



The U.S. DOT Work Zone Data Exchange (WZDx) Project

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Agenda

- Purpose of Today's Webinar
- Project Overview
- Project Developments and Updates
- Related FHWA Work Zone Data Activities
- Accessing the Specification
- Next Steps
- Q&A

Purpose of Today's Webinar

- Provide an overview and updates on the Work Zone Data Exchange (WZDx) project
- Discuss lessons learned
- Describe how to access the v1.1. Common Core Data Specification, contribute comments, and find resources

Project Overview



U.S. DOT's Data for AV Integration (DAVI) Initiative

- Access to data is a critical enabler for the safe, efficient, and accessible integration of automated vehicles (AVs) into the transportation system. Lack of access to data could impede AV integration and delay their safe introduction.
- U.S. DOT launched DAVI as a multimodal initiative to identify, prioritize, monitor, and – where necessary – address data exchange needs for AV integration across the modes of transportation.
- Through DAVI, we can experiment with new approaches and scale what works via policies, investments, and messaging.

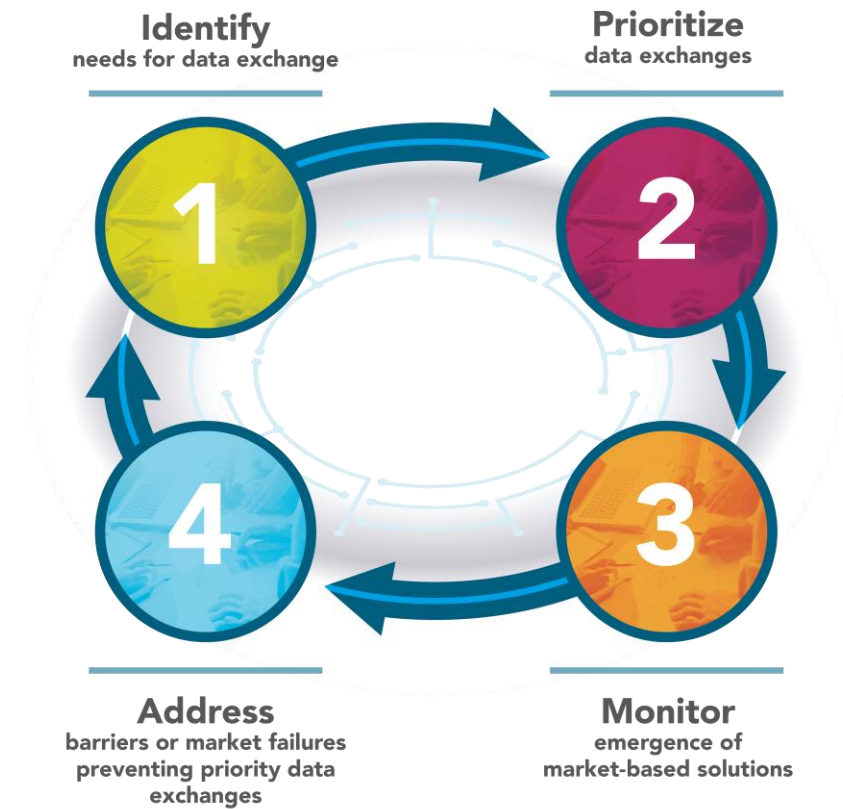


Figure 1: DAVI overview

The Local Data Challenge

- The WZDx Specification enables infrastructure owners and operators (IOOs) to make harmonized work zone data available for third-party use.
- Up-to-date information about dynamic conditions occurring on roads – such as construction events – can help automated driving systems (ADS) and humans navigate safely and efficiently.
- Many IOOs maintain data on work zone activity. However, a lack of common data standards and convening mechanisms makes it difficult and costly for third parties – including original equipment manufacturers (OEMs) and navigation applications – to access and use these data sets across various jurisdictions.

Learning from the Open Transit Data Story

A simple specification...

