1 Simple, Open Specification

2 Broadly Adopted

3 Save Lives

U.S. DOT

WZDx Grant Update

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DEPARTMENT OF TRANSPORTATION

mndot.gov

2030 Vision: *MnDOT will increase situational awareness, for both MnDOT and the traveling public, with improved information to* **increase worker safety, driver safety, and mobility through***:*

- *Consistent, statewide reporting of all lane closure event information, regardless of duration, coupled with appropriate archiving and data management;*

- *The use of technology-based options and standard data formats to automate work zone reporting incrementally to migrate towards "AV Ready work zone data"; and*

- *Increased dissemination though MnDOT operated 511 systems and third-party provider partners' activities, with increased two-way exchanges and partnership in the WZDI.*
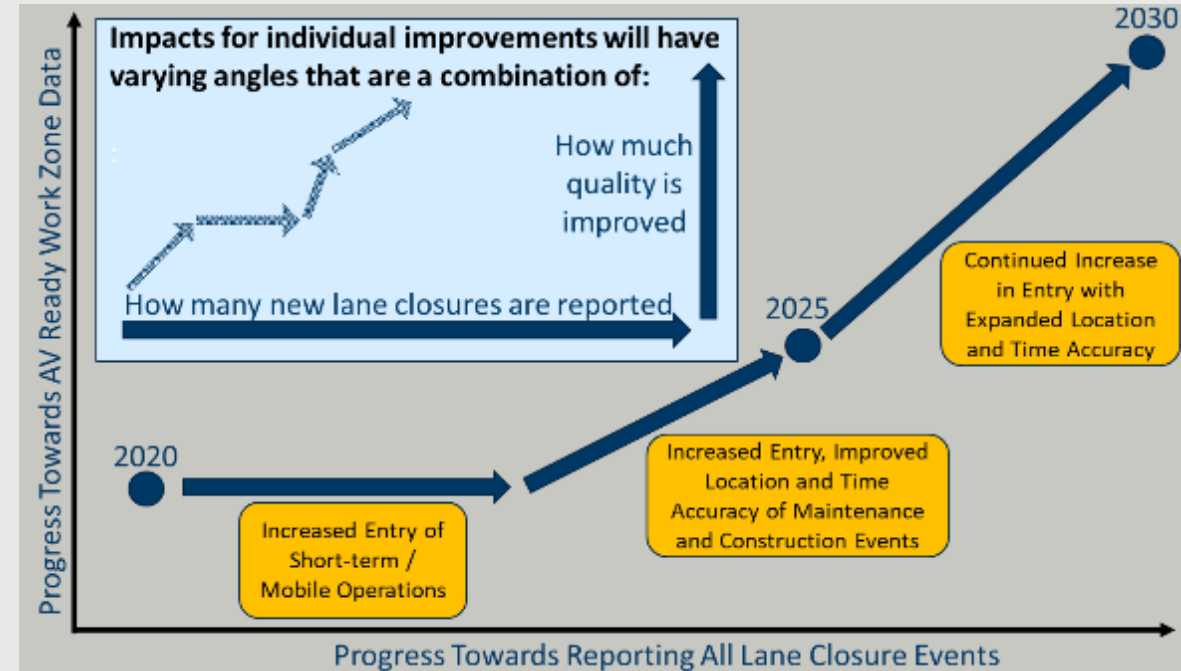
- Working with Athey Creek, MnDOT developed a Concept of Operations and Implementation Roadmap to move towards AV Ready Work Zone Data
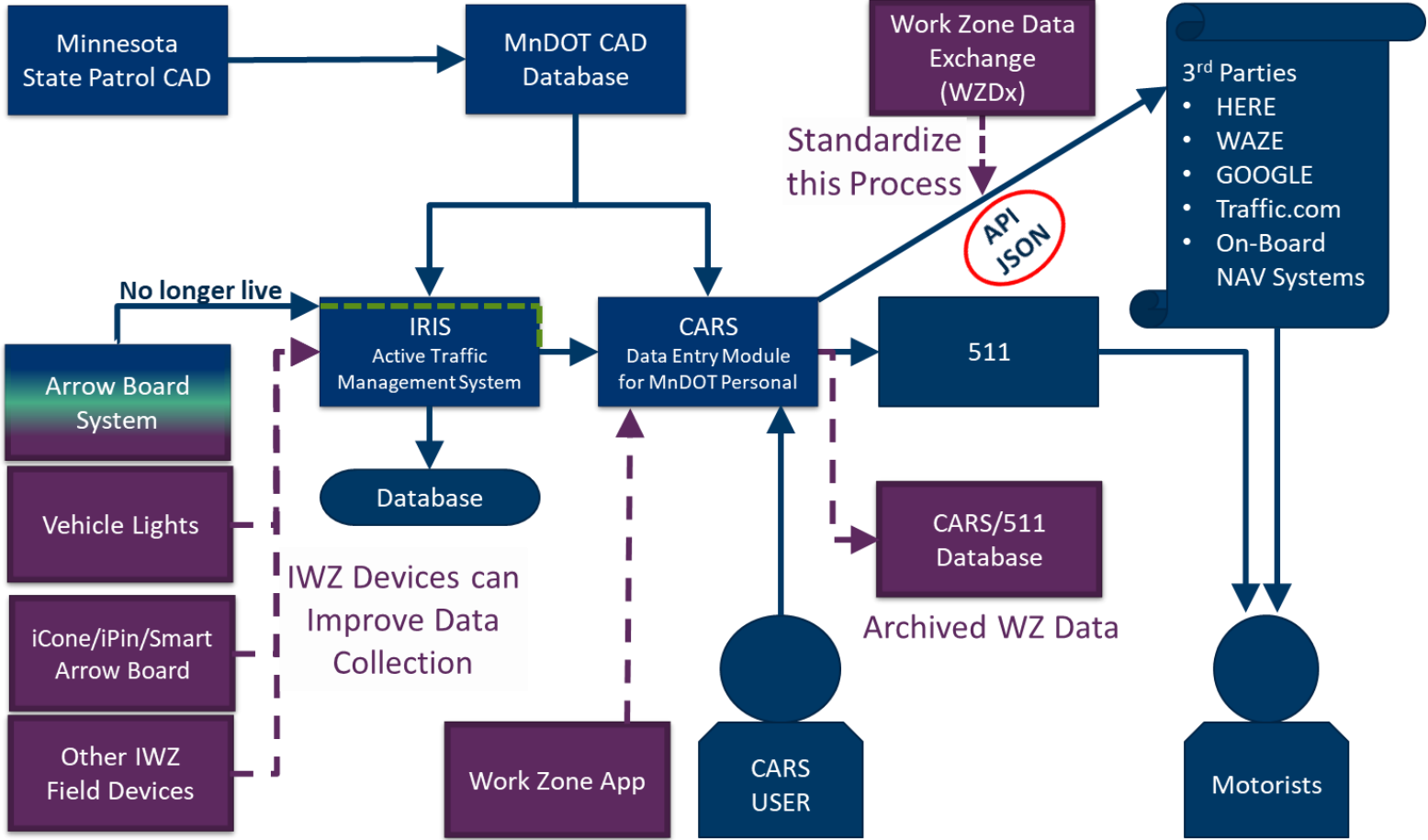
WZDx Implementation Roadmap

