

Smarter Work Zones



Two strategies for managing work zones and work zone traffic that can minimize travel delays and help maintain motorist and worker safety are coordination of roadway construction projects to reduce work zone impacts and using technology applications to dynamically manage traffic in the work zone environment.

Effective traffic management during construction is necessary to minimize travel delays, ensure motorist and worker safety, maintain access to local businesses and residences, and complete road work on time. These operational and safety benefits can be significant, especially in high-impact areas such as metropolitan regions and corridors and during special events.

While several options are available to establish efficient work zones, the EDC-3 Smarter Work Zones effort focuses on two strategies: road project coordination and technology applications, especially queue management and speed management.



ROAD PROJECT COORDINATION

Road project coordination involves 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 impacts and produce time and cost savings. Cities and regions around the country are efficiently

synchronizing projects at various levels, combining multiple projects in a corridor or network, correlating right-of-way acquisition and utility work, and coordinating work between different transportation agencies.

This internal and external agency road project coordination results in reduced numbers of street cuts, earlier identification of project impacts, greater ability to reduce and manage traffic disruptions from road work, cost savings, better quality road surfaces, and more satisfied customers.

TECHNOLOGY APPLICATIONS

Technology applications such as queue management and speed management involve deployment of Intelligent Transportation Systems (ITS) for dynamic management of work zone traffic impacts to improve motorist and worker safety and mitigate work zone-related congestion.

Queue management systems, especially when coupled with traffic information strategies, can alert drivers to a line of vehicles ahead caused by a work zone so they can slow down safely.

Speed management solutions, especially variable speed limit (VSL) systems, dynamically manage work zone traffic based on real-time conditions such as congestion and weather. Combining VSL with automated enforcement can increase driver compliance with displayed speed limits. Both queue and speed management use a range of technologies for detection, including Bluetooth® sensors and probe vehicles.

BENEFITS

- ▶ **Minimize Travel Delays.** Project coordination among different agencies allows them to be proactive in reducing construction time and the resulting traffic congestion. Technology applications can reduce travel delays by dynamically managing traffic according to real-time conditions.
- ▶ **Enhance Safety of Motorists and Workers.** Combining queue and speed management technologies can raise driver awareness as they approach work zones, provide delay and routing information, and increase their compliance with displayed speed limits.
- ▶ **Maintain Business and Resident Access.** Communication and coordination between agencies helps lessen the extended impacts of work zones and minimize effects on local access.

CURRENT STATE OF THE PRACTICE

Road project coordination is being used successfully from coast to coast in metropolitan areas and along interstate corridors. Examples include interagency coordination along a 1,000-mile corridor in the Great Lakes region between Minnesota and Ontario; a software-based system to coordinate right-of-way activities and reduce impacts in Baltimore, Maryland; the Oregon Department of Transportation's (DOT) corridor-level Transportation Management Plans; Ohio's permitted lane closure spreadsheet; and the Pennsylvania DOT's coordination with Pittsburgh municipalities and utility companies.

According to FHWA's Work Zone Management Program Web-based compendium of resources, VSLs

or advisories have been used on at least 30 interstate corridors in 14 states. States such as Minnesota, Oregon, Washington and Wyoming use VSL on certain corridors continuously as a standard practice, increasing the exposure of the motoring public to this concept.

In addition, at least 10 states, including Michigan, Minnesota, Oregon and Washington, have mature queue management systems that generate accurate and dependable results.

SUPPORT AND AVAILABLE TOOLS

- ▶ EDC-3 Smarter Work Zones Web page: <http://www.fhwa.dot.gov/innovation/everydaycounts/edc-3/swz.cfm>
- ▶ FHWA's Work Zone Mobility and Safety Program website at: <http://ops.fhwa.dot.gov/wz/construction/crp/>
- ▶ The Transportation Research Board's SHRP2 report, "Strategic Approaches at the Corridor and Network Levels to Minimize Disruption from the Renewal Process," is available at: <http://www.trb.org/Main/Blurbs/168143.aspx>
- ▶ American Association of State Highway and Transportation Officials "Transportation Systems Management and Operations Guidance" website at: <http://www.aashtotsmoguidance.org/>
- ▶ National Cooperative Highway Research Program report, "Highway Construction Coordination to Minimize Traffic Impacts" [http://planning.transportation.org/Documents/8-36/NCHRP8-36\(56\)FinalReport.pdf](http://planning.transportation.org/Documents/8-36/NCHRP8-36(56)FinalReport.pdf)
- ▶ FHWA Work Zone Mobility and Safety Program – Work Zone ITS & Technology website: <http://www.ops.fhwa.dot.gov/wz/its/index.htm>

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U.S. Department of Transportation
Federal Highway Administration

Every Day Counts (EDC), a State-based initiative of FHWA's Center for Accelerating Innovation, works with State, local and private sector partners to encourage the adoption of proven technologies and innovations aimed at shortening and enhancing project delivery

FHWA-14-CAI-043