Data Exchanges in Surface Transportation

A Sampling

Presented to: ATIEC 2019

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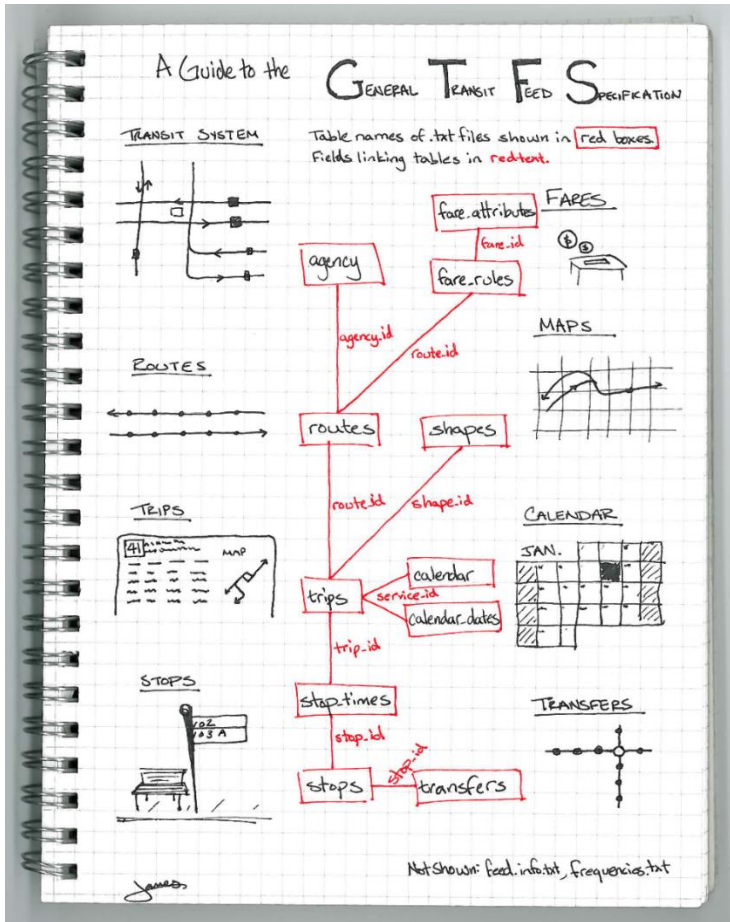*Aviation Information World – Forecasting the Future*