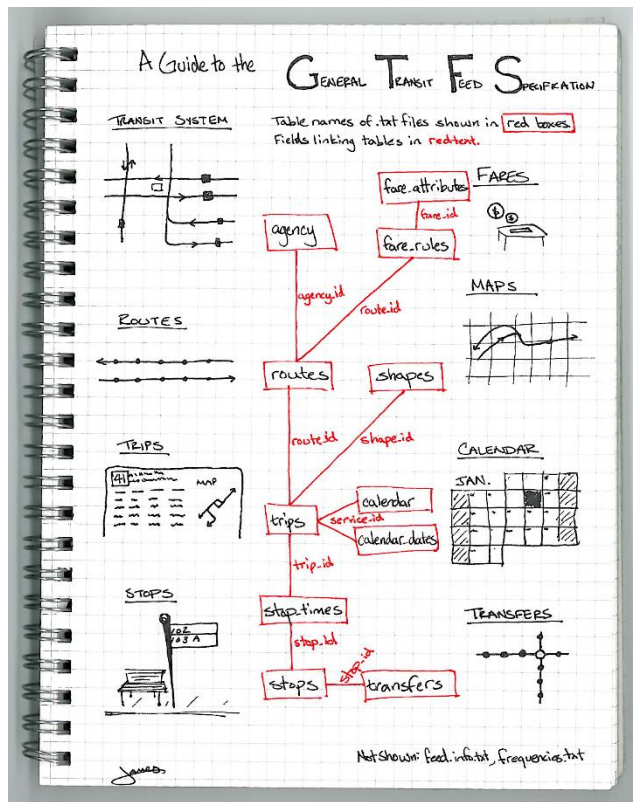


Figure 2: GTFS sketch

...with a wide range of uses



Figure 3: Technology and mapping images

A Federated Front Door to Transit Data

- Now, **basic transit data** is easy to **find and use nationwide**.
- Transit agencies and their users **continue to collaborate** on the specifications.

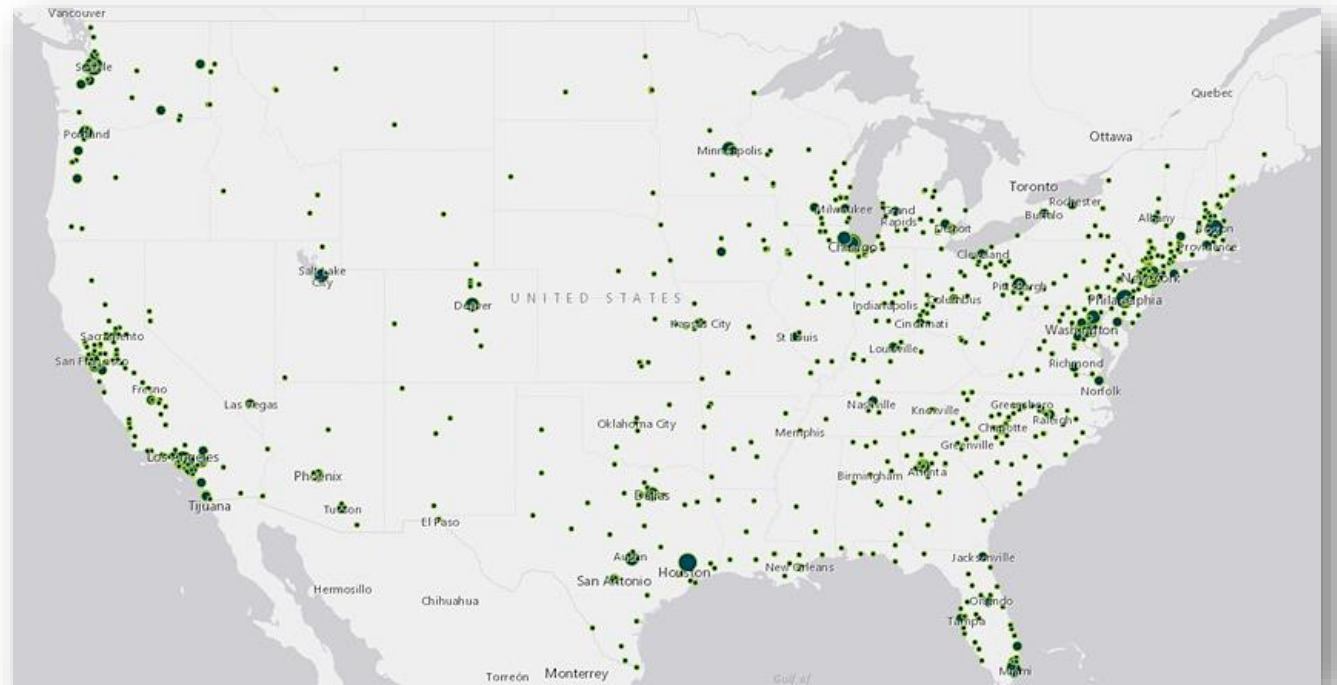


Figure 4: Map identifying the different locations where basic transit data can be found and used

Can This Be Replicated?

