

Arizona Department of Transportation Work Zone Safety and Mobility Process Review Report


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Prepared by
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Work Zone Safety and Mobility Process Review Report

This Work Zone Safety and Mobility Process Review Report was prepared by ADOT and is evidence of Arizona's Conformance with 23 CFR 630.1008(e) Subpart J

Arizona Department of Transportation

By:  Date: 09/30/2014

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Executive Summary

The focus of the required bi-annual Process Review conducted by the Arizona Department of Transportation (ADOT) is the Traffic Management Plan (TMP). The purpose of this review was to determine Arizona's compliance with 23 CFR Part 630 requiring a TMP for all projects and to identify best practices and opportunities for improvement.

The process and criteria utilized for conducting this review consisted of:

Phase 1

1. Run a report of active construction projects for January 1, 2012 to December 31, 2012 reviewing all projects for significance using the following criteria as outlined in 23 CFR 630.1010:
 - ✓ Interstate Projects that occupy a location for more than three days
 - ✓ Projects within Transportation Management Areas (TMA)
 - ✓ Projects with continuous or intermittent lane closures
2. Review each significant project for the components of a full TMP:
 - ✓ Traffic Control Plan (TCP)
 - ✓ Emergency Vehicle Access Plan (EVAP)
 - ✓ Public Information - ADOT Communications (PI)
 - ✓ Traffic Operations (TO)

Phase 2

Identify and review projects for compliance, best practices, and areas needing improvement.

Observations and Recommendations

The following observations and recommendations were identified.

1. **Finding:** There is no formal tracking device in place showing which projects have a full TMP and those that have a partial TMP.
Recommendation: The Process Review Team recommended that a field be added to the Traffic Database for tracking projects with a full TMP.
Action: This recommendation was implemented by the ADOT Traffic Group.

2. **Finding:** The committee noted that there were many questions from staff regarding significant projects, impact, and the need for all four components of a TMP.

Recommendation: The Work Zone Safety and Mobility Steering Committee should develop training for ADOT staff on the Rule, Significant Projects, TMP components and other items as required by the **Rule**.

Action: A member of the Steering Committee has developed a Power Point presentation (Appendix L) for training on 23 CFR 630, subparts J & K as part of the Resident Engineers' Academy presented May 28, 2014. A similar presentation will be part of ADOT's Project Managers' Academy.

3. **Finding:** There is no checklist for project managers to use to identify significant projects and what components of a TMP are required.

Recommendation: Develop a checklist.

Action: The development of a checklist has been assigned to the Work Zone Safety and Mobility Steering Committee.

4. **Finding:** ADOT does not have a process to identify maintenance activities eligible for exemption from the significant project requirements for separate TO and PI components as defined by the **Rule**.

Recommendation: Identify those maintenance activities eligible for an exemption; identify existing ADOT processes which include the TO and PI components and request the exemption from the **Rule** from the Federal Highway Administration (FHWA).

Action: Members of the committee have worked with the Maintenance Group to identify those activities. A letter requesting an exemption for those activities has been drafted.

5. **Finding:** ADOT's "Implementation Guidelines for Work Zone Safety and Mobility pursuant to 23 CFR 630, Subparts J & K" requires revision to include more details and a template for exemptions.

Recommendation: Develop a template that will be included in the Implementation Guidelines.

Action: The Implementation Guidelines are being revised and a template has been developed for requesting exemptions and is currently being reviewed by FHWA.

6. **Finding:** The I-10 Reconstruction project, TRACS # H624101C/010-D(013)N, Ruthrauff Road to Prince Road, has been identified as a **Best Management Practice** in the packaging of the TMP components.

Recommendation: Use this project as an example in the development of a template for TMPs for significant projects.

Action: The first draft of a template has been presented at a Steering Committee Meeting and is currently being revised.

7. **Finding:** ADOT's current process already has the four components of a TMP for most projects, but is experimenting with developing a single, stand-alone TMP.

Recommendation: Insertion of a section within the special provisions of the contract documents stating, "This is a Significant Project requiring a full TMP. The four components are found..." This would become a contract provision binding on the contractor and reduce the cost of preparing a standalone TMP.

