

Smarter Work Zones

Overview of Variable Speed Limits

Efficiency through technology and collaboration



U.S. Department of Transportation
Federal Highway Administration

Smarter Work Zones

OVERVIEW



What are Smarter Work Zones?

Innovative strategies designed to optimize work zone safety and mobility

- Policies and practices used to incrementally and continuously improve WZ operations
- Tools to reduce WZ crashes and delays
- Tools to enhance WZ management strategies



What are Smarter Work Zones (cont.)?

Project Coordination

Coordination within a single project and/or among multiple projects within a corridor, network, or region, and possibly across agency jurisdictions

Technology Applications

Deployment of Intelligent Transportation Systems (ITS) for dynamic management of work zone traffic impacts, such as queue and speed management

Today's Focus



Types of Technology Applications Include...

- Real-Time Traveler Information
- Queue Warning
- Dynamic Lane Merge
- Incident Management
- Variable Speed Limits
- Automated Enforcement
- Entering/Exiting Construction Vehicle Notification
- Performance Measurement

For more information check out the SWZ TA website

<https://www.workzonesafety.org/swz/swztechnology-application/types-of-applications/>



Most States are already Utilizing SWZ!

- Over **40 states** have implemented technology applications, including:
 - Formalizing processes for planning and operating technology applications
 - Implementing “on-call” regional ITS SWZ contracts
 - Implementing steps towards institutionalizing technology:
 - Developing systems engineering documents
 - Developing specs to bid on technology
 - Piloting technology applications
 - Evaluating pilot to determine effectiveness for wider implementation
 - Fully implementing technology applications
 - Utilizing project funds to implement ITS – leading to institutionalization



Why Implement SWZ?

Capabilities of Technology Application

- **Improved driver awareness**
 - Changing traffic patterns
 - Downstream congestion
 - Construction vehicle ingress/egress
 - Expected delay / travel time
- **Dynamic and actionable guidance to drivers**
 - “Road work ahead” vs “Traffic Stopped 1 mile ahead”
 - “Road work – expect delays” vs. “Road Work I-95 past Exit 52 Use Alternate Routes”
- **Enhanced tools for on-site traffic management**
 - Speed monitoring
 - Automated speed enforcement
 - Queue formation



Why Implement SWZ?

Benefits of Technology Application

- **Empowers drivers to be proactive in responding to work zones**
 - Awareness of downstream hazards
 - Facilitates real-time decision-making and trip planning
- **Streamlines traffic management functions through partial automation**
 - Speed enforcement
 - Data collection
 - Performance measurement
- **Information increases customer satisfaction**
 - The More you Know...



Smarter Work Zones

VARIABLE SPEED LIMIT SYSTEMS



Variable Speed Limits (VSL)

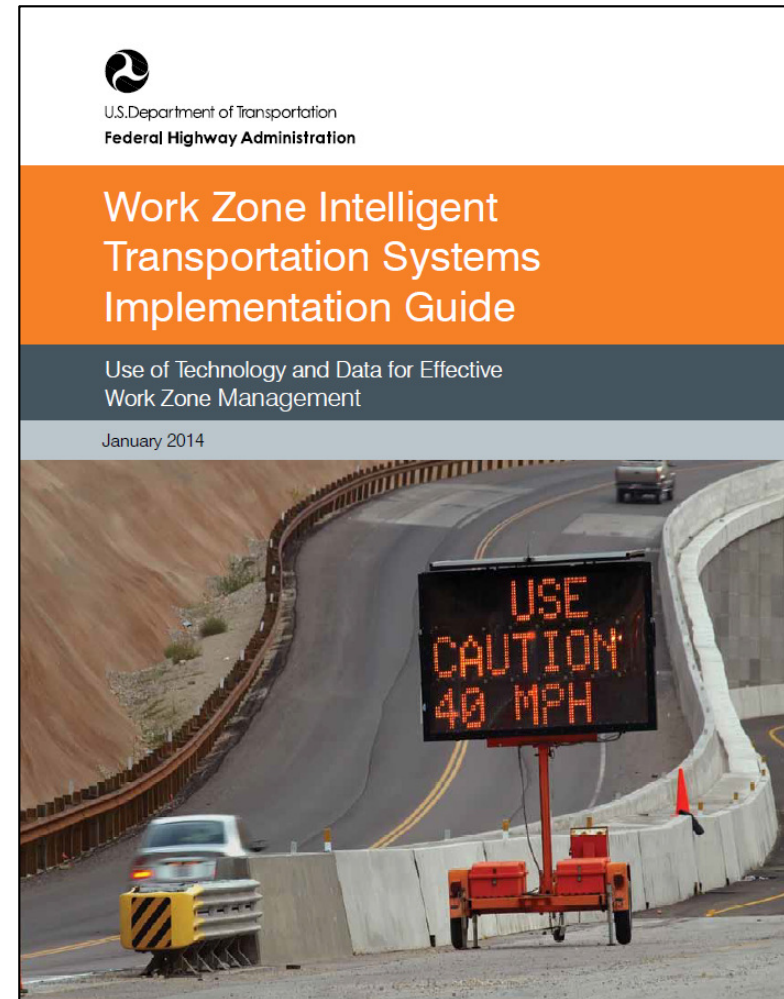
- Multiple speed trailers in & approaching work zone
- Each unit monitors prevailing speed – relays information to upstream units.
- Posted speed limit dynamically adjusted to reduce downstream speed differential



