

The Safe System Approach in Action

The Speed-Management Programme in Bogotá, Colombia

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 roadsafety 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: <u>https://www.itf-oecd.org/safe-system-in-action</u>.

Context

In 2017 the capital of Colombia, Bogotá, officially adopted Vision Zero, underpinned by Safe System principles. As part of a new road-safety plan, the city implemented 50 km/h speed limits for arterial roads and 30 km/h zones near schools. The plan also involved developing safe designs for vulnerable road users around commercial areas, and in all levels of interventions this includes road reconfigurations to manage safe speeds and provide shelter for pedestrians and cyclists.

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

Bogotá has recognised the need for a different and innovative approach to the treatment and understanding of road crash deaths and injuries in order to reduce the rate of deaths. In 2016, the followup to the implementation of the City's Road Safety Plan showed the need to adjust its structure and define new guidelines, through the reformulation of effective initiatives and actions that would respond to the call of the World Health Organization (WHO) and other international organisations about the gravity of road crashes in public health.

In 2017, Bogotá adopted Vision Zero which includes the Safe System approach. The city's innovative Road Safety Plan, officially adopted by decree, takes a holistic approach across five areas: (a) infrastructure, (b) enforcement, (c) governance and management, (d) victims, and (e) road actors, communication and culture.

Under this policy, and with the participation of the community, public officials from district and national entities, and international as well as local experts, an ambitious guideline was designed to drastically reduce deaths on the roads through preventive actions that involve better urban design, police enforcement and education. The new Road Safety Plan (RSP) for 2017-2026 is a roadmap that guides the city's initiatives to reduce the number of deaths and serious injuries due to road crashes, through a series of programmes and actions.

The Speed Management Programme (Programa de Gestión de la Velocidad, PGV) aims to manage safe speeds in corridors and redefine limits in different areas of the city. This initiative engages entities and society through the provision of new knowledge around speed as a risk factor. It also sets safe speed limits, and prioritises interventions to manage speed through safer infrastructure, education, enforcement, and effective communication strategies, in order to protect citizens' lives.

Bogotá has implemented several interventions through the PGV. The main actions are:

- Establishing a maximum speed limit of 50 km/h for arterial roads first, in 10 main corridors (2018-2019) and, from May 2020, in most of the main roads for the rest of the city. This is supported by enforcement actions in co-ordination with the City Police, a communication strategy and infrastructure interventions. The speed limit of 50 km/h for arterial roads in the city has been maintained.
- Safe designs for vulnerable road users, including placemaking and road reconfigurations to manage safe speeds and provide protection for pedestrians and cyclists, as well as the inclusion of road safety criteria in future projects.
- Treatment of school zones, with speed reduction interventions on roads adjacent to schools including vertical and horizontal priority signs (maximum speeds of 30 km/h).

Actors and leadership

The main stakeholders in the PGV include the interdisciplinary team in the Road Safety Office in Bogotá's Secretary of Mobility, including the support of professionals and technical staff in this entity with diverse areas of expertise; the Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS), which has provided technical assistance since the formulation of the PGV, to design the strategy for the local context, taking into account international experiences; and international and national experts, whose role has been to strengthen the skills of the local technical team, and deliver workshops and presentations on the Safe System approach.

Interventions and results

Establish robust institutional governance

Speed management in urban areas usually involves adjusting speed limits, and can therefore be a controversial measure from different perspectives. Ther successful implementation of this initiative in Bogotá had as its starting point the leadership and willingness of the highest political level (i.e. the Mayor). In addition, the commitment of the mobility sector was crucial in implementing the actions needed around infrastructure, enforcement and communication. The effective development of these actions involved institutional articulation to other sectors in the local administration.

To succeed in the process an incremental approach was adopted to pilot the speed reduction, disseminate its results, and justify the expansion of the programme. An enforcement agency (the police), working with the community, local media, national and international experts, was part of a mission to raise awareness and show that road crashes are a public health problem.

Prevent exposure to large forces

Speed limits around main corridors

The city has reported a consistent reduction in the number of road deaths since 2017. The reduction of the speed limit to 50 km/h in the first 10 corridors led to 46 fewer deaths in 2019, a reduction of 21% compared to the average for 2015-18. Most of these 46 lives saved (39) were vulnerable road users: 11 motorcyclists, 23 pedestrians and 5 cyclists. With the expansion of 50km/h in most of the main roads, in 2021 there was also a reduction of 11% in fatalities compared with the average for 2015–17 (i.e. prior to the implementation of the PGV). This represents 37 lives saved; according to data analysis, 100% of those lives are pedestris, the most vulnerable road users in Bogotá.

While the imposition of speed limits has resulted in most actors reducing their speeds, approximately 20% of vehicles continue to defy the regulation.