- Using multiple workshops, we looked at current challenges and stakeholder needs

Stakeholder Need	Stakeholder Groups							
	Travelers	MnDOT Operators	Construction Contractors and Vendors	MnDOT Maintenance Staff	External Agency Staff	Administrators	CAV Infrastructure and Vehicle Systems	Planners, Analysts, Third-Party Traveler Information Providers, Researchers, and Other External Work Zone Data Users
1. Stakeholders need lane closures to be reported more frequently.	X	X					X	X
2. Stakeholders need to reduce exposure of field workers and not require manual activities to report work zones.			X	X	X			
3. Stakeholders need improved work zone data quality.	X	X					X	X
4. Stakeholders need provision of more and better work zone data to users.	X	X					X	X
5. Stakeholders need a standardized approach and tools for ingesting and fusing work zone data from different devices, systems, and vendors into MnDOT systems (e.g. IRIS and CARS).		X	X	X	X	X		
6. Stakeholders need access to past work zone data to improve performance management.			X					X

• Based on Stakeholder needs, proposed enhancements were developed

Proposed Enhancement	Description	Needs Addressed
Implementation of WZDx	Will transition to widespread use of the WZDx (Work Zone Data Exchange) specification for work zone data sharing and data ingests from outside vendors systems while removing vendor-specific interfaces.	Primary: 5 Partial: 1,4
Remote Mobile Work Zone Entry Tool	Will implement a tool to improve manual entry of work zone data by MnDOT field staff and contractors.	Primary: 1,2,3 Partial: 4
Automated Entry Using Fleet Vehicles	Will implement a mechanism that leverages AVL and other data from MnDOT vehicles to automatically create work zone events.	Primary: 1,2,3 Partial: 4
Automated Entry Using Field Devices	Will implement solutions to automate work zone entry (e.g. smart arrow boards or smart traffic control devices) to progressively increase the percentage of work zones not requiring manual entry and move toward AV readiness. By leveraging the WZDx, all vendors will communicate data in the WZDx standard.	Primary: 1,2,3 Partial: 4
Work Zone Event Archive	Will determine plan for archiving data from work zone events in CARS. Will implement the solution and tools to archive and allow user access to data and conflation with other systems.	Primary: 6

WZDx Implementation Roadmap

A draft schedule was created along with estimated costs

#		Cost	FY2020 Q4	FY2021 Q1	FY2021 Q2	FY2021 Q3	FY2021 Q4	FY2022 Q1	FY2022 Q2	FY2022 Q3	FY2022 Q4	FY2023	FY2024
1	Implementation of WZDx	$125,000	X	X	X	X							
2	Remote Mobile Work Zone Entry Tool	$190,000	X	X	X	X							
3	Automated Entry Using Fleet Vehicles	$1,390,000											
	Pilot #1: Fleet Vehicle AVL Only	$185,000				X	X	X					
	Optional Pilot #2: Added Sensors	$95,000						X	X	X			
	Limited Expansion: Selected Approach	$160,000									X	X	
	Widespread Deployment MnDOT Fleet	$950,000										X	X
4	Automated Entry Using Field Devices	$331,000											
	Pilot #1: Maint. & Construction	$196,000			X	X	X						
	Limited Expansion (Maint & Const.)	$135,000						X	X	X	X		
	Widespread (Statewide) Expansion	TBD										X	
5	Work Zone Event Archive	$92,000	X	X	X	X							

- FHWA awarded $2.4 million in WZDx demonstration grants to 13 states

- Minnesota Department of Transportation ($200,000 + $50,000 State Funds)

  - MnDOT WZDx Publisher

  - Work Zone Worker Presence App (iOS)

  - MN WZDx Fusion Engine

- Objective: To create a real-time, WZDx-compliant data feed for work zones reported on the MN trunk highway system in MN CARS

  - MN CARS is Minnesota's event entry system and is the back-end software for the 511 website, mobile app, and phone system provided by Castle Rock

  - Planned to be updated every 60 seconds and will be a submodule to the existing CARS-API that is currently publicly available

- Objective: To create an easy-to use iOS mobile app for creating work zones and checking in and out of them

  - Intended to reduce staff time spent on similar tasks reducing the need to call in to the RTMC and improving the accuracy of the data

Worker Presence field in the Maricopa County DOT WZDX feed

- Objective: To create a fusion engine that accepts data from multiple WZDx-compliant sources and reconciles them to create streamlines, non-duplicative reports in MN CARS

  - This system will allow for additional phrases to be appended to existing work zone events such as "a maintenance vehicle is on site" rather than creating new events in the same location causing map clutter

- In addition to the work funded by the WZDx Grant, MnDOT is working on two additional enhancements from the Roadmap

  - Smart Vehicle Work Zone Reporter

    - Automated event entry using MnDOT AVL data

    - Performed by Castle Rock

  - Work Zone Event Archive

    - Internal Staff

Thank you again!

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