Case Study 6:

TELANGANA

Hyderabad Bijapur Corridor (SH-04)

The 118 km stretch on the Hyderabad-Bijapur Corridor witnessed a crash severity of 58.7 in 2014 which was higher than the national average i.e. 28.5 for the same year. Interventions across the 4E's were implemented on the stretch, which resulted in a 38.1% reduction in deaths from 2014-18. The project was implemented by the Roads and Buildings Department, Telangana.

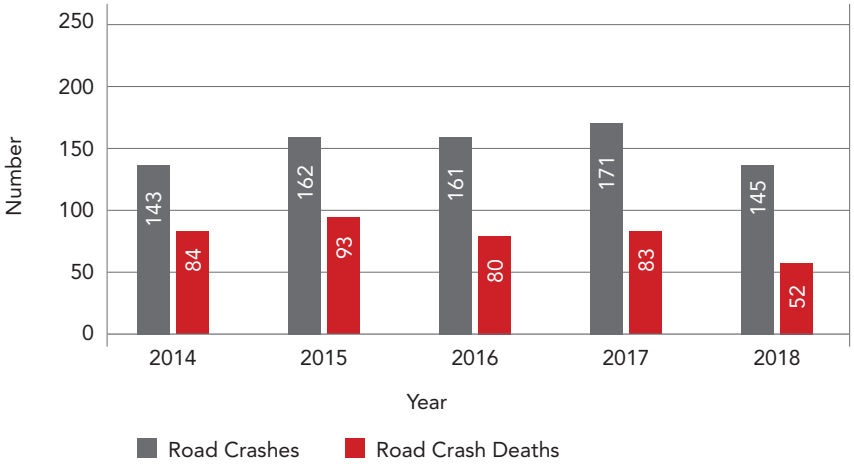
1 KEY DATES: THE PROJECT WAS APPROVED ON 22ND JANUARY 2010 (ROADS AND BUILDINGS DEPARTMENT 2011). THE PROJECT COMMENCED ON 30TH JUNE 2015 (WORLD BANK ICR 2019). THE PROJECT ENDED ON 31ST MARCH 2019, HOWEVER, IMPACT NUMBERS ARE AVAILABLE ONLY TILL 31ST DECEMBER 2018 (WORLD BANK ICR 2019)

2 AREA COVERED: 118 KM STRETCH ON THE HYDERABAD-BIJAPUR CORRIDOR

3 IMPACT: REDUCTION IN ROAD CRASH DEATHS: 38.1% BETWEEN 2014 AND 2018

4 SCOPE OF REPLICATION: THE INTERVENTIONS UNDER THIS PROJECT WILL BE BENEFICIAL ON CORRIDORS WHERE THE CRASH SEVERITY IS HIGH

Road Crash and Road Crash Deaths: Hyderabad- Bijapur Corridor



Graph 6.1: Road crashes and deaths on the Hyderabad- Bijapur corridor vs Year (2014-2018)
(Source: Roads and Buildings Department, Telangana)

1. Documents Reviewed:
a. Questionnaire answered by Mr. P. Ravinder Rao, the Engineer-in-Chief (R&B), State Roads
b. World Bank ICR 2019
c. Roads and Buildings Department's Note on Telangana Road Sector Project, 2019.
d. Roads and Buildings Department's Government Order "A-GO 28 DT- 18.2.2011", 2011.

2. For this case study, the exchange rate effective is $1=Rs. 69.55 as on March 31, 2019, as mentioned in the World Bank ICR Report 2019.

6.1 ABOUT THE PROJECT

By delivering higher-quality and safer roads to all users, the Roads and Buildings Department (R&B) hoped to sustainably improve the State road network (Roads and Buildings Department 2022). The Roads and Buildings Department of the Government of Telangana, in collaboration with the World Bank Group, constructed a Road Safety Demonstration Corridor to make Telangana's roads safer.

