

# Work Zone Impacts Assessment

The **Final Rule on Work Zone Safety and Mobility** was published on September 9, 2004, in the *Federal Register*. All state and local governments that receive federal-aid funding are required to comply with all provisions of this rule no later than October 12, 2007.

The rule updates and broadens the existing regulation at 23 CFR 630 Subpart J to address more of the current issues affecting work zone safety and mobility. Within the rule are three primary components:

- Development and implementation of an overall, state-level work zone safety and mobility **policy**.
- Development of standard **processes and procedures** to support policy implementation, including procedures for work zone impacts assessment, analyzing work zone data, training, and process reviews.
- Development of procedures to assess and manage work zone impacts on individual **projects**. This includes requirements for identifying *significant projects* and developing and implementing transportation management plans (TMP). A *significant project* is defined in the rule as one that, alone or in combination with other concurrent projects nearby, is anticipated to cause sustained work zone impacts that are greater than what is considered tolerable based on state policy and/or engineering judgment.

The full text of the rule can be found at <http://dms.dot.gov/docimages/p79295783.pdf>.

While the rule requires agencies to develop and implement procedures for work zone impacts assessment, it does not prescribe any specific approach. To assist agencies with developing their own procedures for assessing the work zone impacts of road projects, the Federal Highway Administration (FHWA) is developing a work zone impacts assessment guidance document. The document will set forth some guiding principles for work zone impacts assessment.

This fact sheet provides an introduction to the forthcoming guidance document.

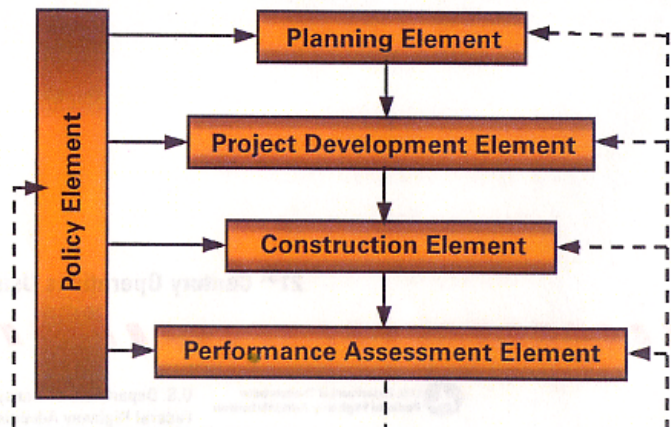
## What Are the Benefits of Work Zone Impacts Assessment?

Assessing work zone impacts is intended to help transportation professionals:

- Understand the work zone safety and mobility impacts of their road projects.
- Understand the work zone safety and mobility implications of alternative project options and design strategies.
- Identify *significant projects*.
- Identify transportation management strategies that help manage the expected work zone impacts of a project.
- Develop a suitable TMP for a road project.
- Implement a TMP and monitor and manage the impacts of a project during construction.
- Provide guidance and input to conduct post-construction performance assessment studies.

## Contents of the Guidance Document

The guidance document provides a general approach for assessing the potential impacts of road projects and developing strategies to manage the expected impacts. The approach is envisioned as a decision support tool. The impacts assessment process presented in the guidance document consists of five elements that represent the major activities of program delivery. As illustrated in the following figure, information from one element of the impacts assessment process feeds into the other elements. For example, what is learned through performance assessment could lead to changes in a state's policies.



- **Policy Element.** The policy element provides guidance on assessing, developing, and applying work zone safety and mobility policies. It is intended to help agencies use their existing policies and further develop them, as needed, to implement an overall work zone safety and mobility policy.
- **Systems Planning Element.** The systems planning element sets forth guidance on incorporating work zone safety and mobility in long range and short-term transportation planning. It provides a systematic decision structure at the systems planning level to identify potential work zone impacts of projects; identify potential transportation management strategies and estimate their costs; and schedule projects so as to minimize their cumulative impacts.
- **Project Development Element.** The project development element provides decision support in progressively assessing the work zone impacts of individual projects through the various stages of project development, and in developing an appropriate TMP for the project. The level of impacts assessment and the strategies included in the TMP will vary with the type, duration, size, length, and anticipated work zone impacts of the project.
- **Construction Element.** The construction element provides guidance on implementing the TMP, monitoring the impacts of the project during construction, and revising the TMP, if necessary.
- **Performance Assessment Element.** The performance assessment element provides guidance on assessing the performance of individual work zones, conducting process reviews, and using the information from the reviews to improve the agency's work zone processes and procedures.