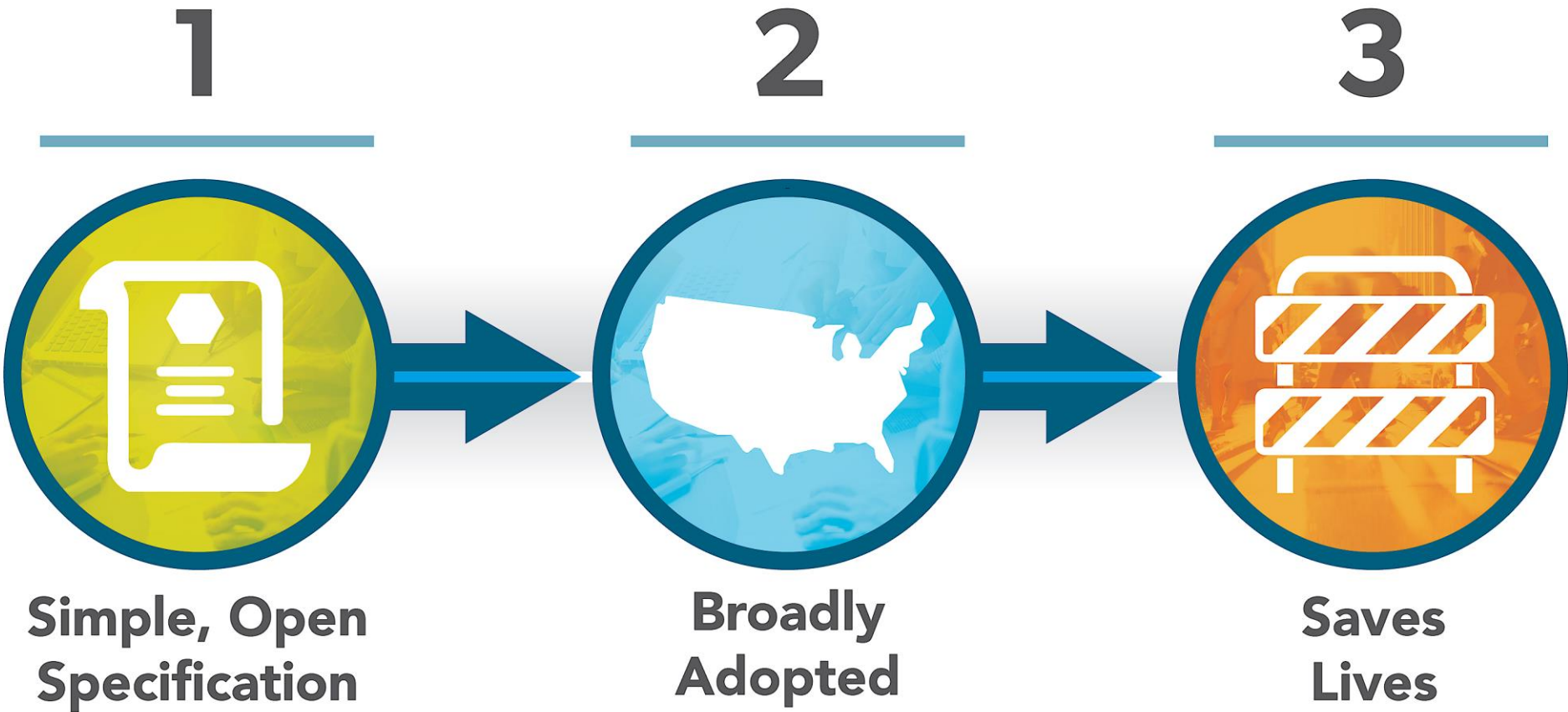


Figure 5: WZDx project overview

WZDx Project



Work Zone Data Exchanges

The Work Zone Data Exchange project responds to priorities identified by public and private sector stakeholders. The goal is to develop a harmonized specification for work zone data that infrastructure owners and operators can make available as open feeds that automated vehicles and others can use.

