Better Work Zone Information to Drivers

By North Carolina Department of Transportation
12/28/2023

Benefits Statement

The Federal Highway Administration (FHWA) developed the Work Zone Data Exchange (WZDx) initiative to standardize work zone data amongst agencies and third-party navigation companies. In January 2022, NCDOT and one.network collaborated to publish the first and most extensive statewide work zone data information set on the U.S. Federal Highway Administration's Work Zone Data Exchange (WZDx) platform. The NCDOT WZDx feed improves safety in work zones by giving drivers notice of what to expect.

In this case study you will learn:

1. How WZDx standardizes and delivers real-time work zone data to improve safety by providing critical information to drivers and agencies.

2. How NCDOT contributes extensive work zone data to WZDx, enhancing driver safety.

3. How the anticipated benefits of the WZDx program for North Carolina enhances safety, increases efficiency, and promotes innovative technologies.

BACKGROUND

The Federal Highway Administration (FHWA) developed the Work Zone Data Exchange (WZDx) initiative to standardize work zone data amongst agencies and third-party navigation companies. WZDx's intended purpose is to deliver important data right into connected and ultimately, autonomous vehicles.

Each year in the United States approximately 750 people die in work zone crashes, and the primary goal of WZDx is to improve safety for workers and drivers. It is the largest attempt ever to standardize and collect near real-time work zone information from all 50 states, regional jurisdictions, cities, and towns, and deliver them into a single repository. The WZDx Specification enables infrastructure owners and operators to make harmonized work zone data available for third party use. Once in the exchange, the data is available to all agencies, navigation apps, third parties and ultimately the driving public, presenting an accurate picture of the roadway across regional boundaries.

TSMO PLANNING, STRATEGIES AND DEPLOYMENT

NCDOT is unusual among state departments of transportation, in that it manages a disproportionately high percentage of roads; over 80,000 miles in all, including Interstate highways, state roads and arterials. NCDOT characterizes road blockages and incursions as "incidents," and manages approximately 100 each day. Since 2000, NCDOT has had a data repository for work zone information known as the Traveler Information Management System (TIMS). The system is web-based and homegrown, allowing hundreds of NCDOT construction and maintenance engineers to enter information about work zone into a central repository. This information is shared on DriveNC.gov, pushed out to local emergency services, media, school

bus routers, public, and navigation companies through a free public API.

In the summer of 2021, real-time work zone and road event management company, one.network, marketed their platform to NCDOT as a way to share incident information from local governments. This was not a top need for NCDOT due to the limited number of miles of roadway managed by local governments. Instead, the greater need was to convey road-work information to Google Maps, Waze, and Apple Maps. In response, one.network offered to convert the existing API feed into the WZDx format at no cost.

In January 2022, NCDOT and one.network collaborated to publish the first and most extensive statewide work zone data information set on the U.S. Federal Highway Administration's Work Zone Data Exchange (WZDx) platform.

COMMUNICATIONS PLANNING AND EXECUTION

one.network is established in the work zone information and traffic management sector in the United Kingdom (UK). Data systems for work zone permitting and real time road condition monitoring in the UK are considerably more comprehensive than what is typically seen in the United States. Recently, one.network began providing services in the US. Their platform can ingest and display virtually limitless traffic data from multiple sources including existing 511 systems, work zone crews, utility companies and any authority involved in managing the free flow of traffic.

The one.network platform feeds GPS providers including Google, Waze, and TomTom, so agencies can be assured that crucial information will reach the public, even if drivers don't use NCDOT's traveler information website, DriveNC.gov, or follow the agency's social media channels.

In 2022, NCDOT reported approximately 8,000 road or lane closures due to road work, into the WZDx feed. NCDOT and one.network have continued to work together to monitor and improve quality of the feed through detailed review and adjustment of the data translation algorithms. The WZDx offers a way to improve the communication of work zone information drivers.

OUTCOME, BENEFITS AND LEARNINGS

The standardization of work zone information allows clear and consistent messaging in the places travelers are already looking for information. The NCDOT WZDx feed improves safety in work zones by giving drivers notice of what to expect. The WZDx data feed is not widely used by automotive or navigation entities, yet. The navigation industry will need to make an investment in their systems to ingest the WZDx format. States like NC help to pave the way for other public agencies and the industry to invest in WZDx. The anticipated benefits of the WZDx program for North Carolina:

Enhanced safety: The WZDx provides real-time information on road configurations in work zones, enabling automotive and navigation consumers to have early awareness of hazardous conditions, potentially reducing the risks of crashes, injuries, and fatalities.

Increased efficiency: By providing a centralized platform for sharing data and information, WZDx can help streamline the communication of information about work zone projects, reducing delays and minimizing the impact of work zones on the traveling public.

Innovative technologies: WZDx supports the development of new technologies and practices in work zone management, including mobile applications and real-time data exchange platforms. These developments can encourage economic development and business innovation for government, corporate, and consumer use.

WZDx contributes to the state's ongoing efforts to improve safety, efficiency, and innovation in work zones on its highways.