Implementation Guidance

Work Zone ITS Implementation Guide

- Provides guidance on implementing ITS in work zones to assist public agencies, design and construction firms, and industry stakeholders
- Presented through a 6-step Systems Engineering Approach to WZ ITS implementation
- Available for download at:
<http://www.ops.fhwa.dot.gov/publications/fhwahop14008/fhwahop14008.pdf>

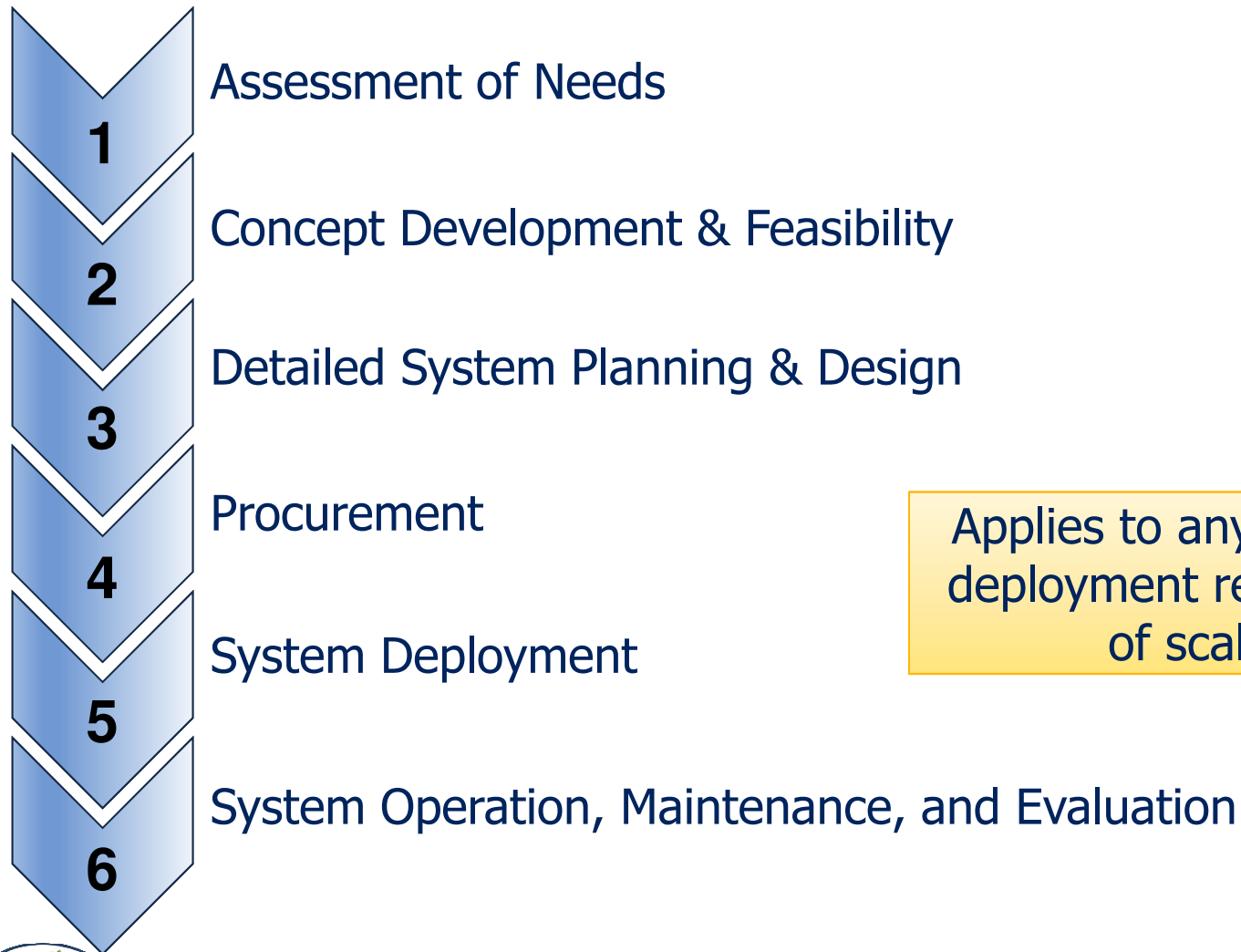


Source: FHWA



Implementation Guidance

Work Zone ITS Implementation Guide Steps



Applies to any WZ ITS deployment regardless of scale



Smarter Work Zones

RESOURCES



Funding Opportunities

State Transportation Innovation Councils (STIC) Incentive Program	Accelerated Innovation Deployment (AID) Demonstration Program
<ul style="list-style-type: none">• Funds activities which turn innovations into standard practices• All states are eligible• Up to \$100,000 available to each STIC annually• Can be used to fund multiple initiatives• Use to pay consultants to develop standards, specifications, design manuals, evaluations, implementation plans, workshops, training, and more!	<ul style="list-style-type: none">• Projects may be any aspect of highway transportation• Max of \$1,000,000 (up to full cost of project)• Monitoring, assessment, and technology transfer commitments• Current grants include ABC, high surface friction treatments, and ATMS/A.

www.fhwa.dot.gov/stic

<https://www.fhwa.dot.gov/accelerating/grants/>



Visit FHWA's SWZ Interactive Toolkit

<https://www.workzonesafety.org/swz/>

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workzonesafety.org National Work Zone Safety Information Clearinghouse

Library of Resources to Improve Roadway Work Zone Safety for All Roadway Users

Crash Information Flagger Information Training Events and Conferences Data Resources Hot Topics

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Smarter Work Zones

Smarter Work Zones (SWZ) are among a few select initiatives being promoted by the FHWA Every Day Counts Program. SWZ are work zones that utilize innovative strategies to minimize work zone safety and mobility impacts. In EDC3, focus is on coordination of construction projects and use of technology applications to dynamically manage work zone impacts. These strategies include coordination of roadway construction projects to reduce work zone impacts and using technology applications to dynamically manage traffic in the work zone environment.

Project Coordination

Coordination within a single project and/or among multiple projects within a corridor, network, or region, and possibly across agency jurisdictions to minimize work zone traffic impacts

Technology Applications

Deployment of Intelligent Transportation Systems (ITS) for dynamic management of work zone traffic impacts, such as

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 - [FHWA Work Zone Mobility and Safety Program](#)



Utilize Various Learning Opportunities!

- In-Person Workshops
- Virtual Peer Exchanges
- In-Person Peer Exchanges
- Demonstration Site Visits

Free educational opportunities are available!

