

WORK ZONE DATA INITIATIVE

FHWA Office of Operations Work Zone Management Program

**Presentation to the AASHTO Committee on
Transportation System Operations (CTSO)**

Atlanta, GA - August 29, 2018

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Motivation for WZDI

»» *Lack of consistent, standardized information on work zone events*

Many infrastructure owners and operators (IOOs) maintain data on work zone activity, however, the lack of common data standards and convening mechanisms makes it difficult to optimize system performance.

Example: it is costly for third parties – including original equipment manufacturers (OEMs) and navigation applications – to access and use these data across various jurisdictions.

Work Zone Data Initiative

Purpose

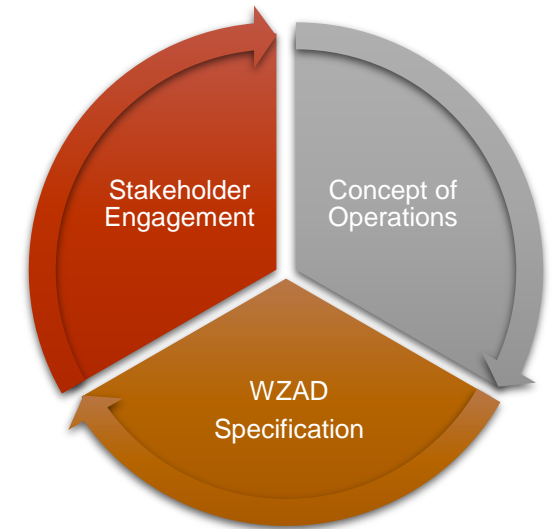
- ›› Define **Work Zone Activity Data (WZAD)** through development of a platform-independent specification and concept of operations

Outcomes

- ›› WZAD **State-of-the-Practice Review**
- ›› WZAD **Concept of Operations**
- ›› WZAD **Data Definition**
- ›› Agency-focused **Implementation Guide** for a work zone data management program
- ›› Pilot participation in a **Work Zone Data Environment**

Big Picture Outcome

- ›› Encourage broad-based institutionalization of next-generation work zone data management serving multiple use cases throughout project delivery life cycle.



WZDI Use Case Themes

1. Work Zone Planning and Project Coordination
2. Work Zone Impact Analyzes
3. Construction and Maintenance Contract Monitoring
4. Real-Time System Management/Traveler Information Provision
5. Safety and Mobility Performance Measurement
6. Law Enforcement and Emergency Service Providers
7. Connected/Automated Vehicle Hardware Needs and System Readiness

Work Zone Data Use Case Themes - Examples

NO.	TITLE	DESCRIPTION
CATEGORY #1 - WORK ZONE PLANNING AND PROJECT COORDINATION		
	Sub-Category 1.1 - Strategic Coordination during Planning/Design (Agency)	
	Sub-Category 1.2 - Strategic Coordination during Planning/Design (Regional)	
	Sub-Category 1.3 - Strategic Coordination during Project Delivery	
	Sub-Category 1.4 - Avoiding Multiple Capacity Restrictions at the Same Time	
	Sub-Category 1.5 - Reducing Number of Lane Closure Disruptions over Time on a Roadway Segment	
	Sub-Category 1.6 - Permitting Office Coordination of Oversize Vehicle Approvals	
CATEGORY #2 – WORK ZONE IMPACT ANALYZES		
	Sub-Category 2.1 - Estimating Expected Impacts for a Single Work Zone	
	Sub-Category 2.2 - Estimating Expected Combined Impacts of Multiple Work Zones	
	Sub-Category 2.3 - Assessing Impacts during WZ Operations	
CATEGORY #3 – CONSTRUCTION AND MAINTENANCE CONTRACT MONITORING		
	Sub-Category 3.1 - Monitor Compliance with Contractual WZAD-Related Requirements	
	Sub-Category 3.2 - Monitor Compliance to Performance-Based Safety and Mobility Specifications	
	Sub-Category 3.3 - Identifying Field Modifications to Project Plans	
	Sub-Category 3.4 - Document Changes in Infrastructure Asset Location, Availability Due to Work Activities	

Work Zone Data Stakeholders (1/2)

Stakeholder Group	Type of WZAD Needed
Internal Stakeholder Functions	
Agency Work Zone Planning	Location and schedule for construction and work zone
Agency Design and Engineering	Detailed description of construction and traffic management (maintenance of traffic plan)
Agency Construction Operations	Daily update on Work Zone configuration
Agency Traffic Management Center Operations (includes ATMS, ITS, RCRS)	Near real-time details of Work Zone roadway geometry and configuration
Agency Traveler Information Systems	Near real-time details of Work Zone roadway geometry and configuration
Agency Work Zone Performance and Impact Analysis	Traffic and Safety Impacts of past and planned work zones
Agency Work Zone Data Systems Integrator	Support and manage systems which store and share WZAD during work zone life cycle. This would sit in a TSMO enterprise that include work zone.
Agency Utilities, Construction, Maintenance and Law Enforcement Coordination	These staff will enter, manage and maintain WZAD relevant to Utility, Construction, Maintenance and Law Enforcement work impacting roadways.