Within the guidance document, a variety of methods will be used to describe recommended activities and decision-making factors for each of these elements:

- Process diagrams
- Work-flow explanations
- Decision matrices
- Real-world examples
- Links to locations where more detailed information may be obtained on the example cases.

### Implementation Guidance

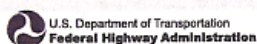
The Federal Highway Administration (FHWA) is currently developing an Implementation Guidance document to help State Departments of Transportation (DOTs) implement the provisions of the work zone final rule and attain compliance. To supplement the overall Implementation Guidance document, a suite of companion guidance documents amplifying specific aspects of the final rule will be provided. These guidance documents, which will be available in mid-2005, cover the following topics:

- Work Zone Impacts Assessment Process Guidelines
- Work Zone Transportation Management Plan (TMP) Development Guidelines
- Work Zone Public Information and Outreach Plan Development Guidelines.

This fact sheet is one in a series of final rule fact sheets meant to increase awareness and understanding of the rule and the products being developed to assist agencies with the implementation of the rule. Fact sheets are available for the three specific guidance document topics as well as for the final rule itself.

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FHWA-HOP-05-023

# FINAL RULE on WORK ZONE

Safety and Mobility

23 CFR 630 Subpart

## Final Rule on Work Zone Safety and Mobility

The *Final Rule on Work Zone Safety and Mobility* was published on September 9, 2004, in the *Federal Register*. This rule updates and renames the former regulation on "Traffic Safety in Highway and Street Work Zones." All state and local governments that receive federal-aid highway funding are affected by this rule and shall comply by October 12, 2007.

### The Rule:

- Focuses on a state-based work zone policy approach to institutionalize work zone processes and procedures
- Reflects changing times to address more traffic, more congestion, greater safety issues, and more work zones
- Broadens the regulation to address more of the current issues affecting work zone "safety" and "mobility"
- Facilitates customer-focused project development for comprehensive consideration of "work zone impacts."

### Why Update the Rule?

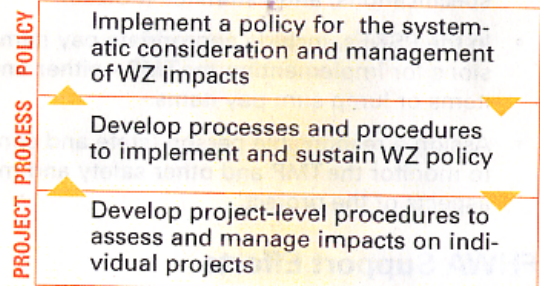
- Growing traffic volumes and congestion on many of our roads
  - Vehicle travel is up, but there has been very little growth in road miles
- Our highways are approaching middle age
  - More construction and repair are needed, which means more work zones
- A growing portion of this work is rehabilitation done under traffic
  - More traffic exposed to work zones and more workers exposed to traffic
  - Compressed contractor schedules
  - Increasing night work
- Work zone safety is a concern
  - More than 40,000 injuries and 1,028 fatalities in 2003
- Travelers are not happy with work zones
  - Unexpected road conditions, delays, and inconsistency cause traveler frustration

### Rule Overview

The full text of the rule can be found at <http://dms.dot.gov/docimages/p79295783.pdf>. A summary of the rule follows.

The new rule was written to be flexible, taking into account different project types and classes. The rule has three primary focus areas:

- Implementation of an overall work zone safety and mobility policy
- Development of standard processes and procedures
- Development of project-level procedures to address work zone impacts.



Within these components are the following provisions:

### Policy-Level Provisions (Section 630.1006)

- Implement an overall policy that facilitates the systematic consideration of work zone safety and mobility
- Work in partnership with the FHWA to develop and implement the policy.