Accurate and up-to-date information about dynamic conditions occurring on the roads—such as work zones—can help automated vehicles navigate safely and efficiently. Many infrastructure owners and operators maintain data on work zone activity, but a common specification for this type of data does not currently exist.

This makes it difficult and costly for third parties—including vehicle manufacturers and makers of navigation applications—to access and use work zone data across various jurisdictions.

Several State DOT agencies and private companies are voluntarily participating in the project, with U.S. DOT acting as a technical facilitator. U.S. DOT has been working with these partners to help define the core data elements that should be included in an initial work zone specification and to determine what types of technical assistance the data producers will need to implement it, expand it over time, and address broader work zone data management challenges.

Purpose

- Jump-start voluntary adoption of a basic work zone data specification.
- Enable collaborative maintenance and expansion of the specification.

Near-Term Outcomes

- **Data producers** make an active work zone data feed available using a common, non-proprietary specification.
- **Non-government developers** use that data in a meaningful way—thus, establishing a minimum viable product of voluntary data exchange for work zone data.

Big Picture Outcomes

- Make travel on public roads safer and more efficient through ubiquitous access to data on work zone activity.
- Validate a repeatable approach to accelerate harmonization of local data sources.

Figure 6: WZDx material found in AV 3.0



Project Developments and Updates



WZDx Project Status

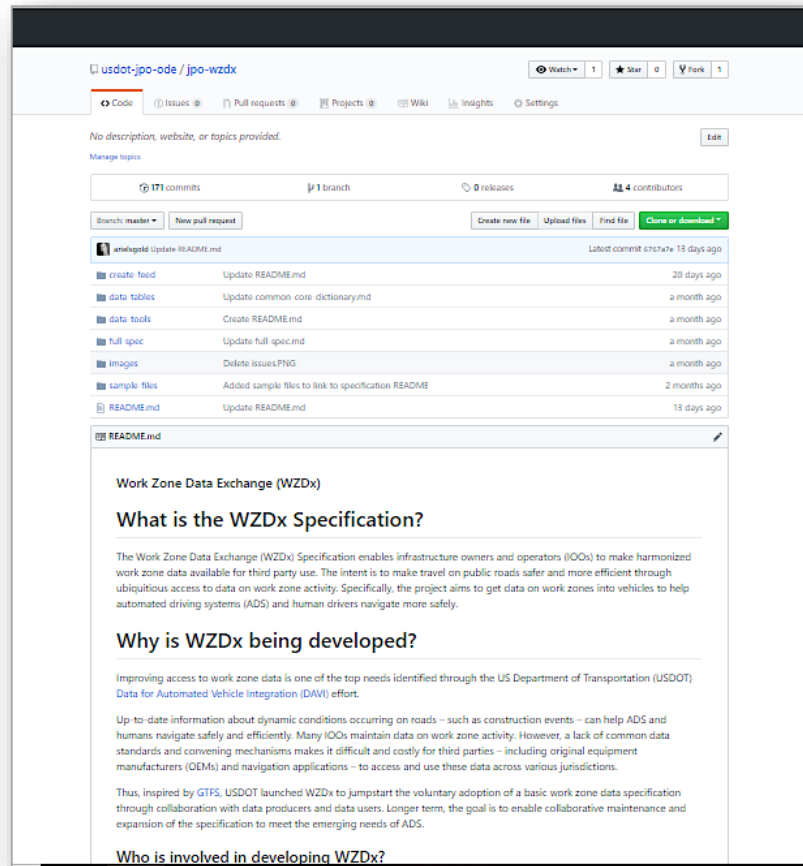


Figure 7: WZDx project page

- Version 1.1 (v1.1) of the WZDx specification is now available for IOOs to stand up data feeds: <https://github.com/usdot-jpo-ode/jpo-wzdx/blob/master/full-spec/full-spec.md>
- Once these data feeds are available, OEMs, navigation applications, and others can use the data.
- Visit the WZDx project for more information, to set up or ingest a feed, and/or to provide feedback on the specification: <https://github.com/usdot-jpo-ode/jpo-wzdx/blob/master/README.md>

Lessons Learned

1. Map developers are the primary data users.
2. It's difficult for IOOs to set up feeds.
3. There are many potential organizations and mechanisms to drive this vision forward.
4. There are multiple potential starting points for generating harmonized feeds.