Examples – Current and Future

- **The General Transit Feed Specification**

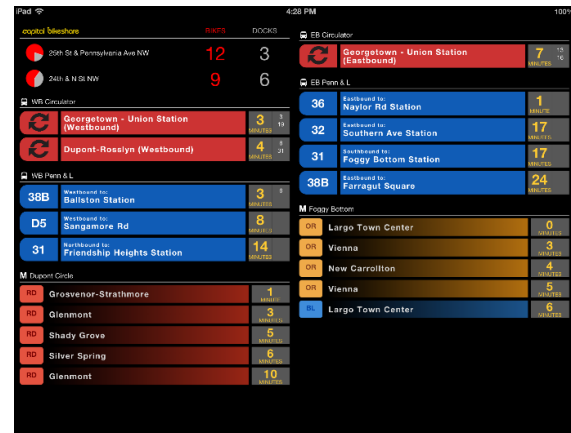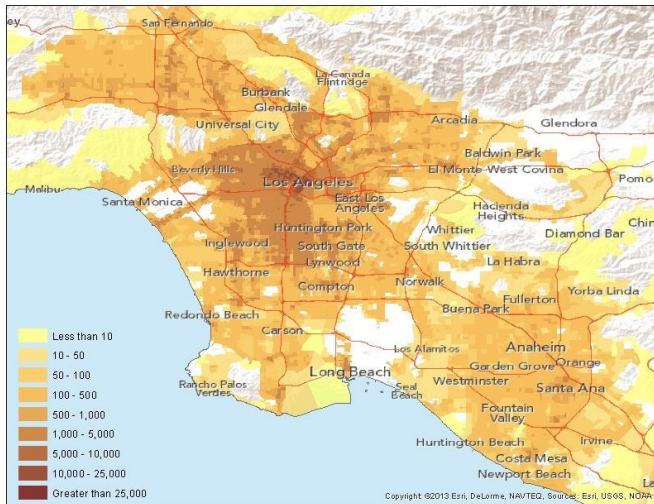- **The Work Zone Data Exchange**
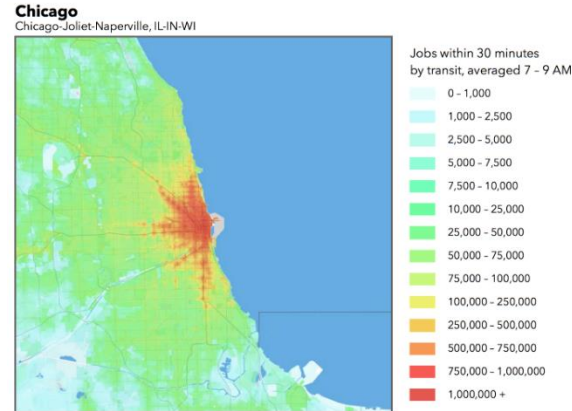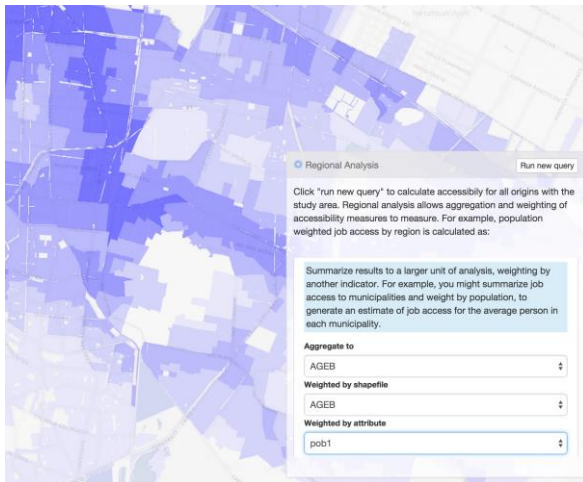
