Transportation Management Plan Overview

Module 3

FHWA

Module Outline

- TMPs and the WZ Rule
- What is a TMP?
- Why TMPs?
- When to Develop TMPs
- State-of-the-Practice
  - Tools
  - Tips

TMP Beginnings

- Idea for TMP provision in WZ Rule came from Caltrans
  - Caltrans began requiring TMPs in 2000 for all planned activities on the State highway system
  - Implementation of TMPs in CA has helped to significantly reduce delays in work zones

In Caltrans District 7, on the I-10 Long-Life Pavement Project, the TMP helped reduce traffic demand by an estimated 57 percent, queue lengths to 2 miles from the originally projected 44 miles, and projected delays from an estimated 1,000,000 to 16,000 total vehicle hours of delay.

TMPs and the WZ S&M Rule

- Requires development and implementation of TMPs for all Federal Aid highway projects
- Required content depends on *significance*
  - Must always include a Temporary Traffic Control (TTC) Plan
  - For significant projects, TMPs must also have:
    - Traffic operations (TO) component
    - Public information and outreach (PI) component

In brief, a significant project is one that the agency expects will cause a relatively high level of disruption.

TMPs and the WZ Rule (cont.)

- Agencies <u>should</u> coordinate with appropriate stakeholders in developing a TMP
- Provisions for a TMP <u>shall</u> be in the project's Plans, Specifications, and Estimates (PS&Es)
- DOT and contractor <u>shall</u> each designate a responsible person for implementing the TMP

TMPs and the PS&Es

- PS&Es shall either contain:
  - All the applicable elements of a DOT-developed TMP, or
  - Provisions for a contractor to develop a TMP (e.g., for design-build jobs)
- DOT must approve contractor-developed TMPs
- DOT must approve contractor-proposed TMP changes

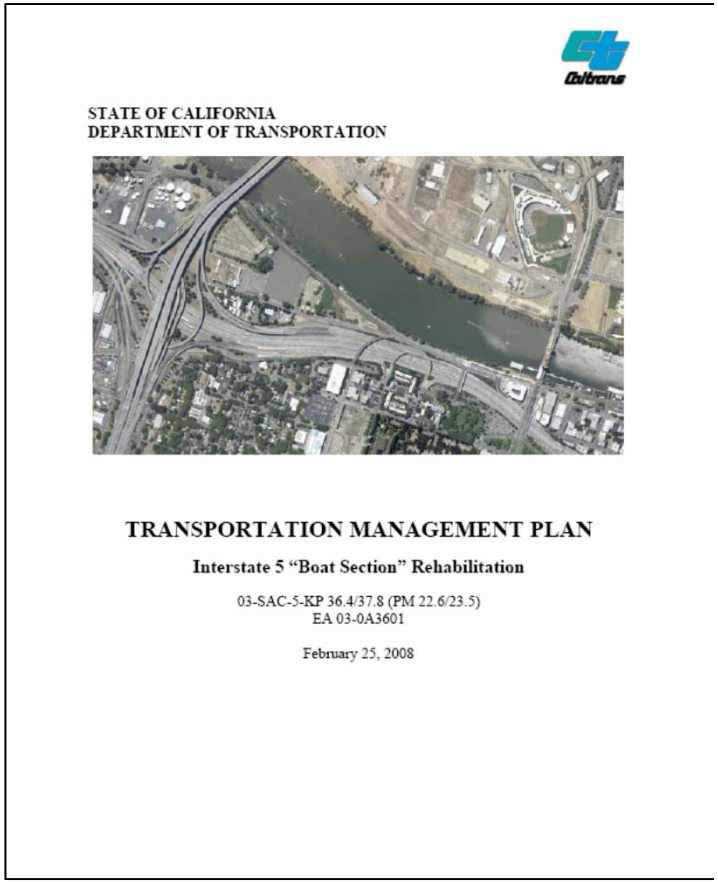
Responsible Persons

- Both the DOT and the contractor are required to designate a responsible person:
  - At the project-level
  - Who is appropriately trained
  - Who has primary responsibility and sufficient authority for implementing the TMP and other safety and mobility aspects of the project

What is a TMP?

Transportation Management Plan

- Set of coordinated strategies implemented to manage the WZ impacts of a project
- Scale-able – projects with more expected impacts may need more analysis and more strategies



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRANSPORTATION MANAGEMENT PLAN

Interstate 5 "Boat Section" Rehabilitation

03-SAC-5-KP 36.4/37.8 (PM 22.6/23.5)
EA 03-0A3601

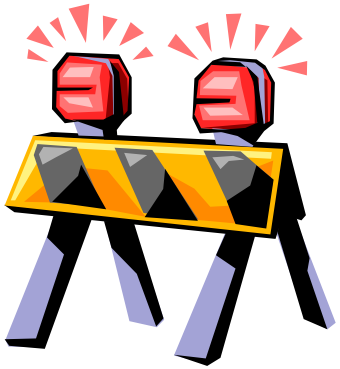
February 25, 2008

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

TMP vs. TCP

- TCP – plan for handling traffic through the use of traffic control devices
  - Once strategy is determined, TCP implements

- TMP – more comprehensive - incorporating broader issues -
  - Public awareness
  - Mobility and safety impacts
  - Stakeholder involvement



If not a “Significant project”, then TMP can equal TCP

What is a TMP?

- DOTs create design documents to show how they are going to build a project
- The TMP shows how the DOT is going to manage transportation needs during a project
- With today's WZ challenges, a TTC plan may not be enough

TMPs = a more comprehensive approach to managing WZ safety and mobility

Potential TMP Components

- Introductory material
- Executive Summary
- TMP Roles and Responsibilities
- Project Description
- Existing and Future Conditions
- Work Zone Impacts Assessment

Potential TMP Components (con't)

- Work Zone Traffic Management Strategies
  - TTC Plan
  - Traffic Operations Plan
  - Public Information Campaign
- TMP Monitoring Requirements
- Contingency Plans
- Implementation Costs

May be a single document, or several documents/plans compiled together

Example: Wisconsin TMP Components

- Type 1
  - Traffic Control Plan
  - Public Information and Outreach
- Type 2, 3, 4
  - Traffic Control Plan
  - Public Information and Outreach
  - Transportation Operations
  - Incident Management

Example: Michigan TMP Template

Table of Contents:

- Executive Summary
- Temporary Traffic Control Plan (TTCP)
- Transportation Operations Plan (TOP)
- Public Information Plan (PIP)
- Delay Calculation Details
- Alternative Traffic Control
- Vicinity Map or Location Diagram

Michigan TMP Executive Summary

- Basic description - Location, work type
- Specific Project Data:
  - Letting Date
  - Anticipated Project Duration *(Construction Start Date and Completion Date)*
  - Existing Lane Widths
  - Existing Paved Shoulder Widths
  - Existing Aggregate Shoulder Widths
  - Threshold Criteria
    - Which criteria were exceeded ?
    - How was delay calculated?
    - What is the source of traffic volumes?
  - Facility Details (e.g., ADT, lanes)
  - Crash Analysis and Safety Review

TMP Formats

TMPs need to be documented

- Options include:
  - Single document with all included material
  - Brief document with summaries of analysis results and decisions, where the full documentation is in the project files or similar
  - Powerpoint format has been used
  - Others?
- Scope, content, level of detail may vary based on DOT policy and impacts

Why TMPs?