Contact Jawad Paracha for more information

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SMARTER WORK ZONES
IN-PERSON WORKSHOPS

WHAT ARE SMARTER WORK ZONES?
Smarter Work Zones (SWZ) is one of a few select innovations being promoted by the Federal Highway Administration's (FHWA) Every Day Counts Round 3 (EDC-3) Initiative. SWZ are work zones that utilize innovative strategies to better coordinate construction projects and/or deploy innovative technology applications to dynamically manage and minimize work zone safety and mobility impacts. Visit www.workzonesafety.org/swz to learn more about participation opportunities and to access our archive of resource materials!

WORKSHOPS
One- and two-day workshops from the Federal Highway Administration's (FHWA) Every Day Counts Round 3 (EDC-3) Initiative offer the opportunity for agencies to ask questions, offer feedback, and learn best practices to apply SWZ.

What is included?
Several adaptable workshop formats are available for agencies to customize to their needs. Workshops typically last about 45-60 minutes and include:

- **SWZ Overview:** Funding mechanisms, as well as the history and program goals.
- **History and Program Goals:** Current and planned SWZ approaches, and the role of SWZ in the transportation system.
- **SWZ Fundamentals:** Information on the SWZ lifecycle, including planning, implementation, and operations.

SMARTER WORK ZONES
DEMONSTRATION SITE VISITS

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DEMONSTRATION SITE VISITS
Agencies that are interested in adopting SWZ are encouraged to visit demonstration sites to see SWZ in action. These visits provide an opportunity for agencies to learn from others while planning and implementing SWZ.

What is included?
Demonstration site visits typically last 1 to 2 hours and include:

- Presentations at your agency's location by one or more peer experts with experience deploying similar tools or technologies within their own region or state.
- Facilitated, interactive discussions between expert peers and event participants to better understand how and why deployments occurred and/or how agency business processes were modified.
- Visits to another agency to view and discuss tools and procedures that are followed when implementing SWZ, or to see deployed technologies in action through field visits.

Discussions may include Q&A on how an agency has successfully implemented SWZ, lessons learned, as well as changes made over time to improve SWZ deployment. If needed, a follow-up call can be arranged to address any remaining participant questions.

SMARTER WORK ZONES
IN-PERSON AND VIRTUAL PEER EXCHANGES

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PEER EXCHANGES
Peer exchanges offer agencies interested in adopting SWZ the opportunity to interact with staff in other agencies or with stakeholders who are experienced in successfully planning and deploying similar strategies and technologies. Understanding that agency needs differ, peer exchanges are customizable to best meet participant needs. Peer exchanges provide an opportunity for agencies to obtain technical assistance, ask questions, and generally learn from others while planning and implementing SWZ.

What is included in a peer exchange?
Peer exchanges can take many forms, including:

- Presentations at your agency's location by one or more peer experts with experience deploying similar tools or technologies within their own region or state.
- Facilitated, interactive discussions between expert peers and event participants to better understand how and why deployments occurred and/or how agency business processes were modified.
- Visits to another agency to view and discuss tools and procedures that are followed when implementing SWZ, or to see deployed technologies in action through field visits.

Discussions may include Q&A on how an agency has successfully implemented SWZ, lessons learned, as well as changes made over time to improve SWZ deployment. If needed, a follow-up call can be arranged to address any remaining participant questions.

In-Person vs. Virtual Peer Exchanges—What's Best for My Agency?
FHWA offers the opportunity to meet in-person at a location of your choice, or virtually through FHWA's web meeting tools.

In-Person Peer Exchanges—An in-person event will typically last 1 to 1.5 days. These events can involve several of your agency staff and stakeholders, meeting with one to two peer experts brought in specifically for the meeting event. A pre-developed agenda is followed to guide the discussion on the topics of interest. Conversely, a peer exchange can be arranged to bring up to three of your agency staff to meet with staff from another agency. A pre-developed agenda would again guide the discussion of topics. In these types of exchanges, the potential also exists to visit multiple work zones, allowing participants to examine SWZ technology in action.

Virtual Peer Exchanges—Virtual events generally last between 2 to 4 hours and are geared towards specific topics of interest. Virtual peer exchanges allow participants an in-depth look at a particular SWZ topic, as well as the inclusion of several peer experts, for comprehensive feedback. For agencies interested in multiple topics, a series of virtual peer exchanges can be made available.

For More Information:

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