Memo

New Mexico Department of Transportation

SUBJECT: Infrastructure Design Directive
IDD-2009-02 (Work Zone Traffic Control)

DATE: 12-March-2009

TO: Infrastructure Division
Transportation Design Community

FROM: Max Valerio
Chief Engineer

FILE REFERENCE:
PSESHARE: Design Directives

In order to meet the requirements of FHWA's 23 CFR 630 Subpart J, the *NMDOT Work Zone Safety and Mobility Policy* establishes a procedure for the inclusion of Transportation Management Plans on projects. A Transportation Management Plan will always consist of temporary traffic control plans and where necessary, will include transportation operations and public information strategies. The need for transportation operations components and public information strategies as part of the TMP will usually be determined by a project's classification (Significant, Regionally Significant, or Routine). This classification is determined prior to the beginning of the design phase of the project. The PDE in cooperation with the District Technical Support Staff and the Regional Manager shall determine the classification of the project based on the Work Zone Rule Subpart J as approved by the Cabinet Secretary on 10/26/07. This directive discusses the requirements for a comprehensive Traffic Control Plan. Refer to the *NMDOT Work Zone Safety and Mobility Policy* for more information on the inclusion of transportation operations and public information strategies into the design process.

In order to meet FHWA requirements, a comprehensive Traffic Control Plan will be provided for each project. A constructability review is the first step in formulating a complete Traffic Control Plan. The constructability review shall occur early in the design process, preferably prior to the Preliminary Design Review but always prior to the Pre-Final Design Review. The PDE shall coordinate a constructability review with personnel from the District Office, the Construction Liaison Engineer, Traffic Technical Support, FHWA and any additional required staff. Prior to the constructability review the PDE shall possess the following information:

- Project Scope – Does the project consist of rehabilitation, reconstruction, offset alignment, bridge rehabilitation or construction, drainage improvements, etc?
- Existing Traffic Characteristics – Required information includes Average Annual Daily Traffic (AADT), peak hour directional traffic volumes percentage of heavy vehicles, turning movements at intersections, etc
- Construction Concept – Concepts may include pilot car operations, offset alignments, detours, shooflys, flagger operations, lane closures, nighttime operations,etc.
- Anticipated Impacts to Traffic – Impacts to evaluate include vehicle delay, anticipated queue lengths, increased density, increased travel time, reductions in passing opportunities on two lane roads, reductions in Level of Service (LOS), etc.

The constructability review shall be used to present a preliminary Suggested Sequence of Construction, illustrate critical locations during construction, solicit input on anticipated impacts to traffic, determine allowable hours for construction, and solicit input on the general constructability of the project. In addition a decision should be made as to whether all

components of the Traffic Control Plan will be itemized and paid for separately or if Item No. 702810 – TRAFFIC CONTROL DEVICES DURING CONSTRUCTION, LUMP SUM will be utilized as outlined in the NMDOT SPECIAL PROVISIONS FOR TRAFFIC CONTROL DEVICES DURING CONSTRUCTION SECTION 702-C. Only those items listed in the Special Provision may be paid using Item No. 702810. Major components of the Traffic Control Plan such as earthwork, detour pavement, temporary CWB, resetting of temporary CWB, impact attenuators, resetting of impact attenuators, etc. must be listed and paid separately using their respective NMDOT item numbers. These major items shall not be included in Item No. 702810. Feedback from the constructability review is critical to providing a complete Traffic Control Plan.

A comprehensive Traffic Control Plan shall comply with the most current edition of the Manual on Uniform Traffic Control Devices (MUTCD) and will at least include the following:

1. Construction Signing General Notes (both standard and project specific)
2. Construction Signing Sign Face sheet (may include special signs)
3. Suggested Sequence of Construction – A Suggested Sequence of Construction shall be developed. The sequence shall incorporate input received in the constructability review.
4. Construction Typical Sections – Typical sections for each phase of construction shall be shown. These typical sections shall be referenced in the sequence of construction and shall illustrate construction zones, placement of devices such as drums or temporary concrete wall barrier, detour pavement, construction tie slopes, location of traffic, dimensions of construction typical section elements (driving lanes, shoulders, buffers, offsets from existing centerline, etc).
5. Construction Phasing Layouts – Layouts shall be prepared for each phase of construction and shall include work zone signing, detour signing, construction striping, traffic control devices, temporary concrete wall barrier, horizontal curve data for detour geometry, work zone delineation and traffic flow arrows. It may be possible on some projects to substitute NMDOT Standard Drawings Section 702 or project specific standard details in place of construction phasing layouts. This shall only be done if the standard drawings or details clearly communicate all required signing, striping, detour geometry, traffic control devices, etc. for all expected construction phases. These standard drawings or details must still be referenced in the Suggested Sequence of Construction.
6. Vertical Profiles for Detour – Vertical profiles may be required for some detour alignments especially in areas where the detour requires substantial earthwork or steep grades. Profiles may also be requested by the design team.
7. Construction Signing Quantities – Quantities shall be prepared for each construction phase.including a detailed breakdown of expected earthwork, temporary concrete wall barrier including resetting, construction signing, construction striping, removal of striping, traffic control devices, vehicle impact attenuator units including resetting, etc. The bid item 618000 – Traffic Control Management shall be included in all projects.

While the specifications still provide flexibility in allowing the contractor to propose a differing plan, the designed Traffic Control Plan serves as a basis for negotiations based on a sound methodology.

The Construction Traffic Control Plan concept needs to be developed early on in the project development process and in conjunction with determining the alignment and other features of

the project. It is very important that a constructability review be conducted early in the project development process to ensure that the project can be constructed while maintaining traffic through the work zone. The PDE will be responsible for completing the Work Zone Design Checklist and provide a copy to the FHWA Area Engineer at the PS&E review meeting. The checklist is included as an attachment to this directive.