- **WZ management is increasingly complex**
  - Increasing traffic volumes using the same roads that agencies need to maintain and rehabilitate
  - Requires traffic management efforts beyond TTC plans
- Key issues:
  - Safety
  - Mobility
  - Constructability

Objective: *Achieve constructability without compromising safety and mobility*

Importance of a TMP

What are the benefits of having a well thought-out approach to managing traffic during a construction project?

- **Consider your stakeholders:**
  - Contractors
  - Motorists
  - Property owners
  - Project owners
  - Businesses
  - Environment
  - Event organizers, etc.

Why TMPs? – Key Benefits

A well-planned method for managing traffic flow during construction can:

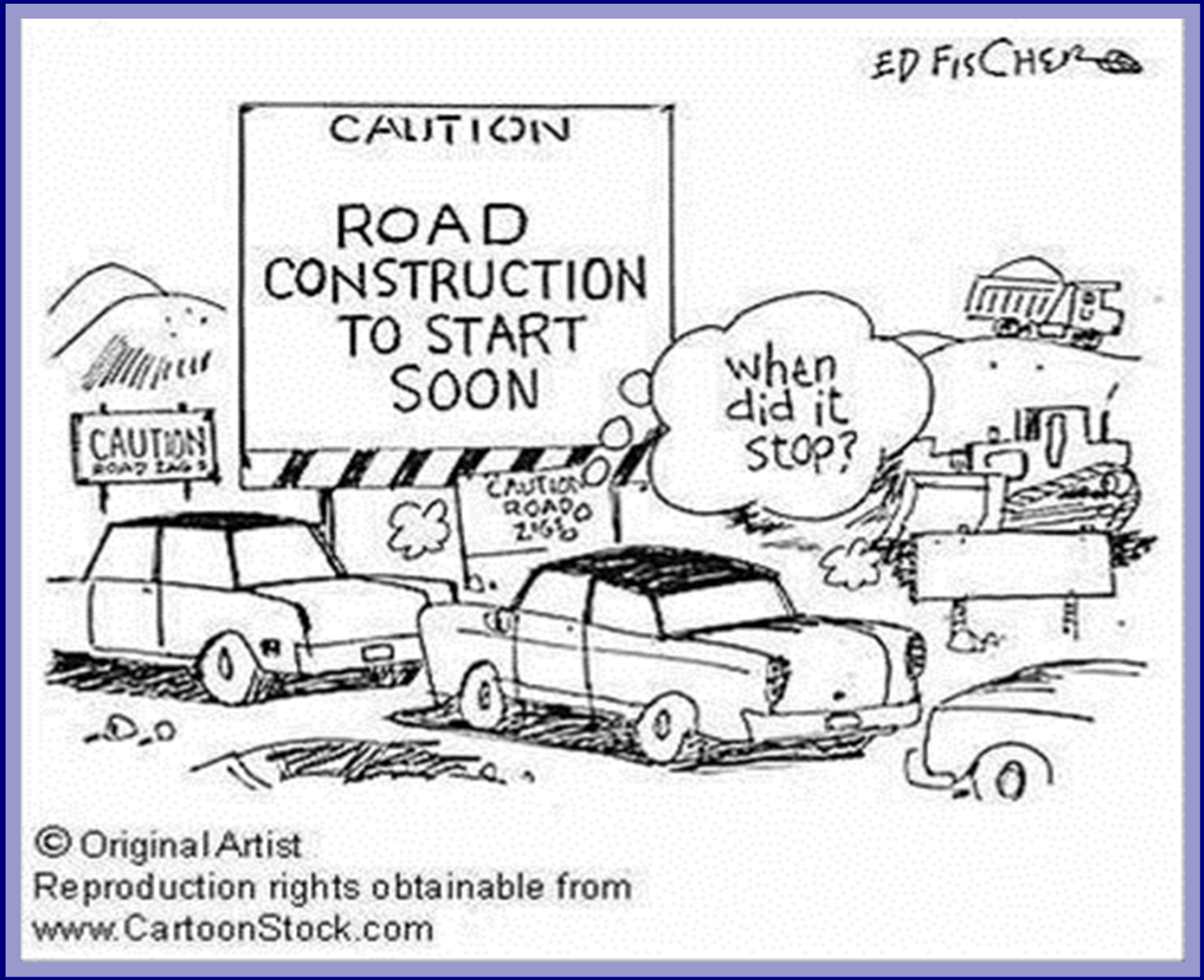
- Address safety and mobility impacts of work zones at corridor and network levels
- Promote efficient and effective construction phasing and staging, minimize contract duration, and control costs
- Improve safety for workers and road users
- Minimize traffic and mobility impacts of a work zone

Why TMPs? – Key Benefits (cont.)

A well-planned method for managing traffic flow during construction can:

- Minimize:
  - Circulation, access, and mobility impacts to local communities and businesses
  - Complaints from road users, businesses, and communities
- Improve:
  - Intra- and inter-agency coordination
  - Improve public awareness

Why TMPs?


