

Resources to Support Work Zone Management Capability Maturity Framework Users

The Work Zone Management (WZM) Capability Maturity Framework (CMF) assesses the capability of an agency to effectively manage work zone traffic, which includes assessing work zone impacts and implementing strategies for minimizing or mitigating these impacts. Managing roadway traffic during work zones is necessary to minimize delays, maintain motorist and worker safety, complete construction in a timely manner, and maintain access for businesses, institutions and residents. The WZM CMF helps agencies provide a list of concrete actions to improve their capabilities in these regards.

The following resources, organized by capability dimensions and sub-dimensions, provide existing examples of capability from different parts of the country. These resources provide users of WZM CMF with relevant information as they consider their identified actions for improvement.

Click below to go directly to a particular dimension:

- [Business Process](#)
- [Systems and Technology](#)
- [Performance Measurement](#)
- [Organization and Workforce](#)
- [Culture](#)
- [Collaboration](#)

For more general resources and publications pertaining to work zone management: [FHWA Work Zone Management Program Publications](#).

Business Process

Business processes, in the context of work zones, refers to activities such as planning, programming, agency project development processes, and those organizational aspects that govern various technical or administrative functions such as training, human resource management, contracting and procurement, information technology, or agreements. In many cases, the business process elements go beyond the day-to-day operational activities and require broader institutional support and involvement to address. All of these processes are fundamental to the success of operations and management activities. Without the right procurement processes, partnering commitments, sustainable funding, internal awareness, and support, there could be a limited capacity to be able to implement more complex operations programs and activities. Table 1 provides a list of resources in this area.

Table 1. Business Process Resources for Work Zone Management

Sub-Dimensions	Primary Example
<p>Project Significance</p> <p>Actions under this sub-dimension address the question on how to determine project 'significance' (as defined by the agency and 23 CFR 630 Subpart J) that affect project development decisions</p>	<p>New Jersey Department of Transportation's (DOT) Traffic Mitigation Guidelines include designation of whether a project is "low," "medium," or "high impact." This determination is used to categorize projects and inform processes.</p> <p>Additional Examples</p> <ul style="list-style-type: none"> • Montana DOT's Work Zone Safety and Mobility Goals, Objectives, Guidelines, Procedures and Processes (Page 6-9) • Pennsylvania DOT Traffic Engineering Manual, Page 6-6 to Page 6-9, provide specific approaches to determine project significance. • Guidance and examples compiled by FHWA on Project Significance
<p>Road User Costs</p> <p>Actions under this sub-dimension address agency approaches to estimate and use work zone road user costs (RUCs) in making WZM decisions</p>	<p>Virginia DOT's HUB-CAP Tool, which provides a standardized method to quantify road user benefits/costs to the traveling public based on roadway geometric, traffic, and operating characteristics.</p> <p>Additional Examples</p> <ul style="list-style-type: none"> • New Jersey Road User Cost Manual • Colorado User Cost Program Website

Sub-Dimensions	Primary Example
<p>Innovative Contracting</p> <p>Actions under this sub-dimension address the question of how the agency utilizes innovative contracting to help achieve WZM goals and objectives</p>	<p>Virginia DOT's design-build website, which includes both Design-Build Evaluation Guidelines for determining if/how to use design-build contracts, and a Design-Build Procurement Manual outlining Virginia DOT's procurement process.</p> <p>Additional Examples</p> <ul style="list-style-type: none"> • Minnesota DOT Innovative Contracting Guidelines provide project managers with information identifying project candidates and contracting techniques • There are a diversity of innovative contracting approaches. A good summary list of examples for different contracting techniques is available on the FHWA Work Zone Website
<p>Transportation Management Plans</p> <p>Actions in this sub-dimension address the question of how well does your agency develop, implement, and evaluate transportation management plans (TMPs).</p>	<p>Colorado DOT's detailed procedures for constructing TMP plans during preliminary engineering phases, implementing, and evaluating TMP plans via formal debriefing process.</p> <p>Additional Examples</p> <ul style="list-style-type: none"> • California Transportation Management Plan Guidelines • Oregon DOT Transportation Management Plan, 2nd Edition, Project Level Guidance Manual • Sample TMPs compiled by FHWA
<p>Project Coordination</p> <p>Actions in this sub-dimension address the question of how well does your agency coordinate between multiple projects in a corridor to achieve overall WZM objectives.</p>	<p>Oregon DOT's use of a Region Mobility Schedule to coordinate work zone projects.</p> <p>Additional Examples</p> <ul style="list-style-type: none"> • Washington DC DOT's Integrated Work Zone Performance Management System and Utility Work Coordination tool • Great Lakes Regional Transportation Operations Coalition (GLRTOC) Smart Work Zone Coordination Website (Login required) • Project coordination examples compiled by FHWA

Systems and Technology

Use of the appropriate processes for design and implementation of systems will ensure that the needs of the region are appropriately addressed, that systems are implemented in an efficient manner, and that interoperability with other systems is achieved. Table 2 provides a list of resources in this area.