The following is a list indicating responsibility for each activity to be performed to address traffic handling through the work zone for each phase of the NMDOT Project Development Process:

Prior to Preliminary Field Review	
Responsibility	**Activity**
PDE/District	Background Information: Project scope/purpose, type of roadway, number of lanes, project location, traffic volumes, anticipated impacts to traffic, preliminary construction concept, posted and design speed for the mainline and cross road or ramp
PDE/District	Set preliminary horizontal and vertical grade
PDE/Traffic	Develop a Preliminary Sequence of Construction, develop and review cross-sections for the sequence of construction and identify critical locations with the District Office
PDE/District/Traffic	Set horizontal and vertical grades and sequence considering bridge demolition, construction, drainage extensions, etc.
Traffic/District/PDE	Determine work zone lengths, time restrictions for peak traffic flows with District, Construction Liaison Engineer and PDE.

Preliminary Field Review	
Responsibility	**Activity**
PDE	Plan set includes: Sequence of construction, construction typical sections, earthwork schedule based on phasing, Horizontal and Vertical geometry reflecting final alignment based on sequence of construction
PDE	Obtain comments from design team
PDE	Review constructability of project with Traffic, District (PM & ADE for Construction), Construction Bureau, FHWA to gain consensus on the suggested sequence of construction in order to proceed with the design of the project
PDE	Document results of the constructability review meeting including the sequence of construction.

Pre-Final Design Inspection	
Responsibility	**Activity**
PDE	Finalized Suggested Sequence of Construction in the Plans with preliminary phasing Preliminary Layouts – plan sheets developed for each phase showing preliminary construction signing and striping

Final Design Inspection	
Responsibility	**Activity**
PDE	Finalize the Sequence of Construction
PDE	Prepare final phasing layouts with final construction signing and striping
PDE	Develop plan sheet for each phase of construction
Traffic	**Perform a quality control review of the Traffic Control Plan**

PSE	
Responsibility	**Activity**
PDE	Include comments from final design inspection into PS&E plans
Traffic	Perform Quality Control review of construction signing and striping

As a reminder, the Design Directives reside in the PSESHARE drive. General Office staff will utilize the \\asgopinon\pseshare drive to access the Directive. District staff can access the Directive utilizing the appropriate District drive as indicated below:

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District 2	\\D2flsv01\public\psesection
District 3	\\D3-blade1\District 3\PS&E_Section
District 4	\\D4-blade2\designshared
District 5	\\d5flsv02a\d5design
District 6	\\d6flsv06\d6_users\pse_section

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New Mexico DEPARTMENT OF
TRANSPORTATION
MOBILITY FOR EVERYONE

J. Don Martinez, Division Administrator
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10/26/07

Subject: Work Zone Rule

Attn: Frank Lozano

Dear Mr. Martinez,

The New Mexico Department of Transportation ("NMDOT") has adopted the Rule on Work Zone Safety and Mobility in accordance with 23 CFR Part 630 Subpart J. NMDOT is committed to providing a safe work environment for both construction personnel and the traveling public through customer-focused project delivery. The project delivery will be accomplished from the initial systems planning through construction and maintenance.

NMDOT's policy is to plan, design, construct, and maintain highways while providing for the safe and efficient movement of all modes of transportation through or around a temporary traffic control work zone. This policy applies to all types of bridge and highway construction, reconstruction, and maintenance projects on the State Highway System, projects on local systems. We will continually build on our current efforts to manage work zones utilizing innovative strategies. The result will ensure safer work zones for both the workers and traveling public, while providing increased mobility.

We will work with your office to make sure that the Rule is being incorporated into all federal aid projects, as well as continuing on improving safety and mobility throughout work zones.

Sincerely,

Rhonda G. Faught, P.E.
Cabinet Secretary

CC: Patricio Guerrerortiz
Robert Ortiz
Max Valerio
Steve Rodriguez
Kathleen Garcia

NEW MEXICO
DEPARTMENT OF TRANSPORTATION
Work Zone Safety and Mobility

Purpose and Background

The Federal Highway Administration amendment to title 23, Code of Federal Regulations, Part 630, was published in the Federal Register dated September 9, 2004. The purpose of this amendment was to revise Subpart J – Work Zone Safety and Mobility. The New Mexico Department of Transportation (NMDOT) is required to comply with all provisions of 23 CFR Part 630 Subpart J - Work Zone Safety and Mobility by October 12, 2007. Section 630.1006 Work Zone Safety and Mobility Rule states: *"Each State shall implement a policy for the systematic consideration and management of work zone impacts on all Federal-aid highway projects. This policy shall address work zone impacts throughout the various stages of the project development and implementation process. This policy may take the form of processes, procedures, and/or guidance, and may vary based on the characteristics and expected work zone impacts of individual projects or classes of projects. The States should institute this policy using a multi-disciplinary team and in partnership with the FHWA. The States are encouraged to implement this policy for non-Federal-aid projects as well."* In order to meet the requirements of 23 CFR 630 Subpart J, the NMDOT has developed the following policy and procedure regarding work zone safety and mobility.

Work Zone Safety and Mobility Policy

Policy Statement

New Mexico Department of Transportation policy is to plan, design, construct and maintain highways while providing for the safe and efficient movement of all modes of transportation through or around a temporary traffic control zone and safety of the workers.

This policy applies to all types of bridge and highway construction, reconstruction and maintenance projects on the State Highway System, projects on local systems that are administered by the NMDOT, and urban as well as rural facilities.

Goals and Objectives

The goal of this policy is to promote a commitment to implement the requirements of the Work Zone Safety and Mobility Policy (23 CFR 630 Subpart J) by:

- Providing safe work zones for workers an motorists
- Minimize the traffic and mobility impacts of a work zone
- Reducing the number of crashes and deaths in work zones
- Improving training for all project staff involved in plan development and construction administration related to work zones
- Improving work zone procedures over time by using knowledge and observations gained from past work zones
- Developing and implementing Transportation Management Plans (TMP) for work zones

Explanation of Terms

Transportation Management Plan (TMP): A TMP consists of strategies to manage the work zone impacts of a project.