ED FISCHER
CAUTION
ROAD CONSTRUCTION TO START SOON
CAUTION
when did it stop?
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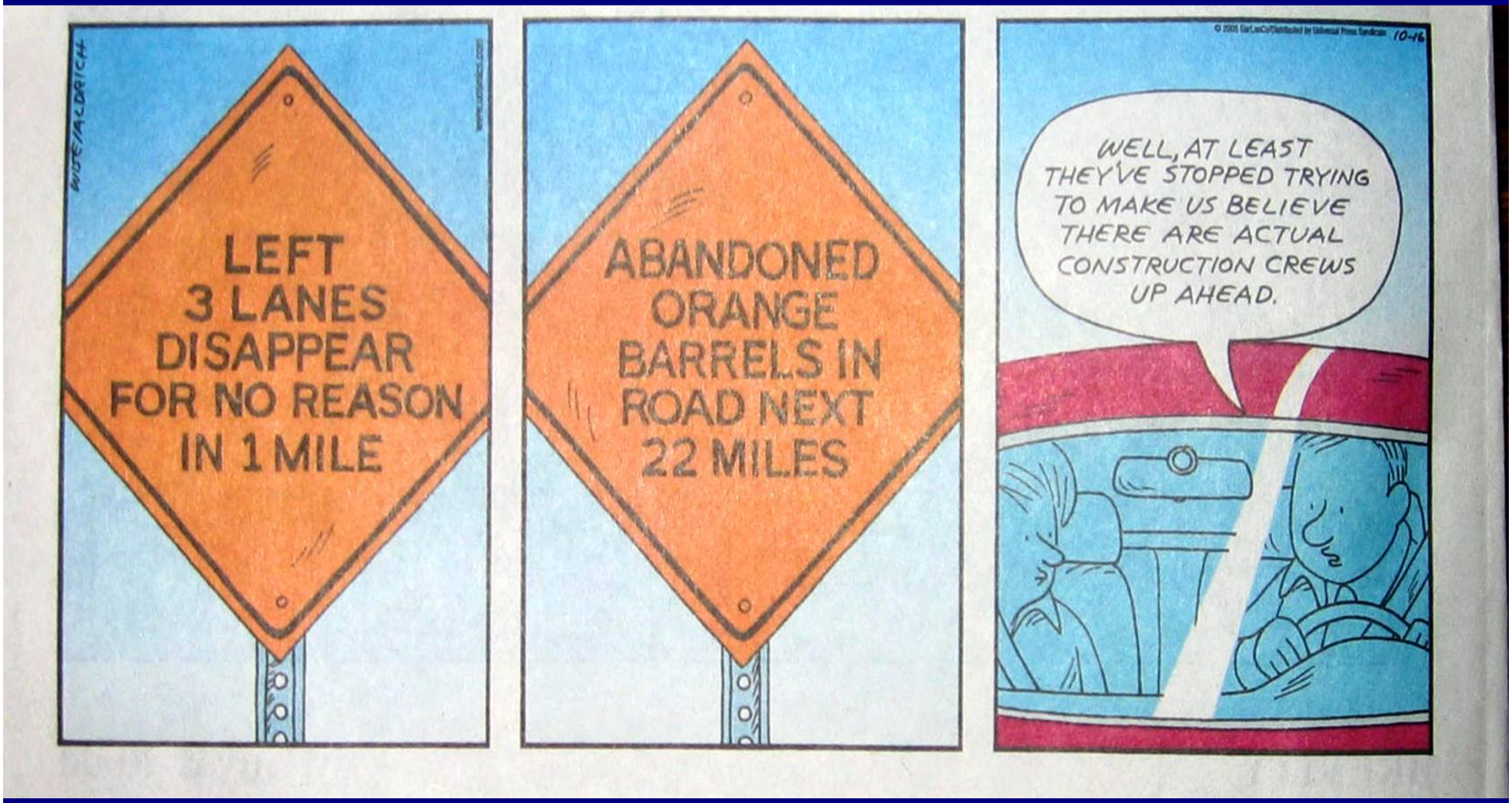
Is that the impression people have?



TMPs are a Tool

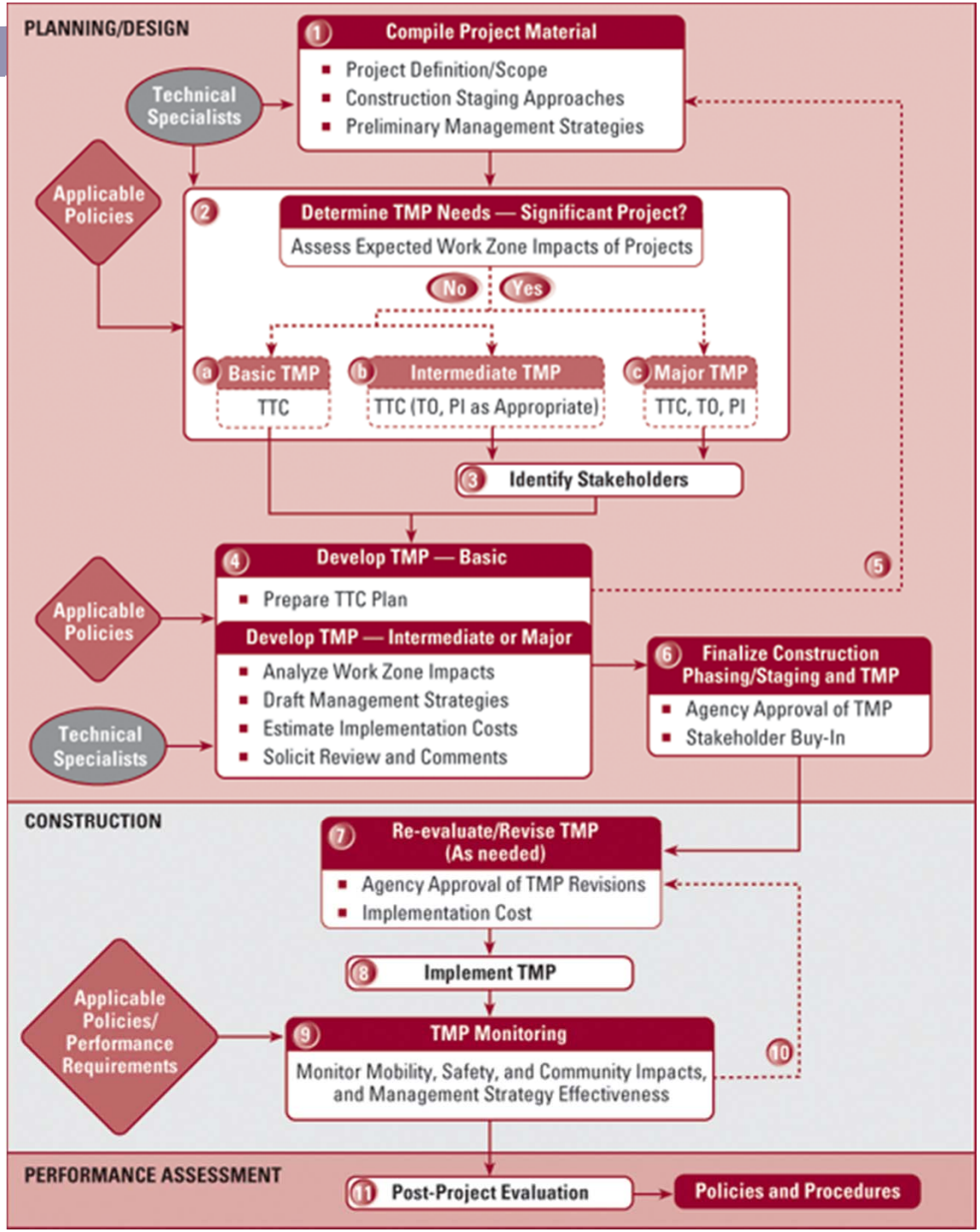
Part of overall WZ management

Effective WZ management requires:

- Understanding the likely impacts of a WZ
  - Safety and Mobility Impacts
- A combination of strategies
- Strategies should be chosen to solve specific problems

TMP Development Process

(from *Developing and Implementing TMPs for Work Zones)*

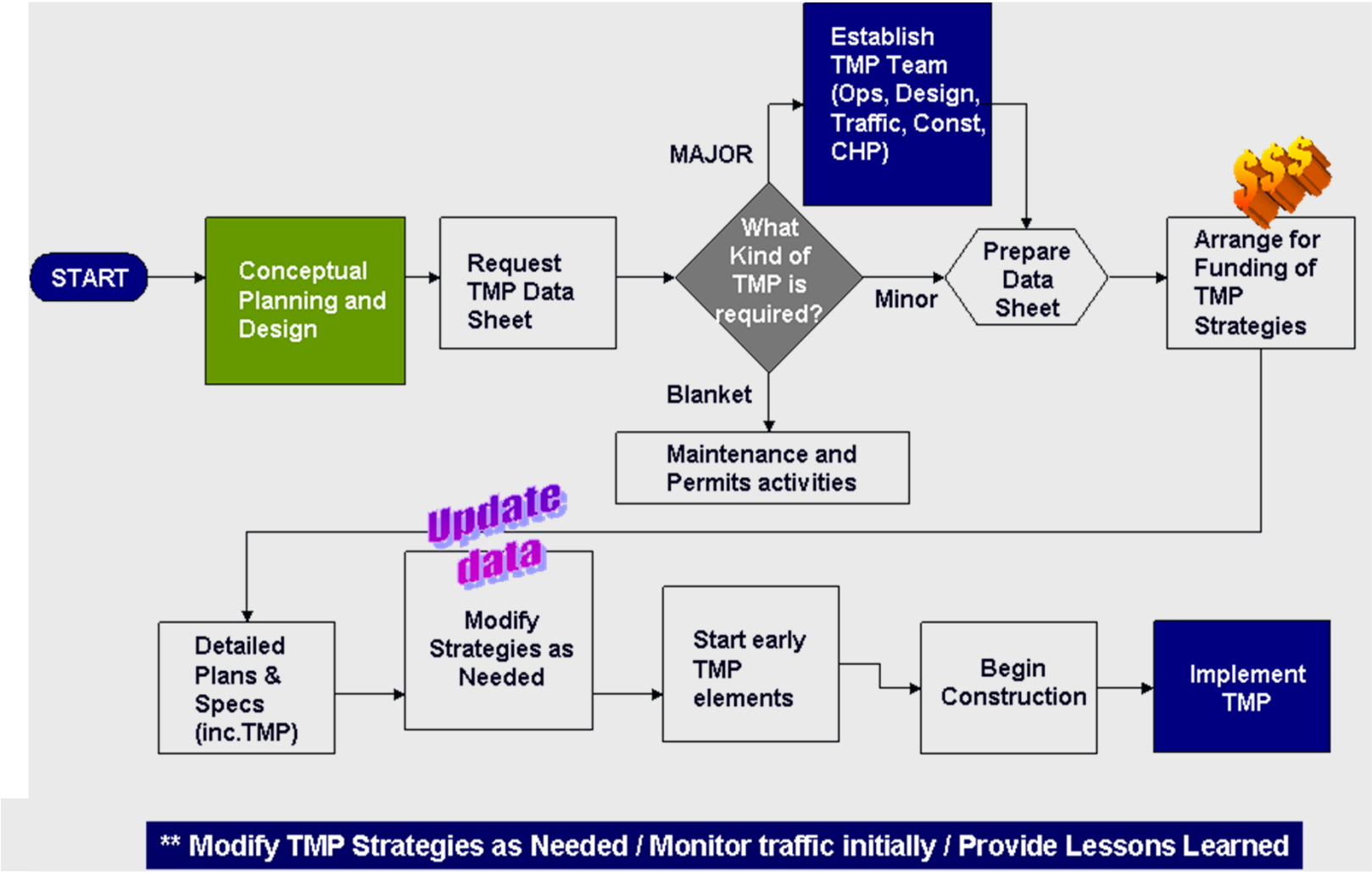


When is a TMP Developed?