Table 2. Systems and Technology Resources for Work Zone Management

Sub-Dimensions	Primary Example
<p>Assessment and Adoption of New WZM Technology and Procedures</p> <p>Actions in this sub-dimension address the question of how well does your agency assess and adopt new technologies, procedures, and strategies available to help meet WZM needs.</p>	<p>Arizona DOT's National Review of Smart Work Zones (SWZ) technologies and subsequent SWZ work plan.</p> <p>Additional Examples</p> <ul style="list-style-type: none"> • Colorado DOT's testing of AVs to trail construction crews. • Washington DOT Use of Work Zone ITS • Minnesota Decision Tree for ITS in Work Zones
<p>Use of Existing WZM Technology and Procedures</p> <p>Actions under this sub-dimension address the question of how well does your agency apply existing technology already in place to address WZM needs.</p>	<p>Texas DOT's Smart Work Zone Guidelines provide guidelines for the consistent and uniform application of Smart Work Zones in the State of Texas.</p> <p>Additional Examples</p> <ul style="list-style-type: none"> • Illinois DOT use of queue warning systems in their Work Zone projects. • Texas DOT Go-No Go decision tool to make a determination on the use of a SWZ • Massachusetts Smart Work Zone Design Standards for work zone ITS layouts. • Work Zone ITS Implementation Tool

Performance Measurement

Performance measurement is essential as the means of determining program effectiveness, determining how changes are affecting performance, and guiding decision-making. In addition, operations performance measures demonstrate the extent of transportation problems and can be used to make the case for operations within an agency and for decision-makers and the traveling public, as well as to demonstrate to them what is being accomplished with public funds on the transportation system. Table 3 provides a list of resources in this area.

Table 3. Performance Management Resources for Work Zone Management

Sub-Dimensions	Primary Example
<p>Performance Measurement Definition</p> <p>Actions in this sub-dimension address the question of how does your agency quantify WZM performance.</p>	<p>New Jersey DOT has detailed sets of performance measures for both corridor performance and for specific traffic management strategies related to work zones—see Chapter 6 of its Traffic Mitigation Guidelines.</p> <p>Additional Examples</p> <ul style="list-style-type: none"> • State DOT data on crash reporting on work zones available through the National Work Zone Safety Information Clearinghouse • Report on Work Zone Performance Measures definition for Virginia DOT • FHWA resources on performance measurement
<p>Performance Measurement Utilization</p> <p>Actions in this sub-dimension address the question of how are WZM performance measures used by your agency.</p>	<p>Virginia DOT's interactive crash data tool that allows for easy examination of work-zone related incident data (as well as other crash data)</p> <p>Additional Example</p> <ul style="list-style-type: none"> • Maryland State Highway Administration use of Work Zone Performance Measurement Dashboard developed in Regional Integrated Transportation Information System (RITIS) platform by University of Maryland. [Page 61]

Organization and Workforce

Efficient execution of processes supporting effective programs requires appropriate combination of coordinated organizational functions and technical qualified staff with clear management authority and accountability. Table 4 provides a list of resources in this area.

Table 4. Organization and Workforce Resources for Work Zone Management

Sub-Dimensions	Primary Example
<p>Workforce Knowledge Status</p> <p>Actions in this sub-dimension address the question of what types of WZM knowledge and skills exist within the agency.</p>	<p>New Jersey DOT designates a "Traffic Mitigation Advocate" for Work Zones, who is responsible for overseeing the evaluation and management of work zones.</p> <p>Additional Examples</p> <ul style="list-style-type: none"> • Kansas DOT Flagger Training Material • Minnesota DOT Work Zone Safety Training Materials • FHWA compiled list of training material
<p>Workforce Knowledge Development</p> <p>Actions in this sub-dimension address the question of how are WZM knowledge, skills, and abilities developed among staff within the agency.</p>	<p>Several Midwestern States form the Midwest Work Zone Roundtable, a recurring meeting group to discuss and share best practices, research, and procedures.</p> <p>Additional Examples</p> <ul style="list-style-type: none"> • Virginia DOT's mandated Work Zone Traffic Control Training • Florida's use of webinars to provide relevant updates to Florida's design manuals
<p>Workforce Knowledge Retention</p> <p>Actions in this sub-dimension address the question of how is institutional WZM knowledge in various parts of the agency captured and shared.</p>	<p>Colorado DOT Work Zone and Mobility Procedures, which are formally recognized and include the designation of WZ task forces, monitoring, and staff trainings.</p> <p>Additional Example</p> <ul style="list-style-type: none"> • Iowa DOT Video Training Series