Work Zone: An area of a highway with construction, maintenance, or utility work activities. It extends from the first warning sign to the "End Road Work" sign or the last temporary traffic control device.

Project Classification

Determining project classification is intended to help assess and allocate resources more effectively to projects that are likely to have more work zone impacts. A project that is expected to cause more impacts may warrant additional attention during project development and may require additional funding for transportation strategies that help manage the work zone impacts of the project. The three project classifications utilized in New Mexico are as follows:

- *Significant Project*
- *Regionally Significant Project*
- *Routine Project*

Specific definitions of project classifications are as follows:

Significant Project:

1) All Interstate system projects within the boundaries of a designated Transportation Management Area (TMA) that occupy a location for more than three days with either intermittent or continuous lane closures. A TMA is an area designated by the US Secretary of Transportation having an urbanized population of over 200,000. See Federal Register: July 8, 2002 (Volume 67, Number 130).

2) Any project 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.

Regionally Significant Project: Any project that is anticipated to have more than minimal disruption, but have not been identified as a significant project.

Routine Project: Any project that is not anticipated to cause sustained work zone impacts. These projects are typically rural in nature and on low to medium volume roads. The LOS for these types of roads would not be significantly impacted if a lane is closed during normal work operations.

The project classification should be done during the STIP Planning & Preliminary Project Definition stage and will be determined based on the following parameters that can significantly affect work zone impacts:

- Project purpose and need
- Roadway functional classification – e.g., Interstate, expressway, principal arterial, major arterial, minor arterial, collector.
- Area type – e.g., urban, suburban, rural.
- Traffic demand and travel characteristics – e.g., lanes affected, average daily traffic (ADT), expected capacity reduction, level of service (LOS).
- Type of work – e.g., new construction, reconstruction, rehabilitation, maintenance, bridge work, equipment installation/repair.
- Complexity of work – e.g., duration, length, intensity.
- Level of traffic interference with construction activity.
- Potential impacts on local transportation network and businesses.
- Considerations specific to the region – e.g., tourism, special events, weather

Policy Guidance and Agency Processes and Procedures

The project design team is responsible for developing the Transportation Management Plan (TMP) for the project based on the project complexity and potential impacts to mobility through the work zone and highway corridor. The Transportation Management Plan shall include at a minimum, a detailed Temporary Traffic Control (TTC) plan that addresses the safe handling of motorized and non-motorized traffic through the work zone. In addition, it may be necessary on some projects to include Transportation Operations (TO) strategies to ease work zone impacts. The TMP may also include a Public Information (PI) component. Public Information strategies may be required to inform those affected by the project of the expected work zone impacts and changing conditions. The PI component may be included as a bid item if the project design team determines that this may be necessary due to the complexity of the project. The PI may be the responsibility of the contractor, the District Office or a public relations firm based on recommendations of the design team in consultation with the District Office.

For all significant projects, **a Major TMP** shall be developed that consists of the temporary traffic control plan, as well as transportation operations and public information strategies to manage work zone impacts.

Intermediate TMP's are intended for regionally significant projects that are anticipated to have more than minimal disruption, but have not been identified as significant. Intermediate TMP's

shall consist of a temporary traffic control plan, and may include transportation operation strategies and a public information component as appropriate.

Basic TMP's are typically applied on routine projects with minimal disruption and may only involve the development of a temporary traffic control plan.

All projects will include detailed traffic control plan sheets specific to the phasing of traffic as included in the suggested sequence of construction developed by the design team during project development. All projects will include a bid item for Traffic Control Management in addition to bid items for traffic control devices. All NMDOT Design Directives shall be followed during project development.

The Project Development Engineer (PDE) shall be responsible for developing pay items for bidding on the TTC plan. This shall be in compliance with the NMDOT's specification for Section 702 Traffic Control Devices for Construction.

Exhibit "A" on page 5 outlines the agency process for developing and carrying out a TMP.

EXHIBIT "A"

PROJECT PLANNING STAGE		
ACTIVITY	**REMARKS**	**RESPONSIBILITY**
1) Determine Classification of Project *>Routine Project* *>Regionally Significant* ***>SIGNIFICANT PROJECT***	Project classification will be determined during the STIP Planning & Preliminary Project Definition stage and will be determined based on parameters that can significantly affect work zone impacts. Definition of a **Significant Project**:1) All Interstate system projects within the boundaries of a designated Transportation Management Area (TMA) that occupy a location for more than three days with either intermittent or continuous lane closures; 2) Any project 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. (Parameters identified on page 3)	*Project Development Team*
2) Compile Project Material ~Project Definition/Scope ~Preliminary Construction Staging Approaches ~Discuss Work Zone Management Strategies ~Analyze Work Zone Impacts ~Consider Implementation Costs		
3) Determine TMP Needs Based on Project Classification ~Assess Expected Work Zone Impacts of Project (Delay, Queue, Crash Characteristics) *>Routine Project = Basic TMP* *>Regionally Significant = Intermediate TMP* ***>SIGNIFICANT PROJECT = Major TMP***		
4) Identify Stakeholders ~*Internal*: Planning, Design, Operations, Maintenance, Public Affairs, Pavement, Bridge, Drainage, etc. ~*External*: Local Government, FHWA, Contractors, Enforcement Agencies, Emergency Services, Businesses, Schools, Utility Providers, etc.	A TMA is an area designated by the US Secretary of Transportation having an urbanized population of over 200,000. See Federal Register: July 8, 2002 (Volume 67, Number 130).	