TMP development should begin during systems planning and progress through design

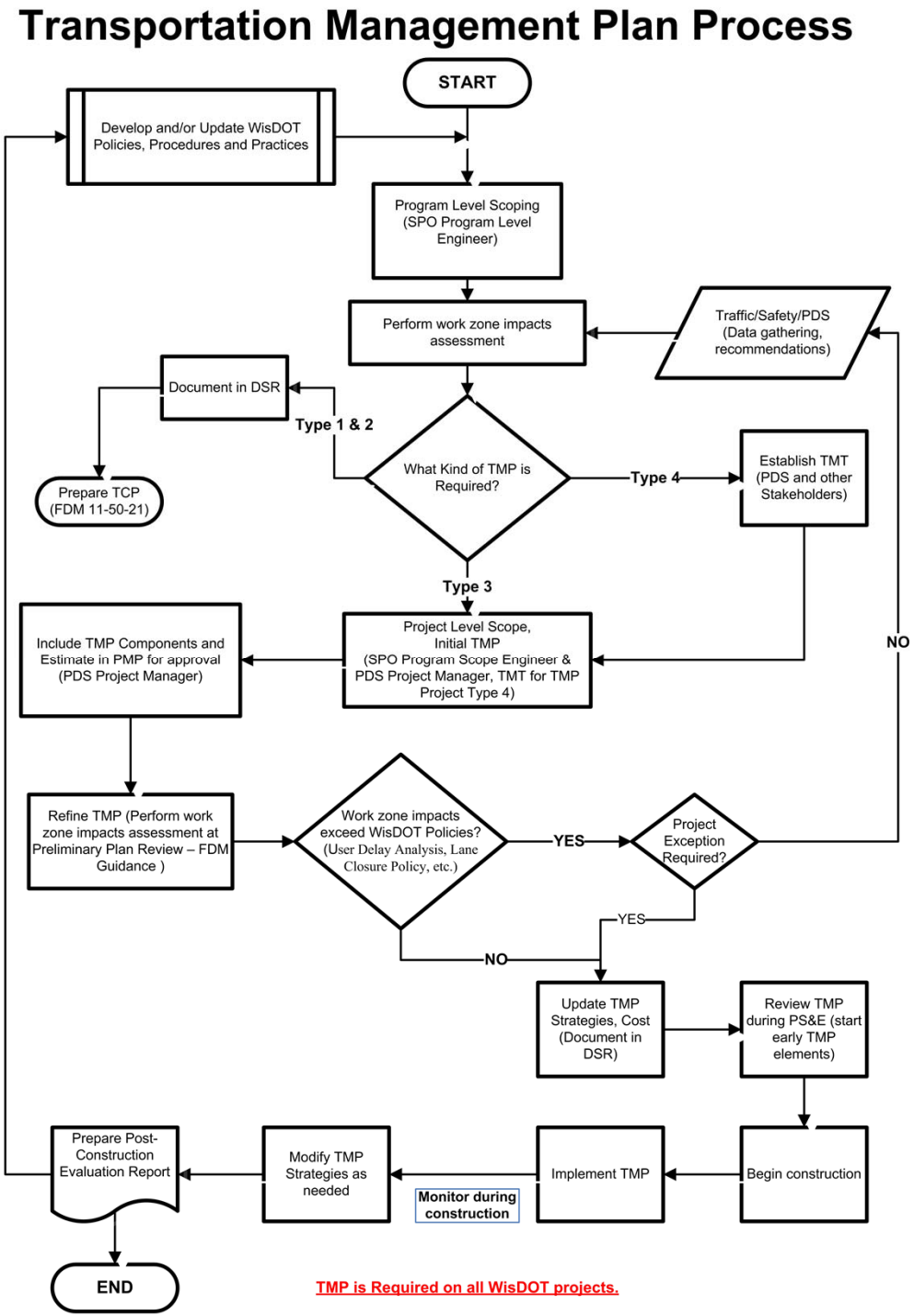
- Conducting TMP analyses early in project development helps ensure:
  - **Systems planning and preliminary engineering:** TMP development and implementation costs included in the project budget
  - **Design:** Agencies consider WZ impacts in evaluation and selection of design alternatives ➔ For some projects it may be possible to choose a design alternative that alleviates many WZ impacts
- Final TMP development occurs during <u>DESIGN</u>

Caltrans TMP Development Process



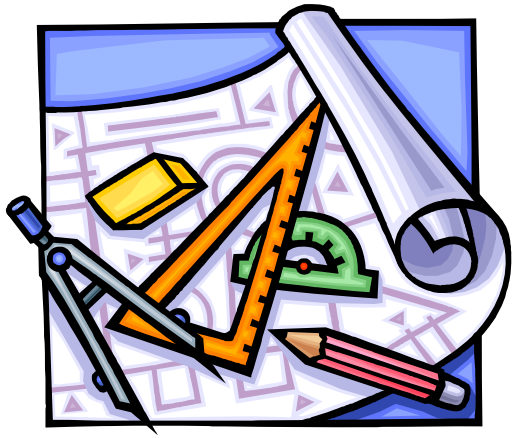
Wisconsin TMP Process

- Process
  - Work Zone Impacts Assessment
  - Determine Type of TMP
  - Prepare Initial TMP
  - Update, Implement, Monitor
  - Evaluate After Project



During Design…

- Final assessment of WZ impacts is done, which should affect the choice of:
  - Best construction/staging option(s)
  - Most suitable design and contracting approach
  - Most appropriate WZ traffic management strategies