Action: This recommendation will be discussed and considered by the Steering Committee.

8. **Finding:** The Emergency Vehicle Access Plan (EVAP) component required by Arizona Statute was not clearly identified as EVAP in specifications. For instance, it was found in some Special Provisions as "Emergency Action Plan" which contained all of the provisions required by A.R.S. §28-652.

Recommendation: The Emergency Action Plan Special Provision should reference compliance with the Emergency Vehicle Access Plan (EVAP) required by Arizona Statute A.R.S. §28-652.

Action: A proposed (draft) Special Provision has been sent to the ADOT Contracts and Specifications Group for development and use in all projects.

9. **Finding:** The public information function does not compete for funding with construction in individual projects. It is focused on the entire construction and maintenance program impact rather than individual projects. As such it best fulfills the mobility requirements of the **Rule** and is a **Best Management Practice**.

Action: The review team commends ADOT's Public Information practice for work zones and we have identified them as a Best Practice, which is described in further detail later in this report.

Background

Process Reviews are state led and not to be confused with FHWA Conformance Reviews, which are to determine if all applicable standards (national, state, or local) have been met. They should also not be confused with the annual Work Zone Self-Assessment, which is a set of questions designed to assist the Department to simply evaluate their work zone policies as a whole. The results of the Self-Assessment often identify areas that may benefit from a more in-depth review such as a Process Review.

The purpose of the Process Review is to determine agency compliance with 23 CFR Part 630 and to identify best practices and opportunities for improvement.

The last work zone safety and mobility process review was conducted by FHWA with ADOT's participation in 2008. The focus of that review consisted of four areas: speed reduction, lane closure procedures, use of positive protection devices, and mitigation of safety and mobility impacts. In performing this first ADOT-led process review, the steering committee elected to focus on Transportation Management Plans.

It is worth noting that ADOT and FHWA have also recently completed a formal conformance review of the Department's compliance with 23 CFR 630, Subpart J (The Rule). This conformance review resulted in four primary observations from FHWA, each with several associated recommendations. To date, ADOT has completed or adopted most of the recommendations.

Purpose and Objectives

The purpose of this biannual Process Review led by ADOT is to guide improvements in the agency's work zone policy, processes and procedures, data and information resources, and training programs to determine whether they are adequate, therefore, enhancing safety and mobility on future projects.

23 CFR 630, Subpart J (The Rule) requires ADOT to conduct a bi-annual Process Review. The Rule states that the ultimate objective of a process review is to enhance efforts to address safety and mobility on current and future projects.

Process reviews help assess the effectiveness of the work zone program and policies and procedures. The review is to enable ADOT and the FHWA Division Office to confirm that a problem does not exist, or to identify systemic problems and make recommendations to improve situations where shortcomings do exist. It is also to identify Best Practices.

The focus of the required bi-annual Process Review conducted by ADOT is the TMP. The purpose of this review was to determine Arizona's compliance with 23 CFR Part 630 requiring a TMP for all projects and to identify best practices and opportunities for improvement.

The objectives of this process review in relation to the TMP are:

- Education and Training
- Data Collection and Tracking
- Presentation and Formal Packaging

Team Members

The Process Review Team, part of the Work Zone Safety and Mobility Steering Committee, with team members from the State Engineer's Office, Communications, Project Management, Traffic Engineering and Construction conducted the process review and FHWA provided technical guidance.

The Process Review Team includes the following ADOT staff members:

Lisa Sinclair	LSinclair@azdot.gov	State Engineer's Office (Chair)
Scott Orrahood	SOrrahood@azdot.gov	Traffic Group
Robert Wade	RWade@azdot.gov	Construction Group
Paki Rico	PRico@azdot.gov	Communications
Mohammad A. Zaid	MZaid@azdot.gov	Urban Project Management
Giuly Caceres	GCaceres@azdot.gov	Statewide Project Management

Process

An initial training was provided by FHWA on what should be included when conducting a process review. The Process Review Team then chose an area of concentration and the methodology that was utilized in conducting this process review. The Process Review Team elected to review ADOT Traffic Management Plans (TMP) on Interstate Highways. Although, all the required components of a TMP are developed and implemented throughout projects of significance, as noted in the 2013 Conformance Review (Appendix G), there is no mechanism in place or designated section responsible for determining the significance of a project and formally compiling and submitting the TMP as part of the Plans, Specifications and Estimate (PS&E). Additionally, there were considerable variations among the few projects with a separately packaged full TMP.

