit around the school zone by decreasing the crossing distance through corner extensions and a smaller corner radius to reduce drivers' turning speeds. It also involved reducing the number of parking spaces near the crossing to improve visibility and installing bollards to increase pedestrian space and protection.

An important aspect of the VZY project was building capacity in the local school community. The workshops with the school faculty, students and parents on road safety and tactical urbanism taught them how particular interventions can lead to behaviour change. This process transformed the implementation from raising awareness of the issue, to empowering the community, building local capacity and preparing them

to take constructive and effective action. This translated concretely into students and their parents identifying dangerous areas on their daily commuting paths. Students also acquired knowledge at specialised workshops on architectural design, graphic design and arts and crafts in preparation for the tactical urbanism intervention. This had the added advantage of not only empowering them to create streets where they can move safely, but also giving them a taste of career options in urban design, road safety, public health and related fields.

Lessons

The top-level takeaways from the project include the fact that VZY can help raise public awareness of the importance of road safety and build community support for stronger road safety actions. VZY also helps create on-the-ground advocates for a road safety agenda. And an incremental approach to road safety can push progress forward.

VZY also has the potential to encourage the implementation of stronger road safety interventions around the city, one school zone at a time, by:

- Prioritising road designs that protect children and decrease speeds in school zones;
- Making data free, transparent and accessible to citizens, to keep the city authorities accountable;
- Improving enforcement in school zones; and
- Educating and increasing awareness of and support for VZY.

Establish robust institutional governance

A first challenge was to generate interest and trust among the school community and to establish effective working relationships. Therefore, ITDP carried out a presentation and Q&A session where parents could get more information about the project and the activities that would be carried out.

Constant citizen and civil society participation are key to maintaining interest in the project; broader developments in the global, national and regional context relating to public policy priorities are also key success factors, ensuring continued political commitment, which is crucial to achieving these policy changes.

Funding, political will and societal support were vital for the design and adoption of Mexico City's new institutional governance structures. Technical expertise, funding and political commitment have been key in the development of these instruments. There is still a long road ahead, as the vision embodied in these instruments is assimilated and incorporated into different aspects of city planning.

Ensuring continuity, especially after a change of administration, continues to be a challenge for long-term change and improvement in road safety policies. Implementing a Safe System focused on the most vulnerable road users has proved to be a strategy resilient to administration changes. The Walk and Bike

to School Days that ITDP helped organise brought together school authorities, the Mayor of Mexico City, and other government authorities.

Mexico City's Comprehensive Road Safety Programme presented an integrated strategy that called on co-ordinated interventions, presenting a paradigm shift towards a systemic approach to road safety. However, a higher degree of integration, in terms of actors and skills, is still needed.

Share responsibility

Engaging directly with the school community helped empower on-the-ground advocates. Particularly important in this process was the identification and recruitment of key “champions”.

Following the tactical urbanism intervention, the school director would re-install every morning the temporary traffic barriers prepared by the students until the Urban Management Agency for Mexico City installed permanent retractable bollards. The temporary interventions became permanent this way, extending pedestrian space between the sidewalk and the crosswalk, and thereby providing better protection for the school community.

The school became a champion for promoting road safety in other school zones across the city. Their leadership in International Walk to School Day events and requesting changes from their political leaders has set a strong example.

Road safety responsibilities are distributed among various ministries and institutions, which has led to co-ordination problems in the design and implementation of road safety policies. The recently published Comprehensive Road Safety Programme for 2021–2024 seeks to promote effective inter-institutional coordination mechanisms by building institutional capacity and strengthening the role of the Ministry of Mobility as the co-ordinating body overseeing the implementation and monitoring of road safety policies.

Strengthen all parts

Several public institutions collect information on different elements of a road crash, but at the time of the project, few of these databases were open to the public, complicating analysis of the road situation during planning. Co-ordination was lacking among public sector agencies in terms of their use of data. Despite improvements, several gaps remain that inhibit road safety action, including fragmented information collection and registration, lack of inter-institutional coordination for the analysis of information, and insufficient information-based evaluation and accountability.

To address these challenges, the Strategy of Open Road Safety Data was created, with the goal to improve the quality and reliability of the data. International success stories and recommendations were analysed, and in co-operation with various agencies, academic, private and civil society institutions in charge of data generation, processing and analysis, a public policy proposal was produced.

Changes of administration present a barrier to maintaining continuity in government projects and programmes. For this reason, and to better position VZY in the public sphere, ITDP co-led the #YoMeNuevo [#MyMobility] campaign. This campaign asked mayoral candidates running in the 2018 election to publicly commit to protecting the health and safety of road users across Mexico City, especially children. It set a precedent for the continued improvement of school zones, along with other policy commitments to support active mobility and transport-oriented development. ITDP is working with the new administration to ensure the continuity of Vision Zero and VZY approaches to road safety.

Prevent exposure to large forces

Although the involvement of the public authorities is needed for the implementation of temporary and permanent improvements in school zones, this activity can be triggered by small-scale actions led by an activist school community.

A key success factor in this pilot project was having an engaged and committed school community. In particular, it was essential to develop strong working relationships with community “champions” such as the school director to gain early buy-in for the project, and for lobbying local authorities to make the interventions permanent.

Funding for safe streets for pedestrians exists but governments often have other priorities for allocating them. However, the capacities, evidence and political will derived from pilot projects can foster the reallocation of public spending, from car-oriented projects to road safety and pedestrian infrastructure.

Speed enforcement can be improved but a lesson from the project was that improving enforcement in school zones can create public acceptance for broader city interventions.

Safety belts and child restraint systems in cars are compulsory and there is growing appreciation for the importance of using safety equipment such as helmets. However, enforcement may be inconsistent due to limited police capacity and outdated norms. More work is needed to build a safe mobility culture and improve safety device usage in the population.

Conclusions

The project succeeded through the collaboration of ITDP, the FIA Foundation, the city government and local communities, and members of the school community, local NGOs and the private sector. The VZY programme reflects the importance of managing speeds down to reduce crash forces and thus crash severity, as well as risk of occurrence. Speeds were managed through speed zones, widening sidewalks, installing speed humps and increasing turn radii.

Other important features included the achievement of continuity for the programme through an election and change of administration by pushing for a commitment to the programme from all candidates, and planning for expansion beyond the initial pilot projects.

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This case study details the Vision Zero for Youth project in Mexico City, which engaged with parents, teachers, students and local authorities to build support for road-safety actions in and around schools.

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The report also draws on lessons from real-world case studies to offer guidance on implementing Safe System interventions. While not every case study was a perfect example of the Safe System approach, all contain valuable lessons for policy makers and road-safety actors.