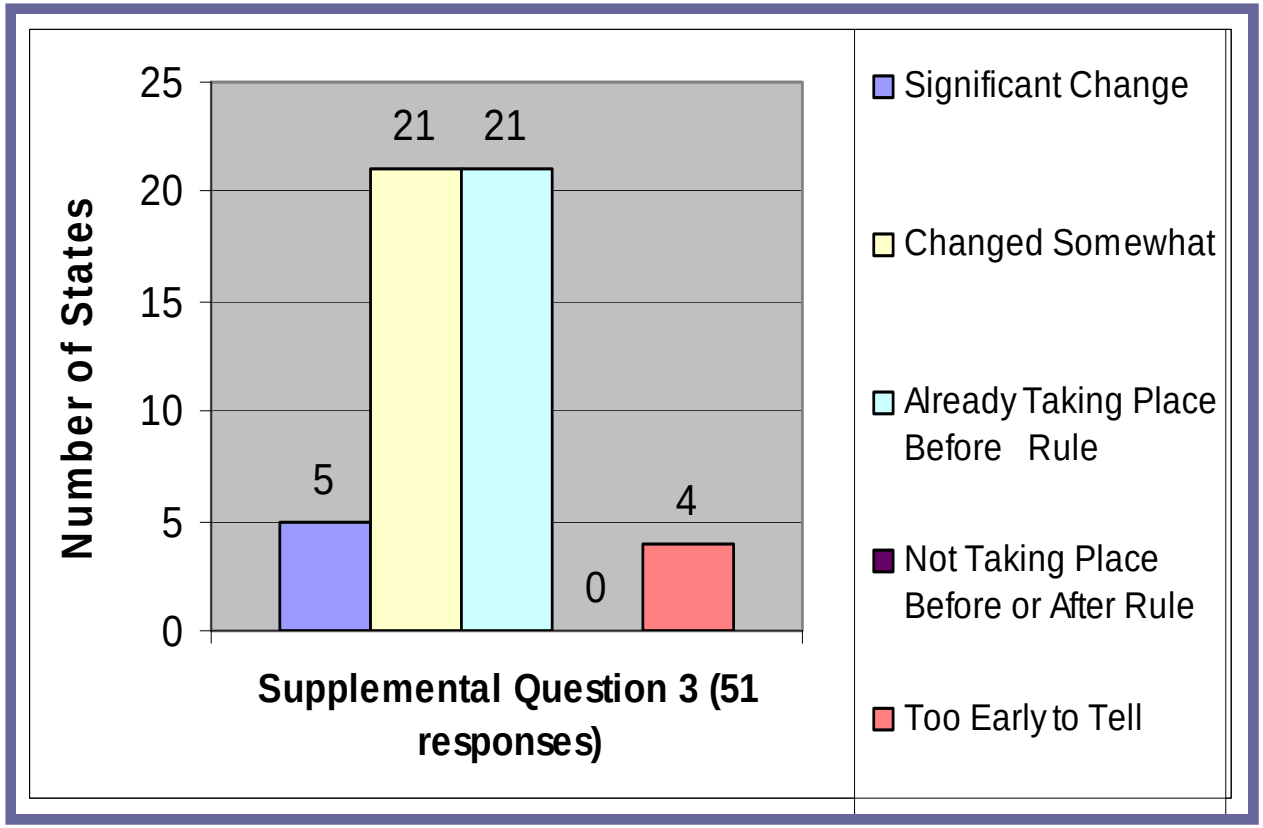
TMP Strategies to Manage WZ Impacts

Temporary Traffic Control (TTC) Strategies	Public Information (PI) Strategies	Transportation Operations (TO) Strategies
-Traffic control/design approaches -Traffic control devices -Project coordination, contracting, and innovative construction	-Public awareness -Motorist information	-Demand management -Corridor/network management -WZ safety management -Traffic/incident management & enforcement

- Designers are encouraged to consider these strategies early on in the process for all projects, even if they aren't included in the TMP

Use of TMP Strategies

- **The agency is expanding WZ management beyond traffic safety and control to address mobility through the consideration and use of transportation operations (TO) and public information (PI) strategies.**



Identification of TMP Strategies

- Should be based on:
  - type of work zone
  - traffic conditions
  - anticipated WZ impacts
  - project constraints
  - construction phasing/staging plan
  - conditions in surrounding area (e.g., alternate routes and modes, access)

Caltrans TMP Levels

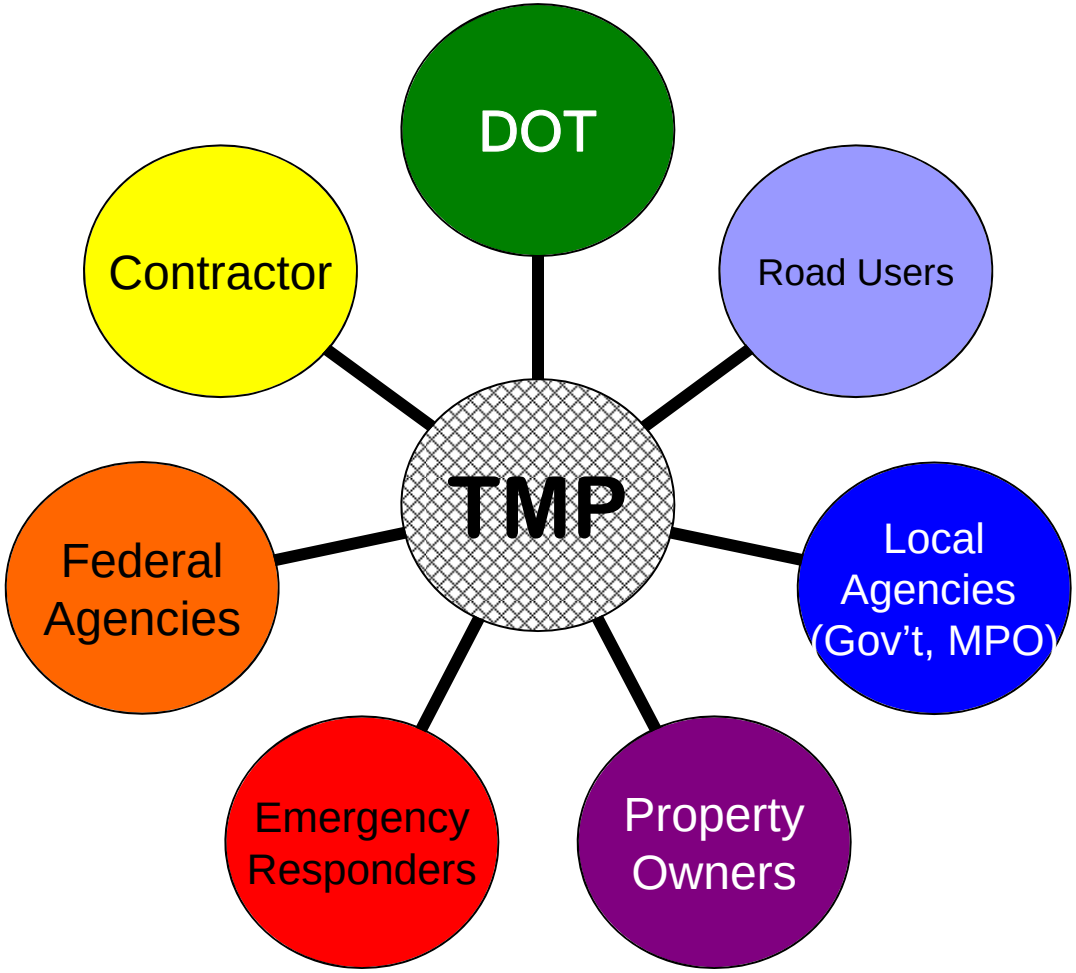
LEVEL OF TMP	TYPES OF CONDITIONS	TYPES OF STRATEGIES
"Blanket" TMP	• No expected delays • Off-peak work • Low volume roads • Moving lane closures	• Portable changeable message sign (CMS) • Freeway service patrol (FSP) • Traffic management team (TMT) • Only working in off-peak hours
"Minor" TMP (Majority of TMPs fall into this category)	• Minimal impacts expected • Lane closure required for project • Some mitigation measures required for project	• Only working at night • Portable and fixed CMS • Construction Zone Enhanced Enforcement Program (COZEEP) or MAZEEP for maintenance activities • TMT • Highway advisory radio
"Major" TMP (~5% of TMPs are major)	• Significant impacts expected • Multi-jurisdictional in scope • Longer duration • Multiple contracts involved	Same as for Minor TMPs plus: • Public awareness campaigns • Extended closures to expedite work • Moveable barriers to reverse lanes during peak periods • Detours • Reduced lane widths • Website

Some Considerations

- Agency WZ policies
  - E.g., Maximum WZ queue lengths/delays allowed
- Lane Closure policies/charts that specify when a lane closure is permitted
- Analytical/modeling tools used by the agency