A simple specification

- **Developed in partnership**
  - Portland TriMet
  - Google

- **Loosely specified**
  - To ease adoption
  - To facilitate a minimum viable use case
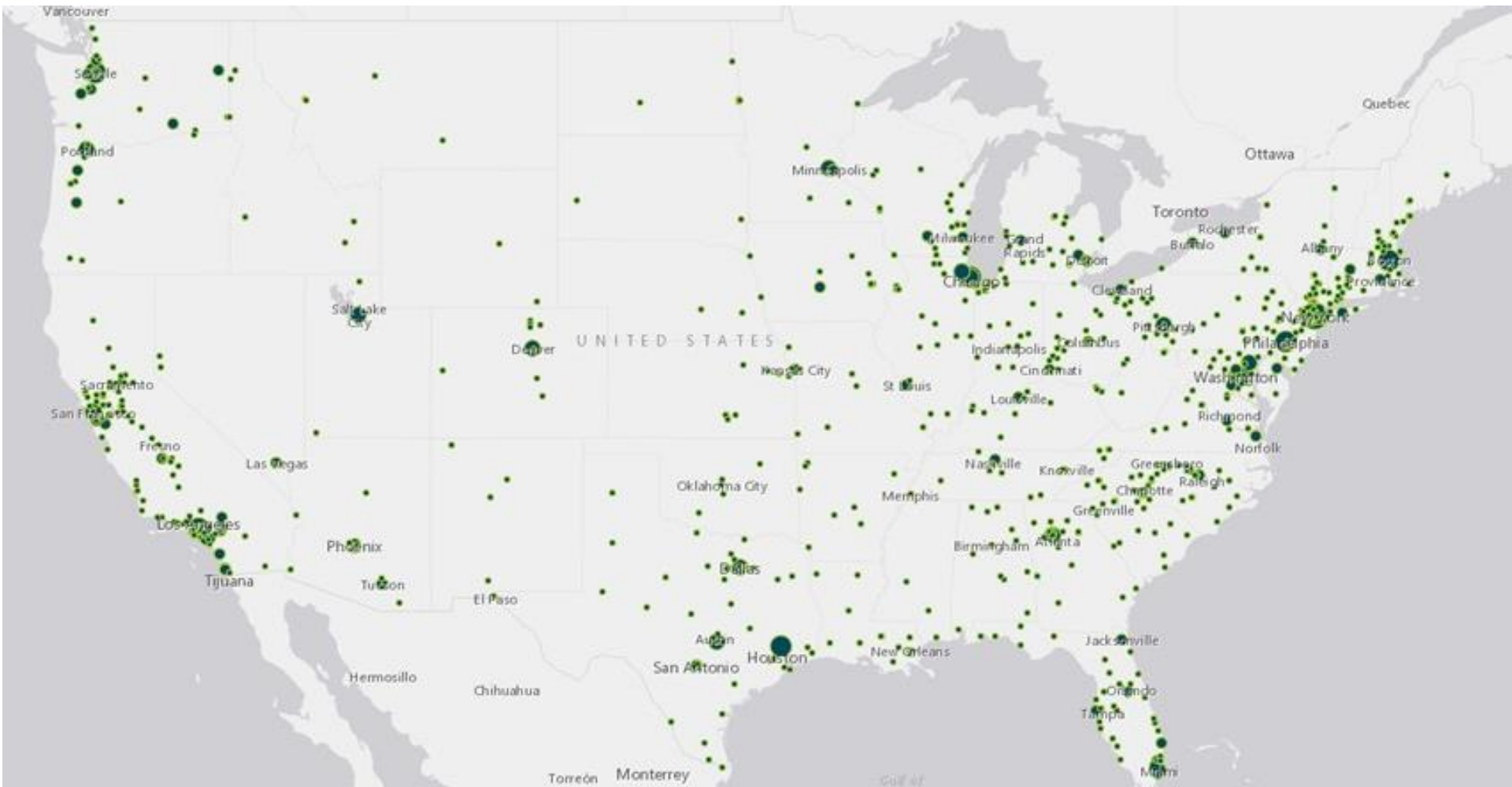
An array of uses