The process review was conducted in accordance with the flow diagram shown below.

Work Zone Safety & Mobility Biannual Process Review

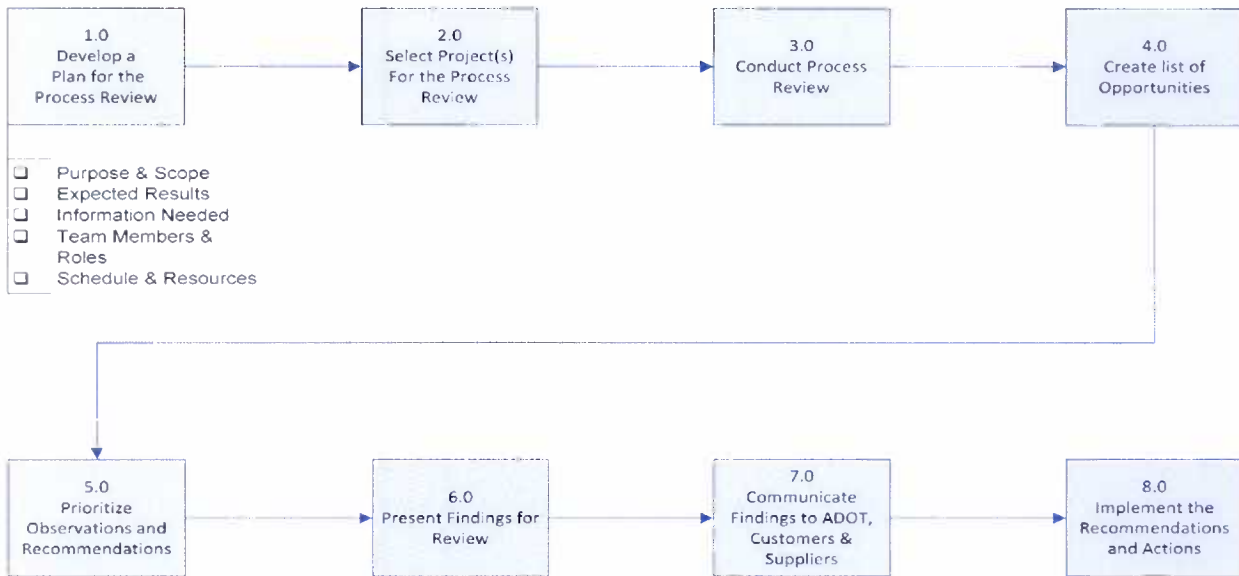


Figure 1 Biannual Process Review Flow Diagram

Initially, over eighty active projects under construction on Interstate Highways between January 1, 2012 and December 31, 2012, were identified using ADOT's Field Office Automation System (FAST). The list was too large a sample for anything other than cursory examination and after further discussion among the Process Review Team, additional parameters were applied to identify projects for review. This was an iterative process to identify significant projects:

- ✓ Eliminated projects which did not have full or partial closures (Continuous or Intermittent) while in location for more than three days.
- ✓ Eliminated Rehabilitation and Pavement Preservation projects that were lacking complexity.
- ✓ Eliminated projects with start dates earlier than October 1, 2011.