### State-Level Processes and Procedures (Section 630.1008)

- Develop and implement processes/procedures for systematic work zone impact assessment and management
- Use work zone safety and mobility information and data to manage impacts on ongoing projects and to conduct performance assessments at the completion of projects to improve state work zone procedures

- Require training for personnel involved in work zone planning, design, implementation, management, and enforcement
- Conduct process reviews to assess widescale performance of work zones with the goal of improving work zone processes and procedures.

### Project-Level Provisions (Sections 630.1010 and 630.1012)

- Identify significant projects early in the project development process. Significant projects are those anticipated to cause sustained work zone impacts greater than what is considered tolerable based on state policy and/or engineering judgment.
- Develop transportation management plans (TMP) that focus on safety and mobility.
  - TMPs for **significant projects** must consist of a temporary traffic control (TTC) plan. The TMPs must address transportation operations (TO) strategies that will be used to ease work zone impacts. They must also address public information (PI) strategies to inform those affected by the project of the expected work zone impacts and changing conditions.
  - TMPs for **all other projects** must consist at least of a TTC plan and may include TO and PI strategies as well.
- Include appropriate TMP provisions in the plans, specifications, and Estimates (PS&Es).
- In the PS&Es, include appropriate pay item provisions for implementing the TMP—either unit pay items or lump sum pay items.
- Assign a responsible person (state and contractor) to monitor the TMP and other safety and mobility aspects of the project.

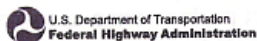
### FHWA Support Efforts

FHWA is committed to providing the guidance that practitioners need to implement this rule. An outreach strategy has been developed to promote awareness of the rule as well as availability of implementation guidance. A comprehensive implementation guide will be available in the Fall of 2005. This guide will address each component of the rule and provide related case studies, examples, and resources. Other guidance includes:

- **Work Zone Impact Assessment**—guidance on developing procedures to assess work zone impacts of projects.

- **Transportation Management Planning**—guidance on developing TMPs for managing work zone impacts of projects.
- **Communication and Outreach**—guidance on the development of communications strategies that seek to inform affected audiences about construction projects, the expected work zone impacts, and the changing conditions on projects.
- **Roadside Safety Audits**—guidance on performing audits to assess a project's accident potential and safety performance.
- **QuickZone Traffic Impact Analysis Tool**—a tool that can be used to estimate work zone delays, allowing road owners and contractors to analyze and compare project alternatives, such as the effects of doing highway work at night instead of during the day, or of diverting the traffic to different roads at various stages of construction. Information on the tool is available at <http://www.tfsrc.gov/its/quickzon.htm>.
- **Full Road Closure for Work Zone Operations—A Cross-Cutting Study**—provides a summary of how several state DOTs each used a full closure approach to conduct a road rehabilitation/reconstruction project. The report is available at [http://www.ops.fhwa.dot.gov/wz/construction/full\\_rd\\_closures.htm](http://www.ops.fhwa.dot.gov/wz/construction/full_rd_closures.htm).
- **Innovative Contracting Guidance**—resources for innovative contracting methods, including an online knowledge exchange, are available at <http://www.ops.fhwa.dot.gov/wz/contracting/index.htm>.
- **ITS in Work Zones**—a series of documents to raise awareness among maintenance and construction engineers and managers of the applications and benefits of ITS in work zones. These documents are available at <http://www.ops.fhwa.dot.gov/wz/its/index.htm>.
- **Work Zone Training Courses**—a new NHI course, Work Zone Management and Design (#380072A), will provide planners, designers, construction managers, and other transportation professionals with the skill and knowledge of both technical and non-technical aspects of work zone traffic control practices. The course is expected to become available in June 2005.

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FHWA-HOP-04-014

# Transportation Management Plans (TMPs) for Work Zones

The *Final Rule on Work Zone Safety and Mobility* was published on September 9, 2004, in the *Federal Register*. All state and local governments that receive federal-aid funding are required to comply with all the provisions of this rule no later than October 12, 2007.

The rule updates and broadens the existing regulation at 23 CFR 630 Subpart J to address more of the current issues affecting work zone safety and mobility. Within the rule are three primary components:

- Development and implementation of an overall, state-level work zone safety and mobility **policy**.
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The full text of the rule can be found at <http://dms.dot.gov/docimages/p79295783.pdf>.

The Federal Highway Administration (FHWA) is developing a guidance document to help state and local agencies developing TMPs. This fact sheet provides an introduction to the forthcoming guidance document.