No single set of terms

- **Each transit agency has different terms of use. The terms do not address the same items.**
  - Some require attribution, some do not, some are silent.
  - Some allow derivative products, some prohibit it, some are silent.
  - Some allow redistribution, some prohibit it, some are silent.
  - Some assert copyright, many are silent.

- **To aggregate reliably, the Federal government needed to put a marker down.**
  - We asked for a Creative Commons Attribution License (CC-BY).
  - We asked for all other terms to be waived for our use.

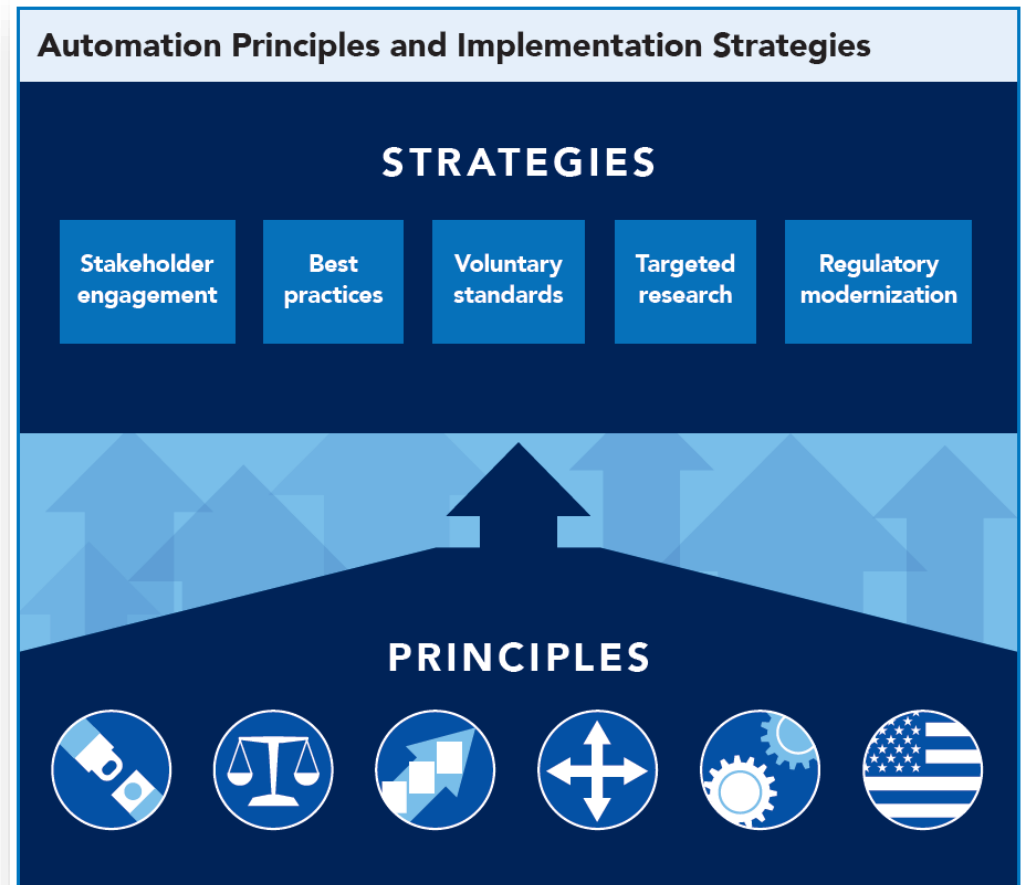# From nothing to 50% coverage

Where does GTFS go next?

- **Where's my bus?**
  - Uses the simple specification as a baseline
  - Add new concepts
    - Service alerts
    - Trip updates
    - Vehicle positions

- **Extension and extensibility – this format works for trains, intercity buses, and more…**
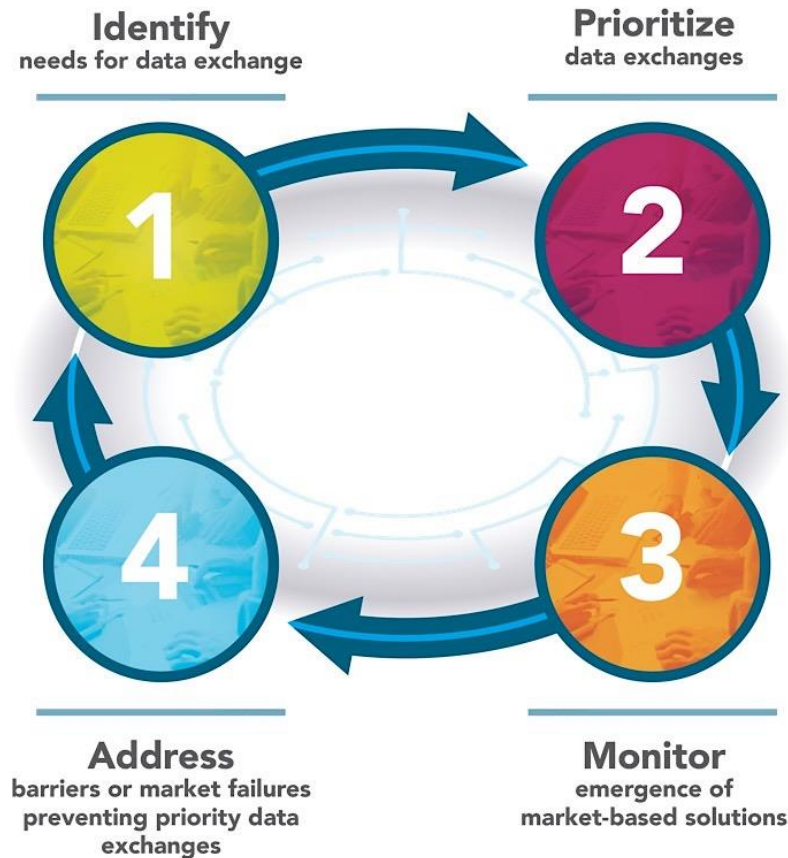
Automated Vehicles & Data

- **Provides new multimodal safety guidance, clarifies policy and roles, and outlines how to work with U.S. DOT as automation technology evolves**

- **Calls on stakeholders to identify opportunities for voluntary data exchanges**

- **Features efforts aimed at enabling voluntary data exchanges**

Automation Principles and Implementation Strategies

STRATEGIES

Stakeholder engagement | Best practices | Voluntary standards | Targeted research | Regulatory modernization