Work Zone Data Stakeholders (2/2)

Stakeholder Group	Type of WZAD Needed
External Stakeholder Functions	
Construction and Maintenance Contractors	Both contribute and use detailed WZAD during Work Zone Operations
MPOs and Regional Partner Agencies	Planned and actual schedule and location of construction and work zones
Regional utilities	Location and schedule for utility construction and work zone
Law Enforcement	Planned and actual schedule and location of construction and work zones
Federal agencies	Traffic and Safety Impacts of past and planned work zones
Third-Party Traveler Info Systems (incl Iteris, Google, etc.)	Near real-time details of Work Zone roadway geometry and configuration
Connected/Autonomous Vehicles	Near real-time details of Work Zone roadway geometry and configuration
Travelers and Freight Haulers	Indirect Users of WZAD

Schedule

Deliverables

- State of the Practice review
- Concept of Operations
(~60 specific use cases, 7 use case themes)
- WZAD Data Specification
- **WZDI Symposium**
- Work Zone Activity Data Implementation Guide
- Work Zone Data System Pilot

v1 Delivery

Complete

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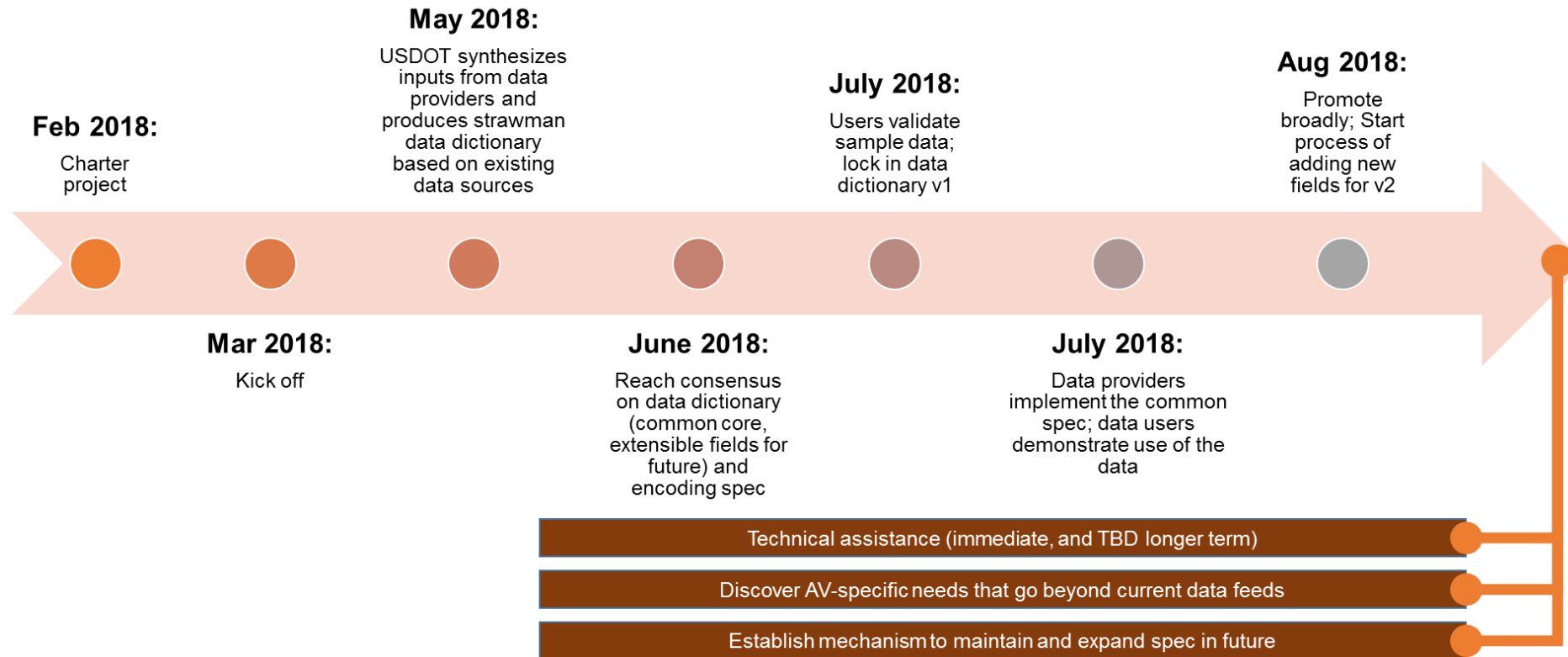
9/11/2018

March 2019

thru September 2020

Work Zone Data Exchange (WZDX)

»» Objective: Establish repeatable mechanism for rapid adoption of WZAD specification



Work Zone Data – Broader Implications

- »» **Work Zones are a model for other operational events**
- »» Data considerations in organizational Capability Maturity Frameworks
- »» Implications for National Digital Infrastructure
- »» Integration into Automated Vehicle policy

WZDI Next Steps

- ›› Release draft ConOps and Data Dictionary to collaboration site (<http://collaboration.fhwa.gov/wzmp/wzdi>) – August 2018
- ›› Work Zone Data Initiative Symposium – September 11, 2018
- ›› Release of Work Zone Data Exchange v1 specification – September 2018
- ›› Solicit participants for v2 Work Zone Data Exchange – Fall/Winter 2018
- ›› Ongoing stakeholder engagement, public outreach

Get Involved:

»» To provide input, to get more information or to participate in Work Zone Data Exchange pilots, contact Work Zone Data Initiative Project Manager:

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»» Attend the Work Zone Data Initiative Symposium

- September 11, 2018
- Crowne Plaza Dulles Airport, Herndon, VA
- <http://workzonesafetyconference.org/>

»» Stay in the loop with USDOT transportation data management efforts at <https://www.transportation.gov/data>