PROJECT DESIGN STAGE

ACTIVITY				REMARKS	RESPONSIBILITY
5) Re-Confirm Project Classification & Develop TMP				Discuss at Work Zone Constructability Review Meeting see most current Work Zone Design Directive-IDD. Discuss throughout Project Develoment process. Incorporate TMP components into Plans, Plan Notes, Project Specifications, Estimates.	*Constructability Review Team/ PDE LEAD*
Discuss: ~Construction Staging Approaches ~Work Zone Management Strategies ~Work Zone Impacts ~Solicit Review & Comments	***Routine Projects***	***Regionally Significant Projects***	**Significant Projects**		
	Basic TMP:	*Intermediate TMP:*	*Major TMP:*		
	TTC	*TTC* *TO,PI (as Approp,)*	*TTC* *TO,PI*	PDE will develop a draft TMP letter/report identifying TMP elements.	

Transportation Op. (TO) Strategy Examples
Transit Service Improvements
Park & Ride Programs
HELP Trucks
Revised Signal Timing Coordination
Separate Truck Lanes
Temporary Signals
Automated Enforcement
ITS

Public Info. (PI) Strategy Examples
Brochures/Mailers
Press Releases
Media Alerts
Project Websites
Public Meeting
Changeable Message Signs
Transportation Management Center
Coordination w/ Media, Schools, Businesses, Emergency Services

** Strategies may include the above, but are not limited to.*

ACTIVITY	REMARKS	RESPONSIBILITY
6) Update/Revise TMP	ALL PROJECTS	*Constructability Review Team/ PDE LEAD*
	Discuss throughout Project Development process. Incorporate TMP components into Plans, Plan Notes, Project Specifications, Estimates. Plans Specification and Estimates shall include all applicable elements of a TMP.	
	SIGNIFICANT PROJECTS	
7) Finalize Construction Phasing/Staging and TMP	PDE will prepare Final TMP Letter/Report to be submitted to District CE and PM and provide copy to Constructability Team. TMP report to include strategies to be monitored through data collection.	

PROJECT CONSTRUCTION STAGE		
ACTIVITY	**REMARKS**	**RESPONSIBILITY**
8) Re-evaluate/Revise TMP	TMP's developed during contracting or construction are approved prior to implementation. Discuss at Preconstruction Meeting. Solicit comments on proposed changes with applicable Constructability Review Team members. TMP Revision Letter/Report to be prepared by District.	*District LEAD*
9) Implement TMP	ALL PROJECTS NMDOT Spec 618 identifies requirements of the installation, inspection, and maintenance of TMP devices and or TMP components. All elements of TMP shall be implemented.	*District LEAD*
10) TMP Monitoring ~Crash/Operational Data ~TO & PI Strategies ~Impacts	Monitor the performance of the work zone and the TMP to assess impacts and to determine if strategies in the TMP are effective and record in project diaries and reports. SIGNIFICANT PROJECTS Reference TMP report/letter for strategies to be monitored through data collection.	*District*
PERFORMANCE ASSESSMENT STAGE		
ACTIVITY	**REMARKS**	**RESPONSIBILITY**
11) Post Project Evaluation ~Management strategies effective? ~Decisions through process adequately made? ~TMP procedures/costs need to be adjusted?	SIGNIFICANT PROJECTS Document Post Project Evaluation of successes and failures, changes to TMP and results. Report distributed to constructability team or TMP team.	*District LEAD*
	Bi-Annual Work Zone Process Reviews with FHWA on randomly selected projects. Incorporate into central database.	*Construction Bureau*
	Maintain database of Post Project Evaluations to define TMP's on future projects and to determine if State policies, procedures need to be improved.	*Traffic Technical Support Bureau/Construction Bureau*

Work Zone Data

NMDOT shall use field observations, available work zone crash data, and operational information to manage work zone impacts for **Significant Projects** during implementation.

NMDOT shall continually pursue improvement of work zone safety and mobility by analyzing work zone crash and operational data for multiple projects to improve and enhance State policies and procedures. Collecting, analyzing and compiling findings from multiple projects will help in developing and implementing future projects.

Project-Level Activity	Responsibility
Collect Work Zone Crash Data	District Office
Collect Operational Data	District Office
Manage Work Zone Impacts	District Office

Process-Level Activity	Responsibility
Analyze Work Zone Crash & Operational Data	District Office /TTS Bureau
Incorporate into Central Database	TTS Bureau
Compile Findings from Multiple Projects	TTS Bureau

Process Review

In order to consistently monitor on-going work zone compliance, NMDOT shall perform a process review at least every two years. The review will be led by the State Construction Bureau. The review shall include representatives from:

- Planning
- Project Development
- Traffic Technical Support
- Construction Bureau
- District Office
- Contractor
- FHWA
- ACNM

The committee shall determine and document areas of non-compliance and recommend appropriate actions, ascertain which existing NMDOT policies and procedures are affectively working to provide safe compliant construction work zones or determine if new procedures are required, improve long term day-today quality and safety of NMDOT construction work zones and determine the effectiveness of work zone training.

The scope of this review is as follows:

1. Conduct a statewide Work Zone Process Review to evaluate the existing Department, District, and project work zone implementation, policies and procedures.
2. Conduct site visits of on-going construction/maintenance work zones in each NMDOT District to determine compliance with work zone specifications.
3. Conduct a survey in an attempt to obtain information of recurring work zone problems, concerns, issues and best practices.
4. Document and compare review findings with established NMDOT policies, specifications and MUTCD.
5. Provide a report of the review team findings and recommended corrective action or mitigation to improve public and work force safety within construction work zones.
6. Establish subsequent procedures and protocol for conducting periodic work zone reviews

Exemption Process

For projects that are classified as significant by definition of a TMA, but in the judgment of the agency do not cause sustained work zone impacts, the Project Development Engineer may request a design variance to the requirements triggered by the classification. Some examples that might qualify include: Road work on Interstate projects where capacity far exceeds the demand (e.g., single lane closures on highways that have low volumes of traffic), night work, and off peak lane closures. Refer to Infrastructure Design Directive IDD-2006-4 Design Exception & Design Variance Procedure (or most current).