PRINCIPLES

Data for AV Integration (DAVI)

Identify needs for data exchange

Prioritize data exchanges

Monitor emergence of market-based solutions

Address barriers or market failures preventing priority data exchanges
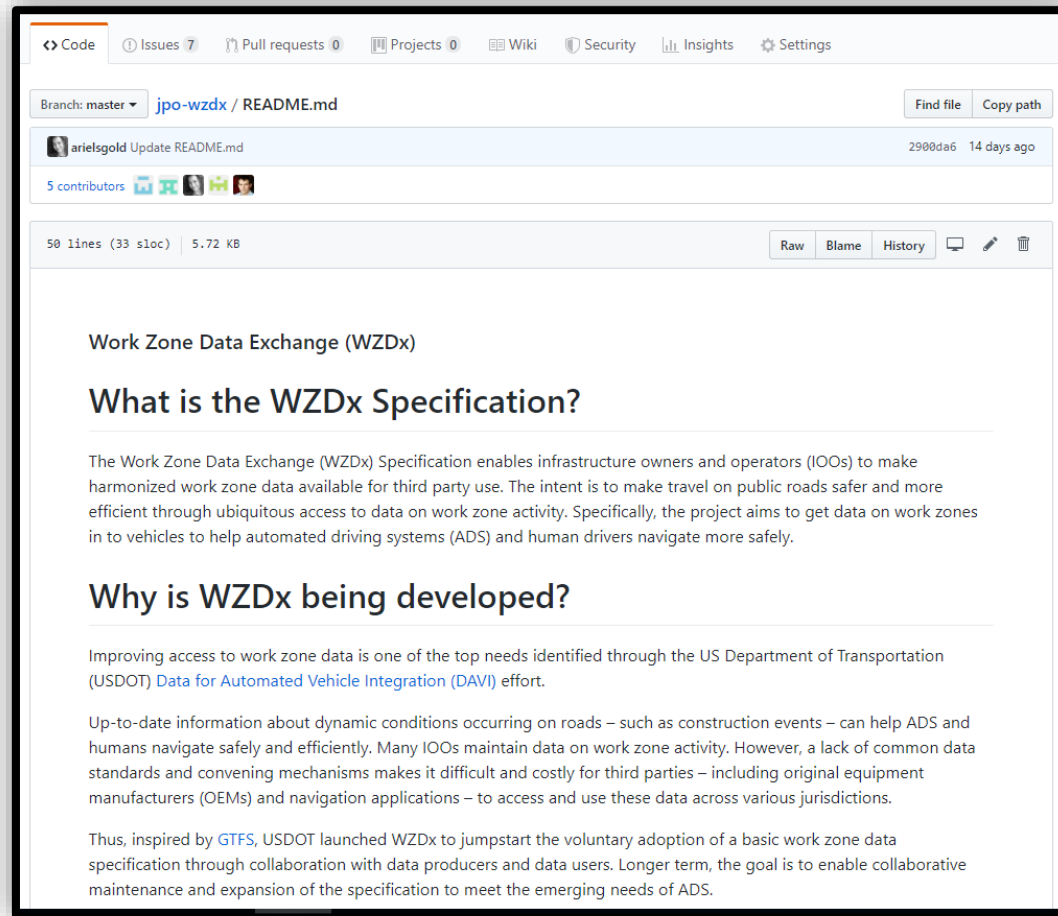
Safety in Work Zones