This produced a short list of ten significant projects, all of which were document reviewed for the four components of a TMP:

- Temporary Traffic Control Plan (TTC)
- Emergency Vehicle Access Plan (EVAP) required by Arizona Statute A.R.S. §28-652
- Public Information component (PI) - ADOT Communications
- Traffic Operations Plan (TO)

Short List of Projects

District	Org	TRACS / Project #	Begin milepost	End milepost	Start Date	Completion
Yuma	8230	H800101C/010-A-(215)T	98	98.3	10/09/2012	05/21/2013
Ehrenberg-Phoenix Hwy I-10 Sun Valley Pkwy to Winters TIs						
Tucson	8133	H816801C/010-D-(210)A	199	0	09/18/2012	05/20/2013
Casa Grande-Tucson Hwy I-10 I-8 to SR-87						
Tucson	8131	H806501C/010-E-(209)T	267	271.99	08/13/2012	12/28/2012
Tucson-Benson Hwy I-10 Valencia to Rita TIs						
Safford	8430	H779501C/010-F-(205)T	384	391.23	12/19/2012	06/10/2013
Benson-Steins Pass Hwy I-10 San Simon to State Line						
Prescott	8832	H799101C/017-A-(225)T	243	244	10/24/2012	03/07/2013
Cordes Junction-Flagstaff Hwy I-17 N&SB Bridges						
Prescott	8831	H766401C/017-B-(212)A	289	299.15	05/23/2012	11/28/2012
Cordes Junction-Flagstaff Hwy I-17 Middle Verde to Sedona TIs						
Tucson	8131	H774101C/019-A-(203)A		63.3	04/18/2012	03/15/2013

Nogales-Tucson Hwy I-19 Mexico to I-10						
Holbrook	8730	H831101C/040-E-(210)A	323	323.08	06/25/2012	10/30/2012
Holbrook-Lupton Hwy I-40 Crazy Creek Bridge EB						
Tucson	8132	H624101C/010-D(013)N	252	0	09/16/2011	10/30/2013
Casa Grande-Tucson Hwy I-10 Ruthrauff to Prince						
Phoenix	4050	H686601C/ARRA-060B(201)A	138	148.5	01/07/2010	11/23/2011
Wickenburg-Phoenix Hwy US60 Loop 303 to 99th Ave						

Figure 2 Short List of Projects

All of the projects on the short list were found to contain the required TMP components. However, they varied in organization and some had the TO and PI components as a separate Communications Plan. ADOT had also requested a waiver of one project which was not approved by FHWA because that project already had all four TMP components (Appendix J).

From this analysis, the review team elected one project, nominated by ADOT Communications as best meeting all TMP criteria in a single document, for the purpose of developing a standard template for packaging a TMP. The project selected, Interstate 10: Ruthrauff Road to Prince Road, contained a full TMP packaged in a single document (Appendix E) and met all criteria established by ADOT and FHWA. The work area is located in Pima County, within the City of Tucson. The purpose of the reconstruction project was to increase capacity on I-10 and improve the operational characteristics of the Prince Road interchange by widening to four lanes each direction.

Observations and Recommendations

Based upon the teams' Process Review, the following findings and recommendations were identified:

- Finding:** There is no formal tracking device in place showing which projects have and require a full TMP and those requiring a partial TMP.

Recommendation: The Process Review Team recommended that a field be added to the Traffic Database for tracking projects with a full TMP.

Action: This recommendation was implemented by the ADOT Traffic Group.
- Finding:** The committee noted that there were many questions from staff regarding significant projects, impact, and the need for all four 4 components of a TMP.

Recommendation: The Work Zone Safety and Mobility Steering Committee should develop training for ADOT staff on the Rule, Significant Projects, TMP components and other items as required by the **Rule**.

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Recommendation: The Emergency Action Plan Special Provision should reference compliance with the Emergency Vehicle Access Plan (EVAP) required by Arizona Statute A.R.S. §28-652.

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Best Practices

Public Information

ADOT has a proactive and involved public information process on all construction projects. One example of such proactivity is the practices of requiring Transportation System Management (TSM) meetings that project supervisors or resident engineers hold with applicable stakeholders to coordinate major changes in traffic control, such as lane closures and lane shifts. TSM meetings have been found to be especially beneficial for coordinating lane closures between adjacent or nearby construction projects, such as in the metropolitan areas where there can be many active construction projects in multiple jurisdictions within the same corridor or area. In both rural and metro areas, TSM meetings have proven beneficial in minimizing impacts to the public and ensuring continuity of essential services (emergency medical services, schools, mail services and others).

