WORK ZONE DATA EXCHANGE

WZDx

Institutional Buy-In

Executive Statement

The world of transportation as we know it is in the process of making a major shift to Connected and Autonomous Vehicles (CAVs). Safe navigation of work zones is one of the largest roadblocks that manufacturers face today in deploying these systems. While existing systems can identify work zones, additional data describing work zones as well as the presence of workers in those zones would go a long way in making these systems more efficient. The Work Zone Data Exchange (WZDx) will allow data consumers such as General Motors, HERE, and Waze to better identify and react to work zones in the future. As an example of the need for more accurate work zone data, WYDOT is working to develop more accurate work zone reporting for Connected Vehicles.

"In Wyoming, we are striving to improve the accuracy and consistency of our Work Zone data. Though we do not yet have a Work Zone Data Exchange [data feed] up and running, our Connected Vehicle pilot does send Work Zone messages to drivers on the roads. In doing so, it has amplified some of the inconsistencies with the way WYDOT is managing Work Zones and what the drivers are seeing out on the road. WYDOT has now committed to fundamentally shifting the accuracy and timeliness of our Work Zone data in order to ensure drivers get the best available information."
– Vince Garcia, WYDOT

"Directly engaging and collaborating with the WZDx community helps Google understand community needs and industry trends as to existing and future content creation and data representation. With such knowledge, we can ensure our pipelines are able to efficiently ingest such formatted data, now and in the future. Similarly important, we want to provide our insights and support to the community as to what our learnings of integrating WZDx have taught us, with the intention that we can help improve WZDx development and adoption."
– Eric Kolb, Google

Why should I adopt WZDx now, while it is still evolving?

The WZDx specification is currently stable, with most updates focused on adding new optional data fields as well as removing confusing, redundant, or unused fields.

The WZDx Specification Update Subgroup aims to maintain a cycle of two updates per year: one major and one minor release. Fields will be deprecated during the minor release and later removed during the major release to provide time for agencies to adjust their processes. The Subgroup's co-chairs plan to produce a guide that would assist with the transition from one version of WZDx to another. A list of currently supported versions of WZDx can be found on the WZDx GitHub website.

Why is WZDx necessary when motorists already use WAZE?

Waze is a popular option for drivers to gain awareness of incidents and work zones on the roadway, and to share crowdsourced information with other drivers about these events. WZDx offers roadway operators the ability to share additional data about work zones with drivers, such as lane-level restrictions and impacts, while maintaining alignment with Waze. WZDx also incorporates planned work zones, allowing users to be proactive when selecting their route.

Why is knowledge of construction workers important to automakers?

"Injuries and fatalities of construction workers and motorists driving through job sites are entirely preventable. Every person killed in a roadway accident has an extended circle of family and friends who are impacted by these preventable tragedies. There is a great opportunity to leverage connected technology at work sites to provide motorists with real-time spatial awareness of construction workers. The WZDx community is actively defining standards for this type of reporting. This information can be used by automakers to generate real-time alerts to improve driver awareness and prevent crashes." **—Curtis Hay, GM**

Benefits

Information contained in a WZDx feed can inform the public of traffic congestion due to work zones or detours caused by work zones.

Accuracy:

- Because a WZDx feed brings all work zone data into a single place, field devices can be updated automatically with accurate information without the need for human interaction.
- Messages to drivers based on WZDx data represent the most up to date and accurate information that is available.

Standardization/Consistency:

- A standardized data framework like WZDx offers the ability to build applications on top of the data. Knowing that the data will have a consistent format brings confidence in the investment to develop new tools/applications.
- Interoperability allows tools developed for WZDx to operate across jurisdictional borders.

Worker Safety

- Knowing the location of work zones, speed limit changes, and lane closures will help drivers alter their behavior, improving the safety of workers.

Environmental

- Advance warning of work zones allows drivers to practice more eco-friendly habits, including adjusting their route to avoid traffic, smoothing their driving patterns, choosing an alternate method of transportation, or working remotely.

Time Savings:

- WZDx allows data to be input at one time and in one place thus reducing the need for duplicative processes.

