DATA IS PAVING A BETTER WAY TO WORK ZONE SAFETY

WZDx project highlight: Wisconsin

Source: Wisconsin Department of Transportation

Erin Schwark and Steven Parker believe that collecting better work zone data and making it accessible to everyone can, and will, save lives.

Schwark, at the Wisconsin Department of Transportation (DOT), and Parker, of the Traffic Operations and Safety (TOPS) Laboratory at the University of Wisconsin-Madison, believe that the way to get there is by ensuring everyone is speaking the same language when it comes to collecting and communicating work zone data. A new joint initiative by the Federal Highway Administration (FHWA) and Intelligent Transportation Systems Joint Program Office (ITS JPO), called the Work Zone Data Exchange (WZDx), does just that.

Work zones are everywhere and can be uniquely dangerous for passenger vehicles, freight vehicles, work zone workers, and — looking to the future — automated vehicles. WZDx establishes a uniform, universal data standard to ultimately improve roadway safety and efficiency.

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Why WZDx?

Nestled in America's heartland, Wisconsin has both major urban centers like Milwaukee and large stretches of pastoral rural areas — each with their own work zone safety challenges. With a recently awarded $200,000 grant from the United States Department of Transportation (USDOT), Schwark and Parker are working with their teams and other partners in tech to roll out pilot programs using WZDx that address the challenges posed by work zones statewide.

"Data standardization is really behind the curve in relation to technology development. It can be frustrating," said Mike Haas of IBI Group, a collaborator on the Wisconsin DOT effort. "Developing a data standard like WZDx will allow for data availability and use to keep up with broader progress in transportation technology — mapping and navigation tech in particular."

In non-technical terms, WZDx will allow for work zone data from hundreds of sites across Wisconsin to be gathered in a common format. It will then be compiled by infrastructure owners and operators (like State and local DOTs), published in a data feed open to everyone, picked up by mapping companies, and then delivered directly to roadway users through navigation apps. The data reveals more than just the location of existing work zones — it will be able to show live updates for lane closures and changes, and in the future could include work zone worker location. A feed produced with WZDx marks a major leap forward in the accuracy of that data and how it is used and reported.

Where work zones and tech connect

Work zone data has traditionally been entered manually by project site operators. As part of its WZDx grant project, the Wisconsin DOT is working with cutting-edge devices like smart arrow boards, traffic backup warning systems, and sensors that deliver alerts on sign boards leading into the work zone. WZDx can complement other smart tech devices, such as devices meant to monitor speed, which is then reported to third-party navigation apps like Waze, to help alert motorists and improve safety.

The Wisconsin team's work with WZDx has several components — and addressing challenges in rural work zones is a major one. According to USDOT, more than half of all traffic fatalities happen on rural roadways. Having more data and better warning systems available will save lives. Rural areas also have connectivity issues, making data collection by smart-tech devices like smart cones, Dynamic Message Signs (DMS), or Variable Message Signs (VMS) unreliable at times.

It's truly a group effort — and help is at hand

While technological advancement and systemic changes can be complicated, the Wisconsin team isn't operating in a bubble. All members of the team are involved in a cooperative effort called the Work Zone Data Working Group, coordinated by the ITS JPO, to develop WZDx and work through challenges.

With more than 100 representatives from State and local DOTs, the construction industry, auto manufacturers, and mapping companies, the Work Zone Data Working Group meets regularly and

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provides an opportunity for current and potential WZDx users to ask questions, share knowledge, and participate in specification development. The working group is open to all.

"There are a lot of different perspectives [in the group]," said Schwark. "We're focused on a couple of elements because that's what we're working with – but another State may have another problem they're trying to solve. You can also learn things that may not be relevant at the time, but you find out that they are later."

It's really all about safety

According to Wisconsin DOT, a crash occurred in a work zone every 3.5 hours in 2020. In the past 5 years, there have been more than 13,000 crashes in work zones, resulting in more than 5,000 injuries and 59 deaths in Wisconsin alone.

"Our hope is that through WZDx, work zone workers will feel safer and road users will be better informed," said Schwark. "Better data and promoting these programs will allow us to share the message that whether you're a work zone worker, a commuter, or a commercial vehicle operator, everyone wants to get home safely."

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