ADOT Communications tracks public input through a computer database called ENVOY. This enables them to ensure follow-up issues are completed and to track trends in work zone issues across projects. The ENVOY system could also be used to address program-level issues.

ADOT has a detailed software program called the Highway Condition Reporting System (HCRS) that enables tracking of work zone impact such as lane closures, full road closures and incidents. This information is provided in a standardized format to law enforcement, media, and the general public through ADOT's 511 driver information system. The ADOT Traffic Operations Center (TOC) updates the system in real time to include weather conditions, incidents, and congestion levels in order to warn traffic, suggest alternative routes when applicable and provide travel time estimates. This information is widely available to the public through social media (Facebook, Twitter and Az511) radio, TV and digital message boards.

It is also the Agency's position to measure and react in a timely manner to public perceptions; a function at which ADOT Communications excels. Because of this organization, two components of the Traffic Management Plan (TMP), the Transportation Operations (TO) component and the Public Information (PI) component are frequently contained in a single document. Please note that ADOT does not limit these two TMP components to significant projects. They may be developed for projects such as sidewalk rehabilitation during a school year.

In light of the importance of ADOT Communication's contribution to the elements of a TMP, an explanation of ADOT's organization is helpful for an understanding of how ADOT fully meets the intent and purpose of 23 CFR 630, subpart J (the Rule).

ADOT has an independent communications division, ADOT Communications, which reports directly to the Director of the Agency. Its budget is independent of specific projects and it is tasked to think across boundaries in communicating with Arizona residents and our visitors. By organization and action, they have expanded the Rule's concept of work zone transportation management, considering work zone issues and solutions beyond the immediate work zone itself to include corridor, network, and regional considerations (e.g., special events, other nearby work zones, use of alternate routes). ADOT Communications is involved in all aspects of project development, construction, maintenance and operation of Arizona's highway system. ADOT is a leader in innovative thinking for work zone planning, design, and management through their visionary use and formation of ADOT Communications.

It is also the Agency's intent to measure and react in a timely manner to public perceptions, a function at which ADOT Communications excels. Because of this organization, two components of the TMP, the Transportation Operations (TO) component and the Public Information (PI) component are frequently contained in a single document. Please note that ADOT does not limit these two TMP components to significant projects. They may be developed for projects regardless of size, location or duration.

ADOT's approach incorporates multiple considerations such as anticipated queue lengths and travel delays of alternatives. ADOT also relies on the Resident Engineer's responsibility for the day-to-day management of a project and expands that management into regional/corridor thinking with coordination by ADOT Communications. The two urban area districts within Arizona, Phoenix and Tucson, each provide guidelines on when lane closures or restrictions are permitted (Appendix H and Appendix I).

ADOT construction plans typically detail concepts and phasing to integrate a single project into the broader corridor issues. Detailed temporary traffic control plans, which include the types and spacing of individual devices are usually developed and approved at project level.

ADOT Communications is represented at the district level, where scheduling and chairing monthly Transportation System Management (TSM) meetings occurs for all stakeholders within a corridor, including contractors, law enforcement and fire, local governments, as well as interested parties such as those organizing special events and the managing Resident Engineers.

Appendix

- A. [ADOT Communications – Public Information & Outreach Strategies](#)
- B. [Final Rule Language 23 CFR Part 630 Subpart J](#)
- C. [Literature Review Documents for Conformance Review 2012](#)
- D. [Implementation and Resolution Plan for Conformance Review 2012](#)
- E. [Transportation Management Plan – Interstate 10 Reconstruction: Ruthrauff Road to Prince Road July 15, 2011 - TRACS/Project # H624101C/010-D\(013\)N](#)
- F. [ADOT WZSM Implementation Guidelines](#)
- G. [ADOT Conformance Review Final Report](#)
- H. [Valley Transportation Group Freeway Closures](#)
- I. [Tucson District Freeway Closures](#)
- J. [Response to Waiver Request](#)
- K. [Proposed Specification for Emergency Vehicle Action Plan](#)
- L. Work Zone Safety and Mobility Presentation at:
<http://www.azdot.gov/docs/default-source/construction-group/wzsm-presentation-6-10-14-for-web.pdf?sfvrsn=2>