Can This Be Extended – Iteratively?

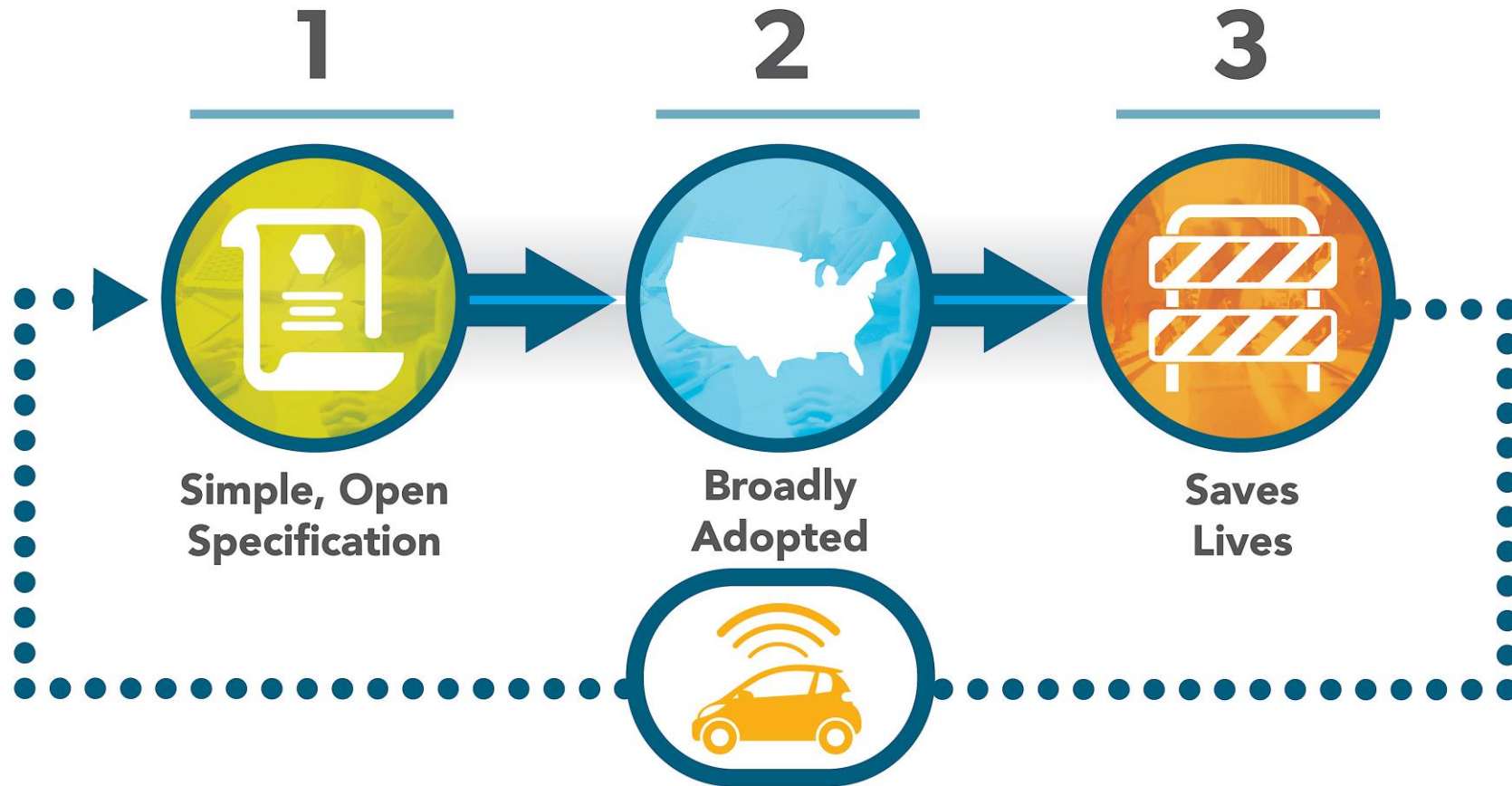


Figure 8: WZDx project overview

Related FHWA Work Zone Data Activities



Work Zone Data Initiative (WZDI)

Purpose

- Advance development of processes and applications around availability of standardized Work Zone Activity Data (WZAD).
 - WZAD: Digital data on **when, where, and how** work zones are deployed.
- Create a consistent language for communicating WZAD more broadly across organizational boundaries and throughout project life cycles.
 - In part, the WZAD data dictionary can serve as a backlog of data elements to add to the WZDx specification over time.