Work Zone Training

The NMDOT will require training for personnel involved in the development, implementation, operation, inspection, and enforcement of work zones, appropriate to the job decisions each individual is required to make. The training will reflect industry practices and agency processes and procedures. Personnel requiring training includes, but is not limited to, transportation planners, designers/consultant designers, project development engineers, traffic engineers, safety engineers, construction project staff, maintenance staff, contractor and utility staff.
The certification shall be effective for four years upon completion of the course and recertification will be required every four years. Recertification may consist of a shorter refresher course.

Work Zone Training shall be provided by a nationally recognized resource such as *FHWA, NHI, ATSSA, and IMSA*. In addition, Work Zone Training will also be provided through in-house NMDOT resources such as, Traffic Technical Support, District Personnel, Construction Bureau and others involved in aspects of work zones.

Following are guidelines that the NMDOT is recommending for who should be trained and suggestions of acceptable courses to be used.

- **Design**

The NMDOT Programs and Infrastructure Organization will require training for design personnel involved in the implementation, inspection, and enforcement of work zone related transportation management and traffic control.

All those involved in construction work zone projects should have a basic knowledge of temporary traffic control that allows them to assist in monitoring and recognition of deficiencies during the course of a project.

Suggested training courses for individuals responsible for the design or review of Temporary Traffic Control Plans (TTC):

A. *Traffic Control Design Specialists (ATSSA)*

This training course addresses the entire process for designing, installing, maintaining, and the evaluation of temporary traffic control in work zones. This training is recommended for traffic engineers, engineering technicians, consultants and other individuals responsible for temporary traffic control design and for individuals that are responsible for designing traffic control plans for approval.

B. *Advanced Work Zone Management and Design (NHI)*

This training course will provide planners, designers, construction managers, and other transportation professionals with additional skill and knowledge of both technical and non-technical aspects of work zone design and traffic management practices.

➢ **Implementation/Operation/Inspection/Enforcement**

The NMDOT Transportation & Highway Operations Organization in conjunction with district construction staff will require training for construction personnel involved in the implementation, inspection, and enforcement of work zone related transportation management and traffic control. Traffic Control Supervisors employed by the contractor must be certified according to the specifications outlined in the latest edition of the NMDOT Standard Specifications for Highway and Bridge Construction.

Suggested training courses for construction Project Managers or Project Engineers:

A. *Traffic Control Supervisor (ATSSA)*

All projects from the simplest maintenance job to a multi-million dollar reconstruction project require traffic control expertise to make the project as safe as possible for the motorist and workers. The Project Manager or Project Engineer on the project needs to be trained in the latest standards, practices and procedures to accomplish this goal.

Suggested training course for construction inspectors/technicians:

A. *Traffic Control Technician (ATSSA)*

All those involved in construction work zone projects should have a basic knowledge of temporary traffic control that allows them to assist in monitoring and recognition of deficiencies during the course of a project.

B. *Comprehensive Inspection Training Course (ATSSA-Training CD)*

The training consists of 14 modules geared towards specific topics; inspection basics, nighttime traffic control, flagging operations, signs and supports, portable changeable message boards, arrow panels, channelizing devices, pavement markings, raised pavement markers and delineators, warning lights and floodlights, crash cushions, portable concrete barriers, truck mounted attenuators, and guardrail installation and inspection

Suggested training course for enforcement personnel:

A. *FHWA Work Zone Law Enforcement Course*

This course provides basic knowledge to promote the safe and effective use of law enforcement in work zones. As a result of this course, participants will understand the role of law enforcement officers in work zones; recognize proper practices and procedures related to the use of law enforcement officers in work zones; recognize the component parts of a typical work zone; and understand standards and guidelines related to temporary traffic control in work zones.

➢ **Maintenance**

The NMDOT Transportation & Highway Operations Organization in conjunction with the district maintenance staffs shall develop and maintain a training program for maintenance personnel involved in the implementation, inspection, and enforcement of work zone related transportation management and traffic control.

All those involved in maintenance work zone projects should have a basic knowledge of temporary traffic control that allows them to assist in monitoring and recognition of deficiencies during the course of a project.

Suggested training courses for Maintenance Supervisor:

A. *Low Speed Lane Closures (ATSSA – Training CD)*
   Introduces the basic concept and techniques related to lane closures in low speed areas, such as advance warning areas, transitions, buffers, work spaces, ad termination areas, standards, typical setups, channelizing devices, use of flaggers, installation and removal, residential and urban areas

B. *Moving Mobile Operations (ATSSA – Training CD)*
   Review of issues related to work zones that are in motion such as mowing, striping, parching, and line painting. Other topics include standards and procedures, fundamental principles, using flaggers, operations on the shoulders and beyond the shoulders, and more.

C. *Basic Worker Safety (ATSSA – Training CD)*
   Introduces principles and concepts related to basic worker safety such as training, garments, visibility, nighttime work, worker safety regulations, use of barriers, shadow vehicles use of police, special devices, and more

D. *Mowing Operations (ATSSA – Training CD)*
   Reviews issues related to traffic control during mowing operations. Standards and procedures, factors to consider during mowing, work beyond the shoulder, and in the median, personal safety, visibility and sign spacing

E. *Truck Mounted Attenuator Operations (ATSSA – Training CD)*
   Review of issues related to work zones where TMAs are used, when to use, crash cushions, type of TMA, typical uses, shadow vehicles, advance warning trucks, positioning of TMAs, roll-ahead distances, and additional situations are discussed

F. *Comprehensive Inspection Training Course (ATSSA – Training CD)*
   The training consists of 14 modules geared towards specific topics; inspection basics, nighttime traffic control, flagging operations, signs and supports, portable changeable message boards, arrow panels, channelizing devices, pavement markings, raised pavement markers and delineators, warning lights and floodlights, crash cushions, portable concrete barriers, truck mounted attenuators, and guardrail installation and inspection