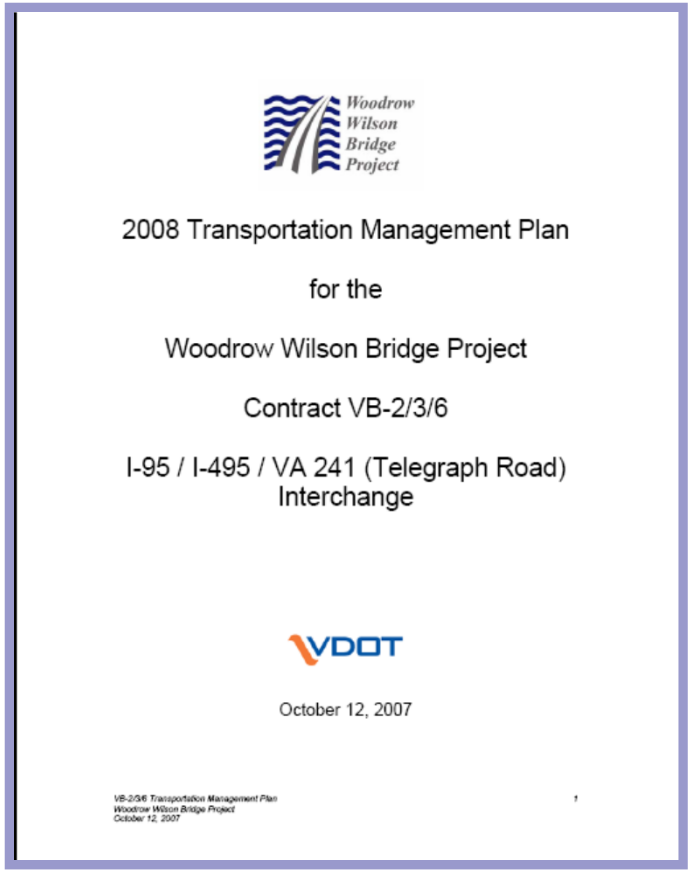
Some Considerations (cont.)

- Concerns of stakeholders
- Using a multidisciplinary approach and defining roles



Virginia TMP Requirements

- VDOT developed a TMP Guide:
  - Guidelines for acquiring information to develop TMPs
  - Guidance on each Project Team member's role and responsibilities in the development of TMPs
  - Covers Project Managers, Roadway Designers, Traffic Engineers, WZ Safety Coordinators, Public Affairs Managers



Woodrow Wilson Bridge Project

2008 Transportation Management Plan

for the

Woodrow Wilson Bridge Project

Contract VB-2/3/6

I-95 / I-495 / VA 241 (Telegraph Road) Interchange

VDOT

October 12, 2007

VB-2/3/6 Transportation Management Plan
Woodrow Wilson Bridge Project
October 12, 2007

TMP Development and Implementation 2009 WZ Self Assessment

- Most agencies (94%) had a policy for developing TMPs to help manage the WZ impacts of a project
  - 20% score increase from 2006 to 2007 and 2007 to 2008, 8% in 2009
- A number of agencies have developed TMP teams and tools

Maryland TMP Development

- TMP Guidelines
- WZ Design Checklist

- MOT Red Flag Summary

Maintenance of Traffic Red Flag Summary:
Make a preliminary determination if the following issues are present or should be considered during project development. Provide additional comments as needed.

Project: _____ Date: _____

Completed by (or contact person): _____

	Issue	Comments
☐ Yes ☐ No ☐ Possible ☐ Not Applicable	**1. Can traffic be detoured?** If yes, answer the questions below:	
☐ Yes ☐ No ☐ Possible ☐ Not Applicable	Is the local alternate detour route in good condition?	
☐ Yes ☐ No ☐ Possible ☐ Not Applicable	Will the detour route have a detrimental impact on emergency vehicles, school buses, or other sensitive traffic?	
☐ Yes ☐ No ☐ Possible ☐ Not Applicable	Are there load limit restrictions on the detour?	
☐ Yes ☐ No ☐ Possible ☐ Not Applicable	Are there bridge/culvert width restrictions on the detour?	
☐ Yes ☐ No ☐ Possible ☐ Not Applicable	**2. Is the existing shoulder in good enough condition to support traffic during construction?**	
☐ Yes ☐ No ☐ Possible ☐ Not Applicable	**3. Could additional width be required on culverts or bridges to maintain traffic?**	
☐ Yes	**4. Is there a pedestrian/bicycle**	