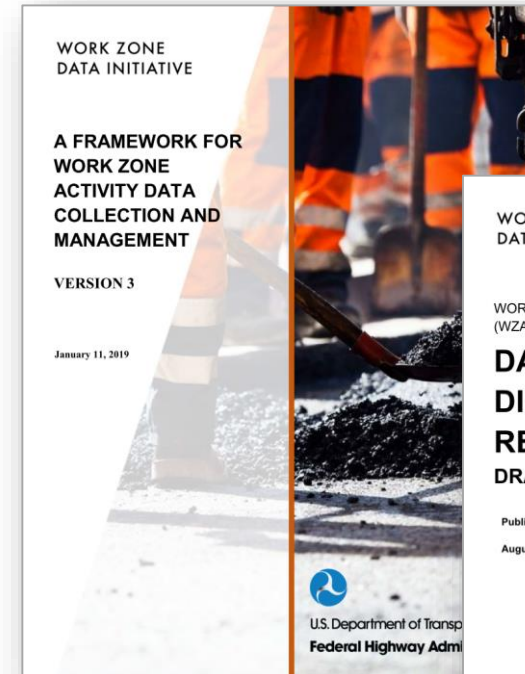


Figure 9: WZAD Framework Report Cover

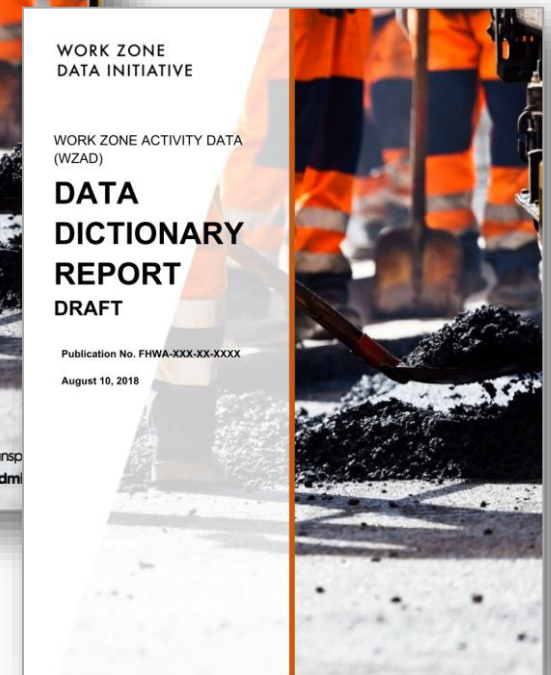


Figure 10: WZAD Data Dictionary Report Cover

Work Zone Data Initiative (WZDI)

