

Green Cross for Safety® Awards 2020 Finalist - Innovation

Illinois Tollway

Nationwide, one person is killed in roadway work zones every 12 hours.

In Illinois, 29 people died in work zone crashes in 2017, including Illinois Tollway maintenance worker David Schwarz. A year later, construction worker Frank Caputo was killed in a work zone on the Illinois Tollway. Construction and roadway workers aren't alone. Nearly four out of five work zone fatalities in Illinois involve someone other than workers, primarily motorists.

Speeding is the biggest factor, resulting in nearly 30 percent of fatal work zone crashes. Increased use of smartphones has also contributed to thousands of crashes each year, with distracted drivers 29 times more likely to be involved in a work zone crash.

To reduce work zone crashes, state transportation agencies started introducing smart work zones with technologies to analyze traffic data and provide real-time information to motorists. Smart work zones were designed to be portable so they could be installed in focused areas and automated to minimize the need for human involvement.

The Illinois Tollway, which has a system-wide average daily traffic of more than 1.6 million vehicles, first implemented a smart work zone in 2010. That initial system consisted of portable message signs and sensors to monitor speed, volume and occupancy data. The smart work zone is fully integrated into all roadway and traffic management operations, including construction projects, through the agency's intelligent transportation system, with traffic sensors, roadway cameras, communications and digital roadway signage tied to the Tollway's Traffic Incident and Management System (TIMS).



TIMS is the “brains” of the Tollway’s Traffic Operations Center. The system’s software gathers data from 300 roadway sensors, I-PASS, Bluetooth, Waze app, computer-aided dispatch and regional traffic centers to calculate travel times, assess congestion and detect incidents on the five toll roads that make up the 294-



Green Cross for Safety

an **nsc** award

mile Tollway system in Northern Illinois. Information is validated using 640 roadway cameras and relayed by email, Twitter, regional traveler information sites and electronic message signs alongside and over roadways.



The Tollway's smart work zone system has shown proven success with the use of speed indicator boards to increase awareness of work zone speed limits, with studies demonstrating that speed decreased by as much as 14 mph when boards were used in work zones.

Another benefit of implementing smart work zones is reducing secondary incidents by helping drivers anticipate conditions ahead. Crash rates in work zones on the Tollway system are currently about 3 percent, versus national crash rates as high as 18 percent.

The Illinois Tollway continues to explore ways to expand and improve upon its smart work zone, investigating new technologies and innovations including artificial intelligence and connected and autonomous vehicles to create safer roads for Illinois Tollway users.