SHA/OOTS/TDSD
October 18, 2006

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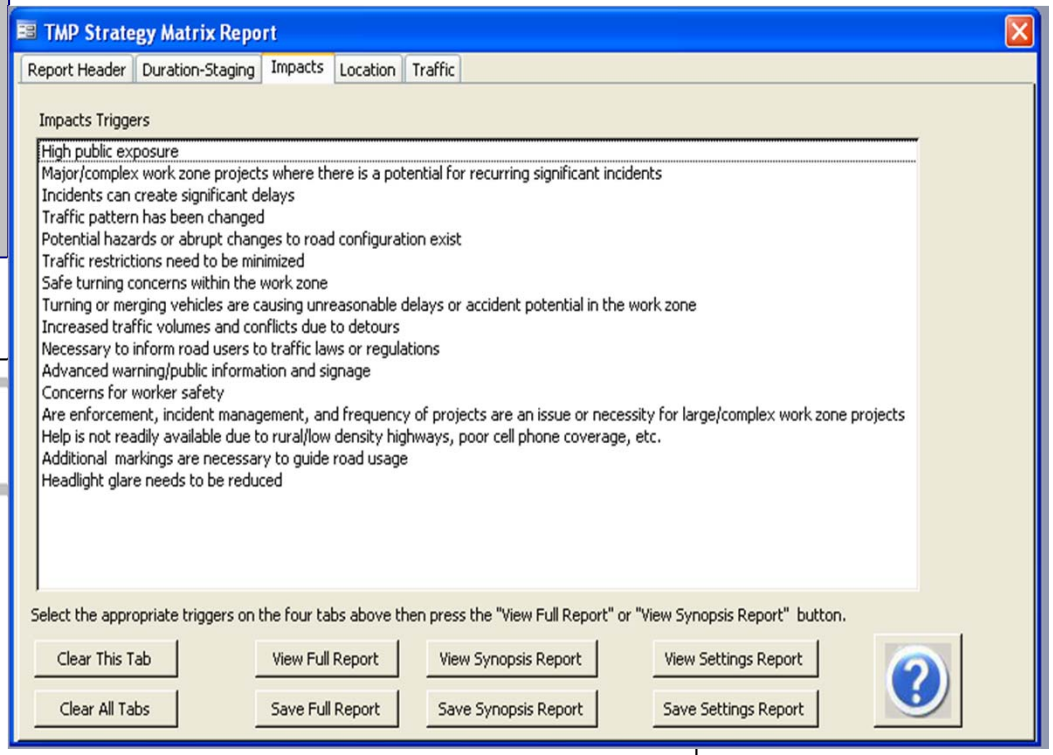
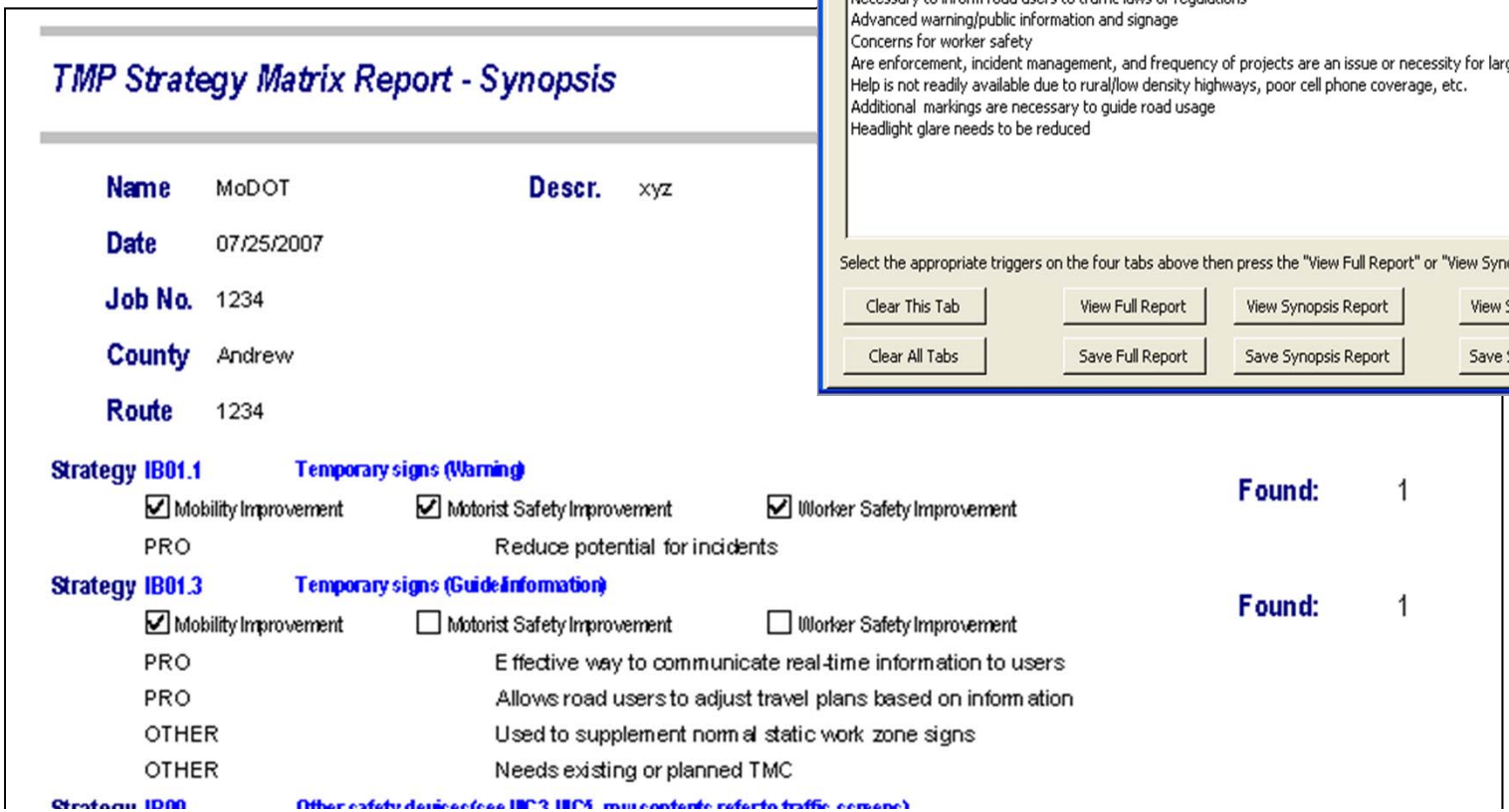
Maryland TMP Development

- Summary of Work Zone Impact Management Strategies
- Public Information and Outreach Plans Development Guidance
- Public Information and Outreach Template

Missouri DOT TMP Strategies Database

The TMP Database is meant to be used at the very beginning of WZ planning to choose the most effective methods from the start, with re-evaluation occurring in the design stage.





TMPs Need to Be…

- Well-thought out
- Started early in project development
- Use a multi-disciplinary approach
- Coordinated with other projects nearby
- Contain a combination of strategies
- Fit the expected level of WZ impacts
- Funded
- Updated as needed after project award
- Implemented!
- Monitored – and adjusted as needed

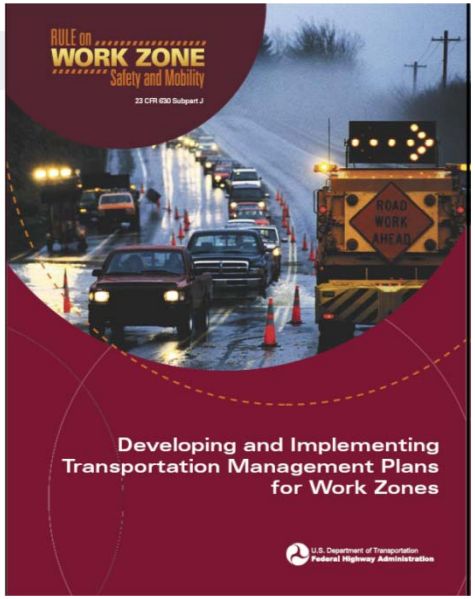
Key TMP Development Questions

- Was a TMP developed for the project?
- Does the TMP consider the expected impacts of the project?
- Has the agency determined if this a significant project?
- Does the TMP contain strategies to manage the identified impacts?
- Are the strategies reasonable for the level of expected impacts?

Key TMP Development Questions (cont.)

- Were key stakeholders involved?
- Is implementation of the TMP funded?
- Has a responsible person been designated for the DOT?
- Has the DOT approved the TMP per its policies/procedures?
- Are the relevant parts included in the bid package?

TMP Resources



- WZ Safety and Mobility Rule Web Site
  - Example TMPs, development resources
- Developing and Implementing TMPs for Work Zones
  - Includes a TMP Checklist and matrix of strategies
- FHWA

www.ops.fhwa.dot.gov/wz/resources/final_rule.htm