NEW MEXICO DEPARTMENT OF TRANSPORTATION
WORK ZONE DESIGN CHECKLIST

Overview	
Step 1 - Identify Traffic Control Options	**Completed?**
▪ General Work Zone Setup	☐
▪ Project Timing	☐
▪ Detour	☐
▪ Roadside Safety	☐
Step 2 - Identify Work Zone Impacts	**Completed?**
▪ Data Collection	☐
▪ Work Zone Analysis	☐
▪ Mobility Impacts	☐
▪ Construction Related Impacts	☐
Step 3 - Identify Impact Management Strategies	**Completed?**
▪ Temporary Traffic Control	☐
▪ Transportation Operations	☐
▪ Public Information and Outreach	☐
Project Classification	
Significant Project	☐
Regionally Significant Project	☐
Routine Project	☐

STEP 1 - IDENTIFY TRAFFIC CONTROL OPTIONS			
Work Zone	**Yes**	**No**	**N/A**
1. Have all applicable work zone types been adequately considered?	☐	☐	☐
a. Work outside of roadway	☐	☐	☐
b. Full roadway closure	☐	☐	☐
c. Permanent lane/shoulder/ramp closures	☐	☐	☐
d. Crossovers/contraflow	☐	☐	☐
e. Detour	☐	☐	☐
f. Intermittent road closures (i.e., 15-minutes, weekend)	☐	☐	☐
g. Reduced lane widths	☐	☐	☐
h. Reduced shoulder widths	☐	☐	☐
i. Lane shifts	☐	☐	☐
j. Daily lane/shoulder closures	☐	☐	☐
k. Use of shoulder or median	☐	☐	☐
l. Sho-fly	☐	☐	☐
m. One-lane, two-way operation	☐	☐	☐
Temporary Signal	☐	☐	☐
Flagger	☐	☐	☐
n. Reversible lane	☐	☐	☐
o. Use of temporary structures	☐	☐	☐
p. Use of temporary pavement	☐	☐	☐
q. Widening	☐	☐	☐
r. Nightwork	☐	☐	☐

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WORK ZONE DESIGN CHECKLIST

Work Zone (Continued)	Yes	No	N/A
s. Weekend work	☐	☐	☐
2. Have different staging options been considered?	☐	☐	☐
3. Are bypasses or temporary widening needed?	☐	☐	☐
4. Does pedestrian/bicycle traffic or ADA access need to be maintained?	☐	☐	☐
5. Is this roadway/intersection approved for Highway Safety Improvement Program (HSIP) Funds? Or is the roadway/intersection a high crash location?	☐	☐	☐
6. What is the minimum allowable lane width? Width = _____	☐	☐	☐
7. Will oversized load permits be affected?	☐	☐	☐
8. Is a reduced work zone speed limit required?	☐	☐	☐
9. Should certain types of vehicles be prohibited from entering the work zone (over-height, weight restrictions)?	☐	☐	☐
10. Will the work zone be adequate in terms of:	☐	☐	☐
a. Traffic control devices?	☐	☐	☐
b. Railroad crossing and controls?	☐	☐	☐
c. Geometrics (turning radii, ramp merge/diverge areas, etc.)?	☐	☐	☐
d. Bridge restrictions and other structures?	☐	☐	☐
Project Timing	**Yes**	**No**	**N/A**
1. Can the contractor restrict the roadway during	☐	☐	☐
a. AM or PM rush hours?	☐	☐	☐
One direction?	☐	☐	☐
Both directions?	☐	☐	☐
b. Overnight?	☐	☐	☐
c. Local celebrations?	☐	☐	☐
d. Holidays or weekends?	☐	☐	☐
e. Sporting events?	☐	☐	☐
f. Other special events?	☐	☐	☐
2. Will project timing (for example, start or end date) be restricted by	☐	☐	☐
a. School closings or openings?	☐	☐	☐
b. Holidays?	☐	☐	☐
c. Sporting events?	☐	☐	☐
d. Other projects in the area?	☐	☐	☐
e. Other?	☐	☐	☐
3. Is there present or future roadwork in the immediate area that may affect traffic or the Contractor's operations?	☐	☐	☐
Roadside Safety	**Yes**	**No**	**N/A**
1. Are temporary barriers required? (Refer to Drop Off Policy)	☐	☐	☐
2. Will temporary impact attenuators be required?	☐	☐	☐
3. Will extra protection be required for	☐	☐	☐
a. Pedestrians/Bicyclists?	☐	☐	☐
b. School areas and crossings?	☐	☐	☐

NEW MEXICO DEPARTMENT OF TRANSPORTATION
WORK ZONE DESIGN CHECKLIST

Roadside Safety Cont.	Yes	No	N/A
c. Playgrounds and parks?	☐	☐	☐
4. Have areas been designated for the contractor to store	☐	☐	☐
a. Equipment?	☐	☐	☐
b. Construction materials?	☐	☐	☐
c. Waste materials?	☐	☐	☐
5. Have areas been designated for contractor's employees to park personal vehicles	☐	☐	☐
a. On-site?	☐	☐	☐
b. Off-site?	☐	☐	☐
Detour	**Yes**	**No**	**N/A**
1. Will traffic be detoured?	☐	☐	☐
2. If yes, is the detour adequate in terms of	☐	☐	☐
a. Weight restrictions	☐	☐	☐
b. Height-width	☐	☐	☐
c. Wide loads	☐	☐	☐
d. Capacity	☐	☐	☐
e. Adequate traffic control devices	☐	☐	☐
f. Railroad crossing and controls	☐	☐	☐
g. Geometrics (turning radii, ADA requirements, etc.)	☐	☐	☐
h. Bridge restrictions and other structures	☐	☐	☐
i. Truck restrictions	☐	☐	☐
3. Will there be other construction along the detour that might influence traffic?	☐	☐	☐
4. Have affected Cities, Districts, Counties, or States been notified of the proposed detour?	☐	☐	☐
5. Will all fronting businesses have acceptable ingress and egress?	☐	☐	☐
6. Can the detour be continued during winter (snow removal concerns)?	☐	☐	☐
7. Are alternate routes available to local motorists?	☐	☐	☐
8. Should any of the following be contacted?	☐	☐	☐
a. Public school system	☐	☐	☐
b. Public transit system	☐	☐	☐
c. Police, fire, and ambulance services	☐	☐	☐
d. Postal mail route services	☐	☐	☐
e. Others	☐	☐	☐
9. Is a public information meeting required?	☐	☐	☐