Culture

Culture is the combination of values, assumptions, knowledge, and expectations of the agency in the context of its institutional and operating context, and as expressed in its accepted mission and related activities. Table 5 provides a list of resources in this area.

Table 5. Culture Resources for Work Zone Management

Sub-Dimensions	Primary Example
<p>WZM Value</p> <p>Actions in this sub-dimension address the question of how is WZM valued within the agency.</p>	<p>Colorado DOT has published detailed work zone safety and mobility procedures, with the state's sub-regions even developing their own unique lane-closure policies.</p> <p>Additional Example</p> <ul style="list-style-type: none"> • Iowa DOT's Work Zone Management Service Layer in their Transportation Systems Management and Operation (TSMO) Program Plan. This serves as a tactical plan that is consistent with and in support of both the Iowa TSMO Strategic Plan and the Iowa TSMO Program Plan.
<p>WZM Encouragement</p> <p>Actions in this sub-dimension address the question of how is WZM innovation encouraged within the agency.</p>	<p>New Jersey DOT's Traffic Mitigation Advocate is responsible for "modifying Traffic Mitigation Policy and Procedures as needed to adapt to any modifications to the current project delivery process and update to reflect current industry practices or innovative strategies."</p> <p>Additional Example</p> <ul style="list-style-type: none"> • Iowa DOT use of an internal Work Zone Safety Committee to recommend department policies, standard practices, and specifications regarding work zone safety and mobility.

Sub-Dimensions	Primary Example
<p>WZM Outreach</p> <p>Actions in this sub-dimension address the question of what WZM outreach and reporting occur within the agency.</p>	<p>Maricopa County, Arizona's Road Closures and Restrictions Report website, which features updated information and maps of all closures.</p> <p>Additional Examples</p> <ul style="list-style-type: none"> • Maine Turnpike Authority Work Zone Safety Awareness • Missouri DOT's Tracker provides a program-level summary of performance by the agency including work zones. • FHWA compiled list of program-level outreach activities • FHWA compiled list of project-level outreach activities • Ohio DOT Permitted Lane Closure Search website

Collaboration

The development and implementation of work zone management requires a collaborative approach. The effectiveness of most strategies is dependent on improving the coordinated performance of each partner. Table 6 provides a list of resources in this area.

Table 6. Collaboration Resources for Work Zone Management

Sub-Dimensions	Primary Example
<p>Law Enforcement</p> <p>Actions in this sub-dimension address the question of how does the agency utilize law enforcement for WZM needs.</p>	<p>The New Jersey DOT's Traffic Mitigation Guidelines for work zones describe when and how to engage local and state police.</p> <p>Additional Examples</p> <ul style="list-style-type: none"> • Maryland DOT's guidelines for police in Work Zones • Maryland DOT Automated Speed Enforcement in Work Zones
<p>Private-Sector Input</p> <p>Actions in this sub-dimension address the question of how does the agency consider private-sector input (e.g., contractors, affected businesses) on addressing WZM needs.</p>	<p>Use of private probe data for work zone management at Maryland DOT. Report describes a Work Zone Performance Monitoring Application (WZPMA) that uses third party probe data for real-time monitoring and evaluation of work zones. The WZPMA was included as a tool within RITIS.</p> <p>Additional Example</p> <ul style="list-style-type: none"> • Minnesota DOT partnership guidelines for construction projects.
<p>Other Stakeholders</p> <p>Actions in this sub-dimension address the question of how does the agency incorporate other stakeholders (general public, schools, businesses, EMS, etc.) into the WZM process.</p>	<p>Arizona DOT and Maricopa County's use of a Traffic System Management Committee composed of construction and contractor personnel, police, fire departments, local government officials, and consultants.</p> <p>Additional Example</p> <ul style="list-style-type: none"> • Minnesota DOT Statewide Work Zone Safety Committee