To test and implement a new road safety program that included contributions from several industries, the government chose one corridor. The program's chosen section was the Hyderabad-Bijapur corridor (State Highway-4) (Roads and Buildings Department 2022). The 118-kilometer-long Hyderabad-Bijapur Corridor runs through the districts of Rangareddy and Vikarabad. It extends from the APPA Junction (kilometer 14/0), where it intersects the Outer Ring Road to kilometer 132/269, i.e. up to the Karnataka border. The route travels through several mandals, villages, and electoral districts, including Moinabad, Chevella, Manneguda, and Parigi (World Bank ICR 2019).

6.2 BACKGROUND

Based on the data received by the Telangana Roads and Buildings department, in 2014, before the Hyderabad-Bijapur Corridor was adopted as a Road Safety Demonstration Corridor, the stretch witnessed 143 crashes and 84 deaths. This indicated that there was a requirement for urgent intervention to augment road safety on the stretch. In an attempt to adopt a convergent approach by stakeholder departments as opposed to a divergent approach towards road safety, the establishment of the Road Safety Demonstration Corridor project was the need of the hour (Roads and Buildings Department 2022).

Decision-Making Tools:
FIR Data

Enabler:
The Government Order G.O. Ms. No. 28, Dated 18th February, 2011 Roads and Buildings Department

Validation Mechanism:
Impact assessment was done using data collected from Police Stations along the corridor (Roads and Buildings Department 2022)

6.3 INTERVENTIONS

In order to obtain more details on the implementation of the good practices across the 4 E's of road safety (i.e. Engineering, Enforcement, Education, and Emergency Care), a questionnaire was sent to the Roads & Buildings Department, Government of Telangana. The response was shared by Mr. P. Ravinder Rao, the Engineer-in-Chief (R&B), State Roads.

6.3.1 Engineering

The engineering interventions implemented by the R&B Department included:

1. Output and Performance-based Road Contracts of a duration of five years each were implemented for the corridor. The contract terms were such that the maintenance of the roads was reported to be very good (World Bank ICR 2019).
2. Widening of curves: 20 curves were improved and 1 curve was widened on the corridor.
3. Three intersections along the corridor were improved.
4. To improve the intersections and curves of the project stretch, measures such as widening of the road, tree translocation, and road furniture upgradation were taken up by the R&B Department.
    a. 126 trees were translocated.
    b. Road furniture was upgraded.
    c. Street lighting was installed at intersections (Roads and Buildings Department 2022).
5. Mobile barriers and fluorescent cones were also installed (World Bank ICR 2019).

A separate pre- and post-implementation assessment of the impact of the engineering interventions alone on road crash indicators revealed that even though the number of crashes initially increased, the deaths reduced:

Table 6.1: Crash Severity And Deaths Per Kilometer Before and After Civil Works on the Corridor		
Indicator	Before Completion of Civil Works	After Completion of Civil Works
Severity (Average)	58	45
deaths per km (Average)	0.74	0.6

(Source: Roads and Buildings Department 2022)

6.3.2 Enforcement Measures

The enforcement interventions were implemented by the Police Department. These included:

1. Highway outposts at Manneguda and Kodangal to help in better management of road traffic.
2. Patrolling and interceptor vehicles for the project, which were equipped with:
    a. Laser speed guns
    b. Fluorescent cones
    c. Body-worn cameras
    d. Video still camera (Digital)
    e. Fluorescent-painted jackets and helmets for the personnel's safety
    f. Mobile barriers
3. Breathalyzers with printers to ensure a check on cases of drink-driving (World Bank ICR 2019).
4. Overloading was identified as one of the leading causes of road crashes, involving trucks(Roads and Buildings Department 2019). To check the overloading violations, 2 electronic weighbridges were installed on the corridor (Roads and Buildings Department 2022).

6.3.3 Education/Engagement

1. Awareness programs were conducted at schools, and school children have shown a reported improvement in behavior with respect to following road safety precautions while using the roads. This led to a reduction in crash occurrences in school zones (Roads and Buildings Department 2019).
2. The "No Helmet-No Petrol" campaign in Alidabad, Telangana was launched on 2nd June, 2016. Each Mandal in the district was allocated to two Assistant Motor Vehicles Inspectors, who were responsible for the implementation of the campaign under Motor Vehicles Inspector's supervision. The campaign results were inconclusive as the data analyzed was limited, in that it did not provide data specific to the second half of 2016, i.e. post the launch of the campaign.