NEW MEXICO DEPARTMENT OF TRANSPORTATION
WORK ZONE DESIGN CHECKLIST

STEP 2 - IDENTIFY WORK ZONE IMPACTS			
Data Collection	**Yes**	**No**	**N/A**
1. Has the appropriate data been collected?	☐	☐	☐
a. Traffic Volumes	☐	☐	☐
b. Signal Timing	☐	☐	☐
c. Origin-Destination	☐	☐	☐
d. Travel Time	☐	☐	☐
e. Crash History	☐	☐	☐
f. Speed	☐	☐	☐
g. Delay	☐	☐	☐
e. Other	☐	☐	☐
Work Zone Analysis	**Yes**	**No**	**N/A**
1. Has the work zone traffic analysis been completed?	☐	☐	☐
a. Have work zone and ramp capacities been identified?	☐	☐	☐
Work Zone Capacity =_____	☐	☐	☐
Ramp Capacity =_____	☐	☐	☐
b. Have required number of maintained lanes and allowable lane closure hours been identified?	☐	☐	☐
c. Have the appropriate analysis tools been identified/used?	☐	☐	☐
HCS	☐	☐	☐
Synchro/SimTraffic	☐	☐	☐
Corsim	☐	☐	☐
Vissim	☐	☐	☐
Other	☐	☐	☐
d. Have the appropriate traffic analyses been conducted?	☐	☐	☐
Queuing analysis	☐	☐	☐
Signal timing optimization	☐	☐	☐
Ramp meter analysis	☐	☐	☐
Travel time analysis	☐	☐	☐
Delay analysis	☐	☐	☐
Other	☐	☐	☐
2. Was a Maintenance of Traffic Plan (MOT) Prepared? **required for significant projects**	☐	☐	☐

NEW MEXICO DEPARTMENT OF TRANSPORTATION
WORK ZONE DESIGN CHECKLIST

Mobility Impacts	Yes	No	N/A
1. Has the work zone traffic analysis identified impacts on any of the following?	☐	☐	☐
a. Ability to maintain all accesses (business, community, etc.)	☐	☐	☐
b. Pedestrian, bicycle, and ADA facilities	☐	☐	☐
c. Public safety (workers and traveling public)	☐	☐	☐
d. Emergency vehicle access	☐	☐	☐
e. Construction equipment access & movement through the work	☐	☐	☐
f. Specific user groups (businesses, communities)	☐	☐	☐
g. Over-height, over-weight vehicles	☐	☐	☐
h. Transit services	☐	☐	☐
i. Traffic operations in and around the work zone (freeway queues, network operations, effect on local roads and detour routes)	☐	☐	☐
j. Ramp capacity	☐	☐	☐
k. Intersection traffic control (signal timing, adequate signage, etc.)	☐	☐	☐
l. Existing special traffic operations (HOV lanes, contraflow, drawbridges, etc.)	☐	☐	☐
m. User Costs (delay)	☐	☐	☐

Construction Related Impacts	Yes	No	N/A
1. Has the Maintenance of Traffic Plan(MOT) identified impacts on any of the following? **Significant Projects Only**	☐	☐	☐
a. Ability to provide required decision sight distance and merge/diverge areas at ramps	☐	☐	☐
b. Right-of-way	☐	☐	☐
c. Environment	☐	☐	☐
d. Required bridge widths	☐	☐	☐
e. Earthwork, retaining walls, pier clearances, profile differences, etc.	☐	☐	☐
f. Ability to maintain existing drainage, utility and lighting systems	☐	☐	☐
g. Construction duration	☐	☐	☐
h. Construction costs	☐	☐	☐
i. Constructability	☐	☐	☐
j. Noise levels	☐	☐	☐
k. Roadway surface conditions	☐	☐	☐
l. Storage of equipment or materials	☐	☐	☐
m. Service life (bridges, pavements, etc.)	☐	☐	☐

NEW MEXICO DEPARTMENT OF TRANSPORTATION
WORK ZONE DESIGN CHECKLIST

STEP 3 - IDENTIFY IMPACT MANAGEMENT STRATEGIES			
Temporary Traffic Control	**Yes**	**No**	**N/A**
Traffic Control Devices			
1. Traffic control signing and striping will be located:	☐	☐	☐
a. In the plans	☐	☐	☐
b. Reference to standard drawings	☐	☐	☐
2. Will sign message modifications be required on permanent signage for MOT?	☐	☐	☐
3. Are temporary signals required?	☐	☐	☐
4. Will existing signals need to be kept operational?	☐	☐	☐
5. Will temporary roadway lighting be required?	☐	☐	☐
6. Will striping removal be required?	☐	☐	☐
a. Has the work zone been set up to minimize striping removal?	☐	☐	☐
7. Will Portable Changeable Message Signs (PCMS) be required?	☐	☐	☐
Project Coordination, Contracting and Innovative Construction Strategies			
1. Has the project been coordinated with:	☐	☐	☐
a. Other projects in the area	☐	☐	☐
b. Utilities	☐	☐	☐
c. Right-of-Way	☐	☐	☐
d. Rail Roads	☐	☐	☐
2. Have innovative contracting strategies been considered?	☐	☐	☐
a. Incentive/Disincentive clauses	☐	☐	☐
b. Lane Rental	☐	☐	☐
c. Performance specifications	☐	☐	☐
3. Have innovative or accelerated construction techniques been considered?	☐	☐	☐
a. Prefabricated/precast elements	☐	☐	☐
b. Rapid cure materials	☐	☐	☐
c. Accelerated Construction Technology Transfer (ACTT) Workshop	☐	☐	☐
Transportation Operations	**Yes**	**No**	**N/A**
1. Have the following Work Zone ITS strategies been considered for traffic monitoring/management?	☐	☐	☐
a. Late Lane Merge Concept	☐	☐	☐
b. Advanced Speed Information	☐	☐	☐
c. Advanced Congestion Warning	☐	☐	☐
d. Conflict Warning	☐	☐	☐
e. Travel Time Monitoring	☐	☐	☐
f. Freeway Queue Monitoring	☐	☐	☐
g. CCTV Monitoring	☐	☐	☐
h. Real-time Detour (or other traffic diversion strategies)	☐	☐	☐
2. Have the following demand management strategies been considered?	☐	☐	☐
a. Transit service improvements	☐	☐	☐