## What Is a TMP?

A TMP lays out a set of strategies for managing the work zone impacts of a project. The TMP requirement in the rule helps to expand mitigation opportunities for work zone impacts beyond traffic safety and control. The scope and content of the TMP required for a project are based on the agency's work zone policies, its understanding of the expected work zone impacts of the project, and whether a project is determined to be *significant*.

For all projects, the TMP called for in the rule will contain a Temporary Traffic Control (TTC) plan that addresses traffic safety and control through the work zone. Some States refer to TTC plans as Traffic Control Plans (TCP) or Maintenance of Traffic (MOT) plans.

If a project is expected to be significant, the TMP for that project must also contain both a transportation operations and a public information components. The transportation operations (TO) component addresses operations and management of the transportation system in the work zone impact area. Examples of TO strategies include enforcement and travel demand management. The public information component addresses communication with the public and concerned stakeholders about the project, its expected work zone impacts, and changing conditions.

## What Are the Benefits of a TMP?

Some of the key benefits of a TMP are to help:

- Address the broader safety and mobility impacts of work zones at the corridor and network levels.
- Promote more efficient and effective construction staging, duration, and costs.
- Improve work zone safety for construction workers and the traveling public.
- Minimize traffic and mobility impacts.
- Improve public awareness.
- Minimize circulation, access, and mobility impacts to local communities and businesses.
- Improve intra and interagency coordination.

*"TMPs would streamline the process through which road user impacts due to work zones can be properly analyzed and addressed."*

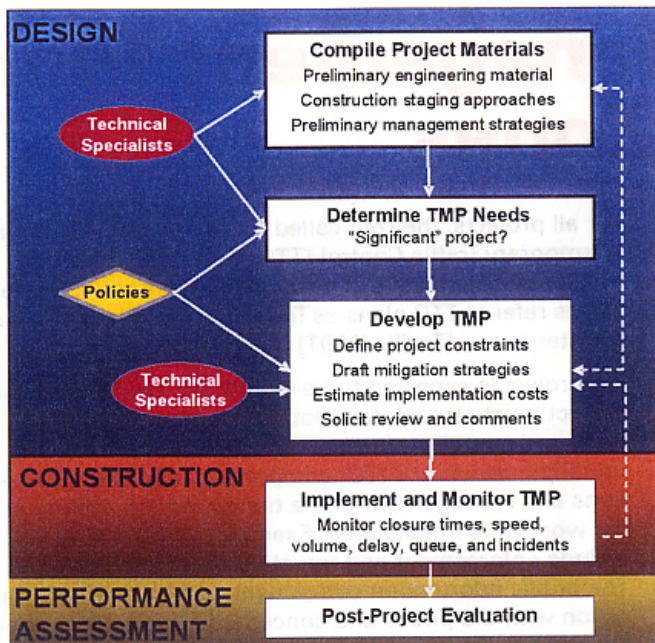
– Jawad Paracha,  
Maryland State  
Highway Administration

*"[TMPs] bring all stakeholders into the discussions in advance, so we can work out the best detour routes, signal retiming, and other geometric improvements."*

– Tom Notbohm, Wisconsin DOT

## TMP Development and Implementation

TMP development begins during the design phase (or earlier) of a project. One approach for developing a TMP is shown in the figure below. As part of this process the agency will need to determine whether or not a project is significant because this indicates the contents of the TMP required by the rule.



*"Effective TMPs are ones that are developed early, and address both the traffic control design and traffic operational components of the work zone."*

– Steve Kite, North Carolina DOT

### Tips for an Effective TMP

- Look to involve relevant stakeholders early in the process.
- Consider potential management strategies and implementation costs early in planning and programming.
- Consider and develop management strategies for impacts beyond the physical location of the work zone itself (e.g., on adjacent roadways, on local businesses).
- Consider a range of alternative transportation management strategies. Avoid constraining the number and/or type considered.

- Constructability needs and work zone management strategies need to be balanced.
- Recognize that cost is often a constraint for the development of a TMP, particularly for major TMPs.
- The TMP is a "dynamic document" that needs to be maintained and revised with changes made by the project team.
- During construction, monitoring the implementation of the TMP and field conditions enables an agency to identify potential safety and mobility concerns, and to revise the TMP as necessary.
- Evaluating the effectiveness of your TMPs can provide valuable lessons learned for future projects.