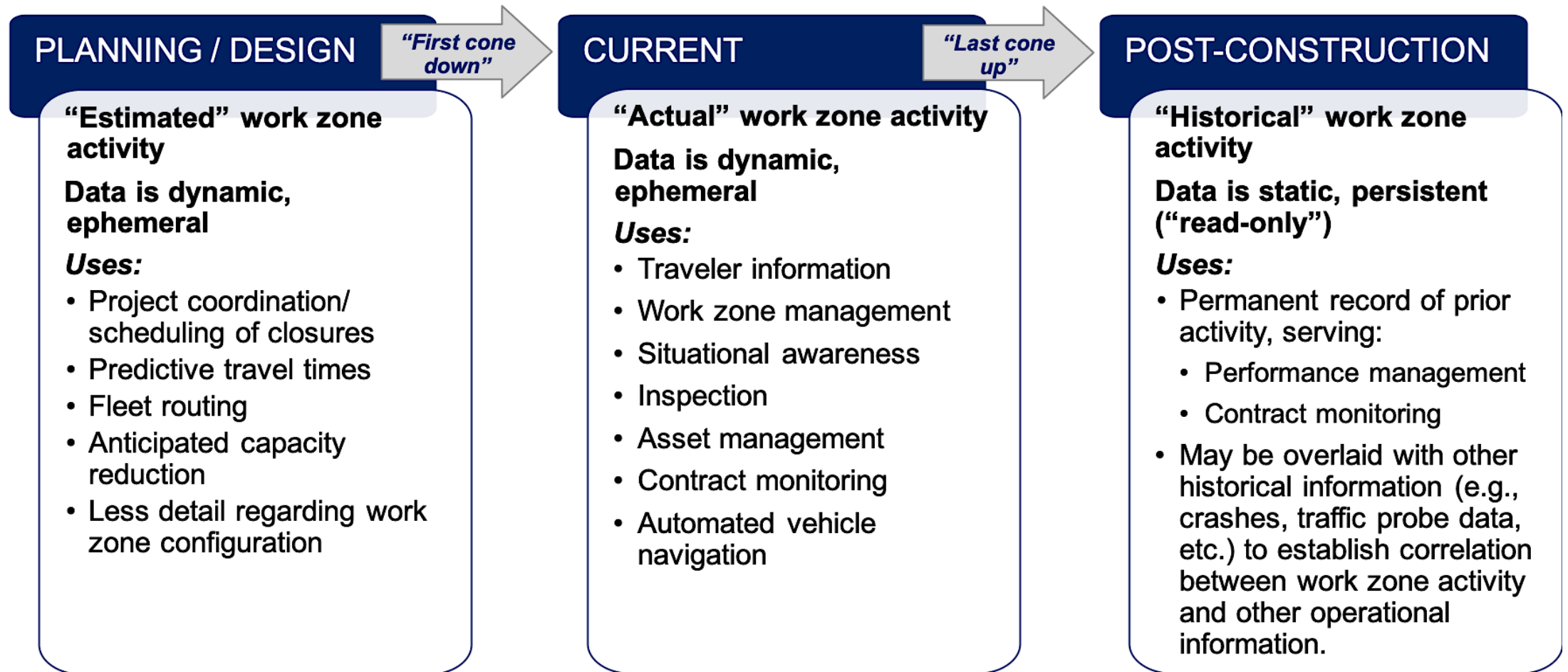


Figure 10: Work Zone Life Cycle

Work Zone Data Initiative (WZDI)

- **Learn more**

- Website:

<https://collaboration.fhwa.dot.gov/wzmp/wzdi/Forms/AllItems.aspx>

- Email: WZDI@dot.gov

- **Access resources**

- Needs & Opportunities Report
- Complete WZAD Framework
- V1 Feb 2019 WZAD Data Dictionary
- V1 Feb 2019 Pilot Deployments
- Ongoing Implementation Guide

Accessing the Specification



Basic Terminology

- **Repo** – The project space.
- **Issues** – *Have a question?* Post an issue.
- **Pull Requests** – *Have a suggested change or an addition to the specification?* Submit a pull request.

Specification Walk-through Outline

1. WZDx Project Main Page
 - Background
 - Participation Roadmap
2. The Full Specification
 - Pull Requests
 - Issues
3. Data Tables
4. Resources for Creating Your Own Feed
5. To Submit a Pull Request and Post an Issue

<https://github.com/usdot-jpo-ode/jpo-wzdx>

Next Steps

- IOOs stand up their feeds.
- Determine a mechanism for maintaining and scaling the specification.
- Have comments about the specification? Submit a pull request or post an issue to the WZDx repo at: <https://github.com/usdot-jpo-ode/jpo-wzdx/blob/master/full-spec/full-spec.md>
- Find out about events and requests for information at: <http://www.transportation.gov/av>
- Questions? Email: avdx@dot.gov

Q & A



Resources

To learn more and access available resources, please visit:

- [DAVI Website](#)
- [Automated Vehicles 3.0](#)
- [AV Data Roundtable Summary Report](#)
- [General Transit Feed Specification](#)
- [WZDx Version 1.1. Common Core Data Specification](#)
- [WZDx Project Repo](#)
- [Work Zone Data Initiative](#)

For information on the WZDx project or anything else related to the DAVI initiative, contact avdx@dot.gov