8 Challenges Impeding DOT Safety Programs

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Transportation authorities in states, regions and cities across America have multiple responsibilities, but none are more important than ensuring road safety. And yet, this effort has become increasingly difficult in recent years.

The U.S Department of Transportation reports that roadway fatalities had declined consistently for 30 years, but progress has stalled over the last decade and actually reversed in 2020 and 2021.

The CDC says traffic accidents are the leading cause of death in the United States – killing more than 100 people every day. U.S. Transportation Secretary Pete Buttigieg calls this "a national crisis on our roadways," and while departments of Transportation throughout the U.S. work very hard to improve safety and reduce collisions, they face many challenges. In this blog, we look at eight of these obstacles and talk about some solutions.

1. Lack of Data

Information is the foundation of a successful traffic safety program. However, many Departments of Transportation do not have enough data to produce a complete view of safety on the roadway.

In many cases, transportation departments must collect and correlate data from a variety of sources, which are not always up to date – such as accident reports. In addition, law enforcement has a different purpose than a transportation agency, so crash reporting does not include all the essential facts that would help departments of Transportation prevent future collisions.

Meanwhile, devices such as sensors, cameras and radar generate limited data. many Departments of Transportation need access to a much larger data set to gain an in-depth understanding of roadway safety.

2. Limited Visibility Into Risks

Knowing where an accident occurred or the average speed of a road segment is important, but this data alone is not enough to gain visibility into the risks of the roadway. Accident reports and roadside equipment do not provide coverage of other critical factors that would enable many Departments of Transportation to identify traffic risks – such as "near miss" events and other vehicle movements. It is imperative to know where crashes are taking place, but transportation departments need to analyze a wide range of factors in order to prevent future accidents.

The U.S. Federal Highway Administration (FHWA) advises, "Traditional crash and roadway analysis methods mostly rely on subjective or limited quantitative measures of safety performance. This makes it difficult to calculate safety impacts alongside other criteria when planning projects."

To overcome this limitation, departments of Transportation must have access to a large and comprehensive data set with a range of metrics that relate to safety, and they also need an analytics application designed to correlate the data, make it meaningful, and present actionable insights.

3. Incomplete Data on Vulnerable Road Users

Vulnerable Road Users (VRUs) – such as pedestrians and cyclists – account for a growing share of U.S. roadway fatalities in recent years, FHWA reports.

Unfortunately, the VRU has been the forgotten victim, in terms of safety data. Accident reporting is often incomplete, according to the FHWA 2022 Complete Streets Report to Congress, which says "crash data typically underrepresent pedestrian and bicyclist crashes and when they are reported, they may be missing critical information, such as direction of travel.... Because pedestrian and bicyclist crashes, are underreported in police records, those data reflect an incomplete picture of safety risks."

In addition, most road monitoring devices are specifically designed to observe vehicles, not VRUs. many Departments of Transportation need access to data that goes beyond vehicles, showing the movements of VRUs and the risks they face when adjacent to the roadway.

4. Minimal Insight Into Rural Areas

Rural areas present a traffic safety dilemma – they have a higher risk and are underserved, compared to other areas. According to a report from TRIP (National Transportation Research Nonprofit), Rural Connections: Challenges and Opportunities in America's Heartland, "Traffic fatalities on the nation's rural, non-interstate roads occur at a rate approximately two-and-a-half times higher than on all other roads. A disproportionate share of fatalities take place on rural roads compared to the amount of traffic they carry."

The report explains that rural roads are more likely than urban roads to have roadway features that reduce safety, such as narrow lanes, limited shoulders and sharp curves.

Making the matter even worse, many Departments of Transportation have less visibility into road safety in these areas. In rural America, a transportation department usually does not have road-level information unless traffic monitoring equipment is installed, but this apparatus is costly to deploy and cannot possibly provide enough coverage across expansive and remote rural roadways.

Anonymous connected vehicle data is the ideal solution, because it cost-effectively enables transportation departments to see safety trends on all rural road segments, allowing them to make informed decisions about where to focus their efforts to save lives.

5. Time-Consuming Manual Processes

Unfortunately, some transportation departments rely on traditional paper-based processes, and are burdened by manual data collection, aggregation and analysis. Now is the time for transportation agencies to revolutionize these processes with Intelligent Transportation Systems (ITS) that get the job done faster and more economically.

6. Strained Staff Resources

The public sector constantly deals with the challenge of limited staff resources, forcing transportation professionals to wear multiple hats. However, Departments of Transportation are able to depend on analytics to integrate the data and crunch the numbers, instead of doing all the work manually.

But an analytics tool must be easy to use. You should not have to hire a data scientist to understand critical safety and mobility data.

7. High Cost of Data Collection

Traditionally, transportation authorities have relied on hardware installed in or by the road to collect safety data. Not only does this equipment have inherent limitations, it is also very expensive when you count the cost of asset installation, management and maintenance. Add in the expense of resource-intensive field studies, and data collection becomes cost prohibitive. The alternative is to take advantage of anonymized data aggregated from millions of connected vehicles that can deliver a real-world view of safety on the roadway.

8. Insufficient Funding

Maybe the greatest challenge Departments of Transportation face is the struggle for funding. There is never enough money to go around. Every transportation agency must find inventive ways to do more with less, such as using analytics to minimize manual tasks.

Even when funding is available, how do you prioritize safety projects? With the right analytics application, you can pinpoint exactly where your funds and efforts are most needed, to make the greatest impact on your community.

The FHWA advises, "Using tools to analyze crash and roadway data to predict the safety impacts of highway projects allows agencies to target investments with more confidence and reduce severe crashes on the roadways."

At GM Future Roads, we understand the challenges transportation departments face. Safety View combines anonymized connected vehicle data with the power of analytics to help solve DOT safety challenges – empowering transportation departments to be more agile, productive and effective in their battle to eliminate the national roadway safety crisis.