Speed limits around school areas

The interventions in school zones include vertical and horizontal priority signs (30km/h maximum) on adjacent roads, studs, bumps, demarcation, and extension of curves, among others, as long as they are endorsed by what is stated in the signaling manual and respond to international regulations.

Traffic calming around the city

In general, the principles of the PGV include the Safe Streets intervention in all type of roads in Bogotá, which aims to improve the characteristics of the road by reducing the area of vehicle transit, designing traffic calming measures and introducing passive safety elements.

limplementations are also needed around commercial zones where the speed limit should not exceed 40km/h. In these locations, many activities take place on the side of the road. In particular, commercial activities attract a high volume of pedestrians, who require conditions of accessibility, safety, and comfort, according to their desire lines. Some of the elements according to the type of zone are:

- Vertical and horizontal priority signs (30km/h or 40 km/h maximum);
- Street narrowing;
- Speed bumps;
- Chicanes;
- Pinch point one by one (two-way roads);
- Curb extensions;
- Priority demarcation for vulnerable users

Depending on the characteristics of the area, vehicular speed is reduced through traffic calming measures, that force vehicles to reduce speeds. In some cases, that meet technical criteria, exclusive pedestrian zones with restricted vehicular access can be generated. Some of the projects that the city looks to implement considering speed management and safer designs for vulnerable road users are depicted in Figures 1–4.



Figure 1. Plazoleta Galerías

Source: SDM, February 2022

Figure 2. Public space intervention (before and after): Suba



Source: SDM, March 2022

Figure 3. Kra 7ma



Source: SDM, 2020.





Source: SDM, November 2021.

Lessons

Establish robust institutional governance

The PGV highlights the importance of the political will and commitment, in this case on the part of the Mayor of Bogotá. In addition, speed regulation was implemented gradually, which made it possible to demonstrate with data its direct effect on saving lives.

The data analysis process was improved by upgrading the technological tools, which facilitated and accelerated the monitoring of road users and contributed to the construction of strategies aiming to implement behavioural changes.

Data management is also a key issue for the identification of priorities in order to implement assertive plans of action using the Safe System. Data is also essential for the communication and enforcement strategies that are built jointly with the stakeholders that support the initiatives of the SMP.

The support of leading international road safety organisations in terms of validating and enable the adoption of best practices was very important. Experience has also shown the importance of documenting all efforts and producing guides and manuals that will ensure the continuity of the initiatives, and the opportunity to share successful experiences with other cities that seek to mitigate road crashes.

Share responsibility

The PGV illustrates several lessons relating to the key component of sharing responsibility.

First, it is essential to raise awareness among the population on the magnitude of the road crash burden. Resistance of people's habits to change is real and must be tackled, especially with speed regulation. This implies responsibilities for those who design streets with safer speed limits. It is also essential to consider the mobility needs of citizens, which implies a commitment by road actors to comply with adequate road behaviour to mitigate fatalities caused by road crashes.

Journalists, media campaigns and local media also play a role in supporting the process of change. Communication is an essential element in offering a friendlier Vision Zero message to the community, and to ensure that it is understood that anyone could be involved in a road crash.

The district has aligned its programmes so that its entities prioritise working together for the proposed objectives in each area. Thus, mobility is a challenge that is worked on daily by the affiliated organisations that manage and operate public transport and road infrastructure; and by those that complement the projects with environment, safety, and inclusion components, among others.

The private sector cannot be left aside. Companies are allies in managing road safety, making tools available to collaborators and citizens in general to train, recognise and promote safe driving practices.

Finally, it is also important to mention the need for the regulation to be modified as the city changes, as the road behaviour of citizens adapts to new modes of transport, as new zone speed limits are established, and as better ways to save lives are constructed. Strengthen all parts

It is essential to address the issue transversely, involving different stakeholders, institutions and approaches, in order to ensure their co-operation.

Conclusions

This programme was made possible by a broad collaboration between the city of Bogotá, Bloomberg Philanthropies, local and international experts as advocates, the media, capacity building at the local level, and the use of evidence for the success of the first stages of the programme in saving lives.

The results show the importance of managing speeds in order to reduce both road crashes and serious casualties. The PGV also focuses on improving road safety through traffic-calming interventions that allow better interaction between all road actors. The evaluation of results from the early interventions was vital in demonstrating success and achieving city-wide speed limit reductions.

References

ITF (2022a), *The Safe System Approach in Action*, Research Report, OECD Publishing, Paris, <u>https://www.itf-oecd.org/safe-system-in-action</u>.

ITF (2022b), "Safe System Implementation in Practice", ITF Working Paper, available on request.

The Safe System Approach in Action

The Speed Management Programme in Bogotá, Colombia

This case study concerns the Speed Management Programme in Bogotá, Colombia, which aims to manage safe speeds in corridors and redefine limits in different areas of the city.

The 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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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.