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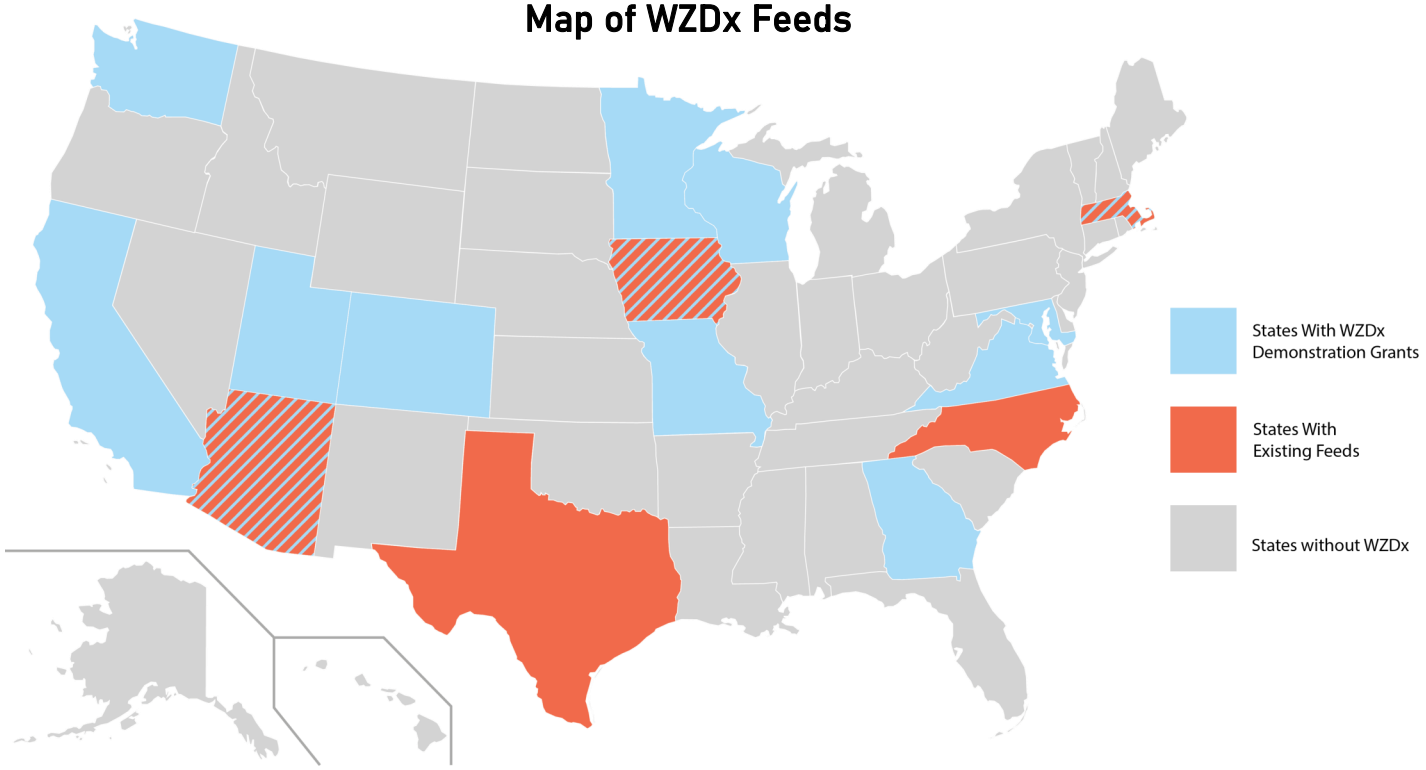
Why are automakers interested in WZDx?

"The more information we can obtain about the environment around our drivers, the better we're able to provide specific alerts and to equip our vehicles to respond appropriately. Road construction is a significant challenge that affects not only our customers, but also workers at the job site. There is great potential to further improve safety in our connected and automated vehicles by achieving greater awareness of lane closures, speed limit changes, presence of workers, and other attributes of road construction."

—Curtis Hay, GM

Map of WZDx Feeds



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For more information visit: https://github.com/usdot-jpo-ode/jpo-wzdx