In 2017…

- **799 fatalities** that took place in work zones

- **2% increase** over the previous years

- **132 work zone workers** were killed

- Over **80% of fatalities** in work zones are by **drivers or passengers** just trying to navigate through a work zone
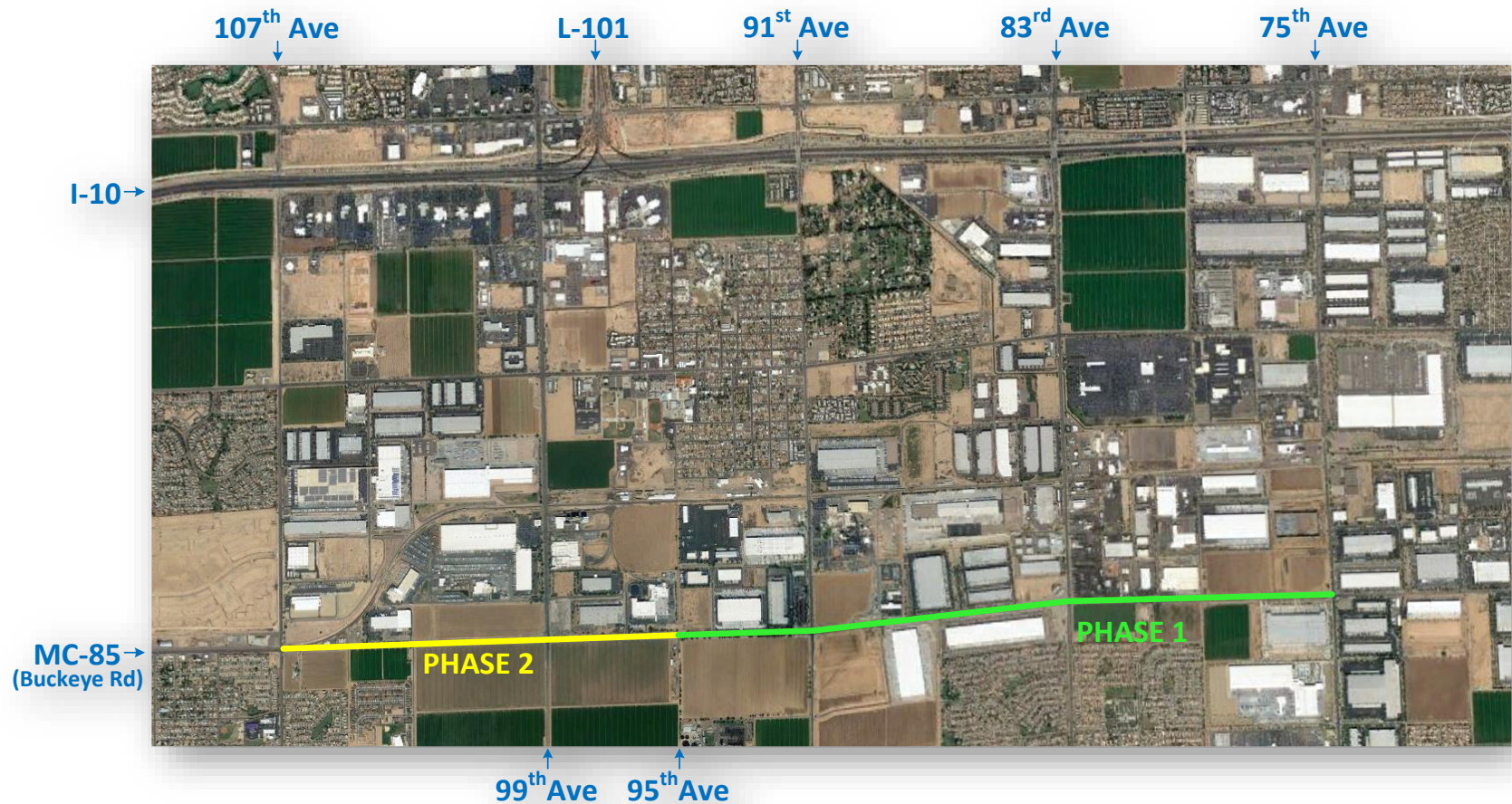
The Work Zone Data eXchange

1

2

3

Simple, Open
Specification

Broadly
Adopted

Saves
Lives

The Work Zone Data eXchange

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

WZDX in Maricopa, AZ

WZDX in Maricopa, AZ

https://api.mcdot-its.com/WZDx/Activity/Get

WZDX Lessons Learned

- **Immediate benefits may not be connected to ADS.**

- **Map developers are the primary data users.**

- **It's difficult for infrastructure owner-operators to set up feeds.**

- **There are multiple potential starting points for generating harmonized feeds.**

- **There are many potential organizations and mechanisms to drive this vision forward.**

What will you work on next?

1 Simple, Open Specification

2 Broadly Adopted

3 Saves Lives