6.3.4 Emergency Medical Care

1. A fully equipped Level-III Trauma Care Center was established at Tandur. Further, the existing ground floor building of the Women and Children's Hospital Block of District Hospital, Tandur was converted to accommodate a Trauma Care Center. Construction works of the Trauma Care Center (TCC) were completed under the project. Further, 35 medical equipment were procured and delivered to TCC (Roads and Buildings Department 2019).
2. An ambulance was also procured under the project (World Bank ICR 2019). Further, the operation of ambulances and connectivity to the nearest Trauma care center were strengthened (Roads and Buildings Department 2022).

Figure 6.1: Departments involved in the project (Source: Questionnaire reply of the Engineer-in-chief, R&B Department)

6.4 TEAM STRUCTURE AND STAKEHOLDERS

For this project, the R&B Department, Police Department, Transport Department, and Health Department of Telangana worked in collaboration to implement various project elements.

An Empowered Committee (EC), headed by the Principal Secretary, Transport Department and consisting of officials from the Transport Department, Police, Medical and Health and R&B department was responsible for the permissions and reviewing the project progress (Roads and Buildings Department 2022).

6.5 PROJECT FUNDING

The project has been jointly funded by the State Government and World Bank. The total amount of implementation was INR 297.9 million (USD 4.3 million). This total funding included measures deployed under the four main road safety pillars viz. road engineering, police enforcement, emergency medical care, and road safety education and awareness (Roads and Buildings Department 2022).

6.6 REPLICABLE PRACTICES

1. **Creation of trauma care centers (TCCs) within existing facilities:** Repurposing of medical facilities, including the provision of ambulances and fresh equipment, can drastically improve regional emergency medical care capacity. Management of the Golden Hour is considerably improved if hospitals nearby can adequately handle trauma cases. This likely contributed to reducing road crash deaths observed on the Hyderabad-Bijapur corridor. Similar to how the Women and Children's Hospital Block of District Hospital in Tandur was provided with a new Level-III trauma care center, the capacity of existing hospitals near other crash-prone areas can be upgraded. The State can identify existing facilities amenable to upgradation and create a blueprint for upgrading them to be able to tend to road crash victims.

2. **Framing Output and Performance-based Road Contracts (OPRC):** These contracts hold the contractors responsible for the road design, construction, and maintenance standards. The payment is dependent on the output of the contractor, and packages are awarded at different stages of progress in the project. For the Hyderabad-Bijapur corridor, it was reported that road maintenance had improved post such contracts. Such output-based contracts will ensure that contractors are incentivized to maintain the roads according to relevant standards.

3. **Undertaking complementary enforcement and engineering activities:** The project saw the improvement of curves and intersections and the provision of cones and barriers at spots where the road geometry guided the traffic towards unsafe interactions. This was complemented by focused enforcement activity such as deploying weighbridges to check overloading violations and using breathalyzers and cameras (both body-worn and digital cameras) to discourage drunk driving and speeding. Two highway police outposts at Manneguda and Kodangal ensured vigilant oversight.

6.7 KEY LEARNINGS/LESSONS LEARNED

1. **Authorization of procurement by agencies with the relevant expertise:** The responsibility for procurement of all equipment was with the R&B Department. This includes the procurement of ambulances and medical equipment as well as equipment required by the police for enforcement (eg. Breathalyzers, and speed guns to name a few). Thus, there was a lack of expertise in the procurement process (Roads and Buildings Department 2022). The R&B Department then identified that the procurement process should be suitably divided amongst the departments that can best understand their requirements and the operations of the procured equipment. This should be kept in mind for any future road safety projects, where only departments with adequate expertise should be authorized to procure materials for road safety works.