

## PROJECT SUMMARY

# Work Zone Data Exchange (WZDx): CARS eXchange

### Project Location:

Systemwide

### Start – Finish Date:

July 2021 – July 2022

### Project Status:

Complete

### Project Partners:

Castle Rock Associates

### MnDOT Project Cost:

\$250,000 (\$200,000 federal grant / \$50,000 state funds)

### Projects with Similar Characteristics:

Centralized SPaT and MAP Data Sharing

Arrow Board Integration



### Project Description:

The Condition Acquisition and Reporting System (CARS) eXchange project was put in place to support the FHWA’s goal of increasing safety for the traveling public by sharing real-time work zone information between the public and private sectors, under an FHWA grant. To do so, MnDOT planned to advance work zone reporting, safety, and mobility by:

- Pushing information to third parties in the WZDx format.
  - *WZDx Publisher*
- Pulling information from other WZDx-compliant feeds.
  - *WZDx Fusion Engine*
- Creating a mobile tool for workers to check into work zones.
  - *Work Zone / Worker Presence (WZWP) App*

### Project Objective:

The project objective was to advance MnDOT’s 2030 vision goals of increasing situational awareness with improved information to increase worker safety, driver safety and mobility by:

- Helping MnDOT establish a WZDx standardized feed.
- Increasing the number and quality of reported work zone data.
- Establishing a standardized process for MnDOT systems to receive work zone event data from other MnDOT systems and other states.
- Increasing safety by decreasing worker exposure through automating entry.

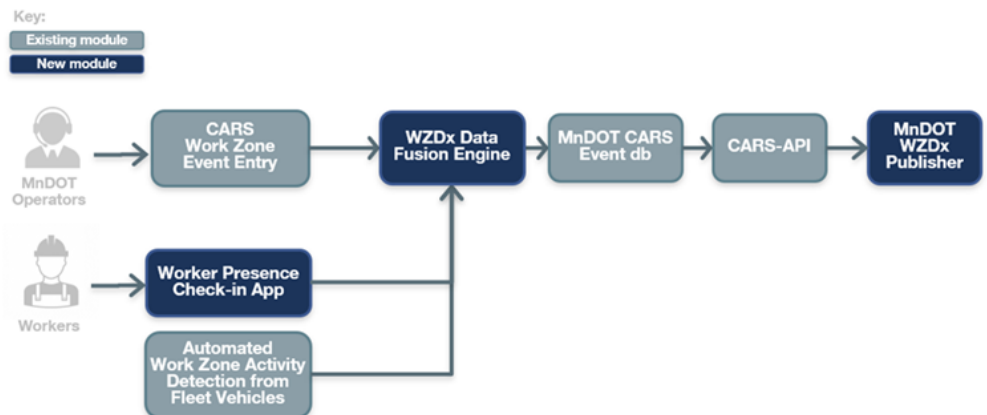


Figure 1: Relationships between CARS and WZDx Modules

### Project Accomplishments:

- Successfully creating CARS modules to publish and pull WZDx-compliant information feeds.
- Successfully creating the WZWP app for workers to utilize in work zones.



## Key Findings:

### Applicability

The CARS project can support WZDx feeds for MNDOT and partner agencies beyond the period of the FHWA grant.

### Active Participation

Full benefits of the CARS exchange depend on the manual interaction of users in some instances (such as the Check-In App).

### Project Champion

Multiple stakeholders and users necessitated a strong project champion to coordinate activities, goals, and expectations.

### Third-Party Contractors

While of interest to third-party contractors, the already substantial administrative commitments to manage work zones discouraged contractor participation.

### WZDx Working Group

The Technical Assistance Committee of the WZDx Working Group provided valuable assistance and feedback on each release of the WZDx feed.

## Lessons Learned:

- Creating a “co-development” model for the CARS system allowed other state agencies who use CARS to adopt updates that were made as part of this project. This model could be beneficial in other scenarios where multiple agencies could use the same foundational logic and import functions to utilize new data sources or devices.
- Having a project champion who was an active participant was crucial for the project’s success.
- Identifying data vendors in the scoping phase of a project minimized the schedule impacts that could have occurred if data vendors were identified in the implementation phase.
- Receiving documentation and sample feeds from data vendors as early as possible was beneficial in gaining a clear understanding of the product the project would receive.
- Asking for open-data access from automatic vehicle location (AVL) providers so it could be used without limit in multiple DOT projects.

## Potential Next Steps for MnDOT:

- Pursue the deferred features of the app, as detailed in the Project Report.
- Continue to review and determine improvements that could be made to the WZDx modules.
- Determine the value of the mobile application, and if it had a positive value, consider a phased approach for rolling the application out to more workers until it is accepted statewide.
- Further explore integrating the Check-In App into MNDOT work zone standard procedures.
- Develop statewide rollout/integration plan for the Check-In App; focus on a single district.
- For future V2I application projects, determine the feasibility of integrating CARS feeds into a V2X application.
- Evaluate national WZDx program progress against MNDOT project.
- Encourage connected work zone device integration into projects if they would be beneficial.