*"Based on our experience, public information is the TMP mitigation strategy that gives us the 'biggest bang for the buck'—its effectiveness is greater in urban areas, but still holds true in rural areas."*

– Robert Copp, Caltrans

### Implementation Guidance

The Federal Highway Administration (FHWA) is currently developing an Implementation Guidance document to help State Departments of Transportation (DOTs) implement the provisions of the work zone final rule and attain compliance. To supplement the overall Implementation Guidance document, a suite of companion guidance documents amplifying specific aspects of the final rule will be provided. These guidance documents, which will be available in mid-2005, cover the following topics:

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# Public Information and Outreach Strategies for Work Zones

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The full text of the rule can be found at <http://dms.dot.gov/docimages/p79295783.pdf>.

For significant projects, the TMP must include public information and outreach strategies to inform those affected by the project of expected work zone impacts and changing conditions. To assist state and local agencies with these strategies, the Federal Highway Administration (FHWA) is developing a Public Information and Outreach guidance document. This document will include information to help agencies plan and evaluate an outreach campaign; identify the audiences for a campaign; decide when to begin a campaign and what types of information to convey to the public and other audiences and what methods of communication to use; and work with the mass media to spread the message.

This fact sheet provides an introduction to the forthcoming guidance document.

## What Is a Public Information and Outreach Campaign?

A public information and outreach campaign involves communicating to road users, the general public, area residents and businesses, and appropriate public entities about a road project, the impacts expected from the project's work zone, and changing conditions on the

*"Illinois DOT (IDOT) has made a concerted effort to communicate to the public in advance. We've been consistent in our messaging of how important this project is for our future safety and this has really resonated with the public."*

– Beth Mosher, IDOT, on the Upgrade 74 project

project. A typical campaign will include traveler information strategies for providing information about what to expect in and around the work zone—such as lane and shoulder closings, new traffic patterns,

and traffic delay—and available travel alternatives such as different routes and travel modes.

## What Are the Benefits of a Public Information and Outreach Campaign?

Public information campaigns are increasingly being viewed by transportation professionals as an integral part of highway construction programs, large or small.

**HYPERFIX** 70



*Park and ride sign for the Hyperfix project on I-65/I-70 in Indianapolis, Indiana*

*"Because Indiana DOT (INDOT) partnered with the news media throughout the process from the very first day of the closure, we did not experience the gloom and doom gridlock that was feared would have the entire city shut down. People changed their travel behaviors and the overall project was a huge success."*

– Roger Manning, INDOT, on the I-65/70 "Hyperfix" reconstruction project

Some of the main benefits of a public information and outreach campaign are:

- Improved driver and worker safety.
- Less traffic delay.
- Reduced driver frustration.

## Successful Practices for Effective Public Outreach Campaigns

A review of approximately 30 project-specific work zone public outreach campaigns used around the country found that:

- Successful public information and outreach campaigns are typically planned well in advance of work zone deployment.
- Public information needs can be determined by identifying the scale and patterns of disruption.
- Target audiences are often diverse and may include drivers (private and commercial, local and long distance), residents, employers, other public agencies, organizers of special events, and emergency responders/hospitals.



- A range of communication methods is the best way to reach a diverse audience. Methods may include a Web site, e-mail alerts, printed materials, videos, public meetings, mass media, traveler information, and information centers.

- The underlying messages of most public outreach campaigns are safety first, plan ahead, know your surroundings (delays, change in traffic patterns), and "we care."
- Partnerships with other organizations will help shape and communicate a public outreach message. Other organizations may include public agencies, major employers, and mass media.
- Information should be provided before and during work zone deployment and, in some cases, after completion.

- The strategies used should be evaluated to improve public outreach in the long run.

*"Overwhelmingly, the reaction from both the target audience and the media to the outreach program has been positive. The Public Information team and the Texas DOT regularly receive positive feedback from the community regarding the regular and timely dissemination of information."*

– Raquelle Wooten, TxDOT, on the Katy Freeway reconstruction project

## Implementation Guidance

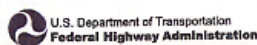
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