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Transportation Operations Cont.	Yes	No	N/A
b. Transit incentives	☐	☐	☐
c. Shuttle services	☐	☐	☐
d. Ridesharing/carpooling incentives	☐	☐	☐
e. Park-and-ride promotion	☐	☐	☐
f. High-occupancy vehicle (HOV) lanes	☐	☐	☐
g. Toll/congestion pricing	☐	☐	☐
h. Ramp metering	☐	☐	☐
i. Parking supply management	☐	☐	☐
j. Variable work hours	☐	☐	☐
k. Telecommuting	☐	☐	☐
3. Have the following corridor/network management strategies been considered?	☐	☐	☐
a. Signal timing/coordination improvements	☐	☐	☐
b. Temporary traffic signals	☐	☐	☐
c. Street/intersection improvements	☐	☐	☐
d. Bus turnouts	☐	☐	☐
e. Turn restrictions	☐	☐	☐
f. Parking restrictions	☐	☐	☐
g. Truck/heavy vehicle restrictions	☐	☐	☐
h. Separate truck lanes	☐	☐	☐
i. Reversible lanes	☐	☐	☐
j. Ramp metering	☐	☐	☐
k. Ramp closures	☐	☐	☐
l. Railroad crossing controls	☐	☐	☐
m. Coordination with adjacent construction site(s)	☐	☐	☐
4. Have the following work zone safety management strategies been considered?	☐	☐	☐
a. Speed limit reduction/variable speed limits	☐	☐	☐
b. Temporary traffic signals	☐	☐	☐
c. Temporary traffic barrier	☐	☐	☐
d. Movable traffic barrier systems	☐	☐	☐
e. Crash-cushions	☐	☐	☐
f. Temporary transverse rumble strips	☐	☐	☐
g. Warning lights	☐	☐	☐
h. Project task force/committee	☐	☐	☐
i. PCMS with speed display (refer to WZ Safety Toolbox)	☐	☐	☐
j. Rolling road blocks (refer to WZ Safety Toolbox)	☐	☐	☐
k. Wider lane lines (refer to WZ Safety Toolbox)	☐	☐	☐
l. Construction safety supervisors/inspectors	☐	☐	☐
m. Road safety audits	☐	☐	☐
n. TMP monitor/inspection team	☐	☐	☐
5. Have the following incident management strategies been considered?	☐	☐	☐
a. Standby Towing Service	☐	☐	☐

NEW MEXICO DEPARTMENT OF TRANSPORTATION
WORK ZONE DESIGN CHECKLIST

Transportation Operations Cont.	Yes	No	N/A
b. Planned detour routes	☐	☐	☐
c. Emergency Pull-outs	☐	☐	☐
d. Crash Investigation/Emergency Access Location	☐	☐	☐
e. ITS for Incident Management	☐	☐	☐
f. Coordination with CHART	☐	☐	☐
6. Have the following enforcement strategies been considered?	☐	☐	☐
a. Cooperative police enforcement	☐	☐	☐
b. Drone radar	☐	☐	☐

NEW MEXICO DEPARTMENT OF TRANSPORTATION
WORK ZONE DESIGN CHECKLIST

Public Information and Outreach	Yes	No	N/A
1. Have the following **public awareness strategies** been considered?	☐	☐	☐
a. Branding	☐	☐	☐
b. Brochures and mailers	☐	☐	☐
c. Newsletters	☐	☐	☐
d. Press releases	☐	☐	☐
e. Media alerts	☐	☐	☐
f. Mass media (earned and/or paid)	☐	☐	☐
g. Press kits	☐	☐	☐
h. Business survival kits	☐	☐	☐
i. Public service announcements	☐	☐	☐
j. Project information center	☐	☐	☐
k. Project website	☐	☐	☐
Web-connected traffic cameras	☐	☐	☐
Real-time traffic data	☐	☐	☐
General project information	☐	☐	☐
Construction progress	☐	☐	☐
Others	☐	☐	☐
l. Public meetings, workshops and community events	☐	☐	☐
m. Community task forces	☐	☐	☐
n. Coordination with media, schools, businesses, and emergency services	☐	☐	☐
o. Work zone education and safety campaigns	☐	☐	☐
p. Work zone safety highway signs	☐	☐	☐
q. Rideshare promotions	☐	☐	☐
r. Visual information (videos, slides, presentations) for meetings and web	☐	☐	☐
s. Public opinion surveys	☐	☐	☐
2. Have the following **motorist information strategies** been considered?	☐	☐	☐
a. Radio traffic news	☐	☐	☐
b. Changeable message signs	☐	☐	☐
c. Temporary motorist information signs	☐	☐	☐
d. Billboards	☐	☐	☐
e. Highway Advisory Radio (HAR)	☐	☐	☐
f. Project information hotline	☐	☐	☐
g. 511 Telephone Line	☐	☐	☐
h. Email alerts	☐	☐	☐
i. NMROADS.com	☐	☐	☐
j. Freight travel information	☐	☐	☐