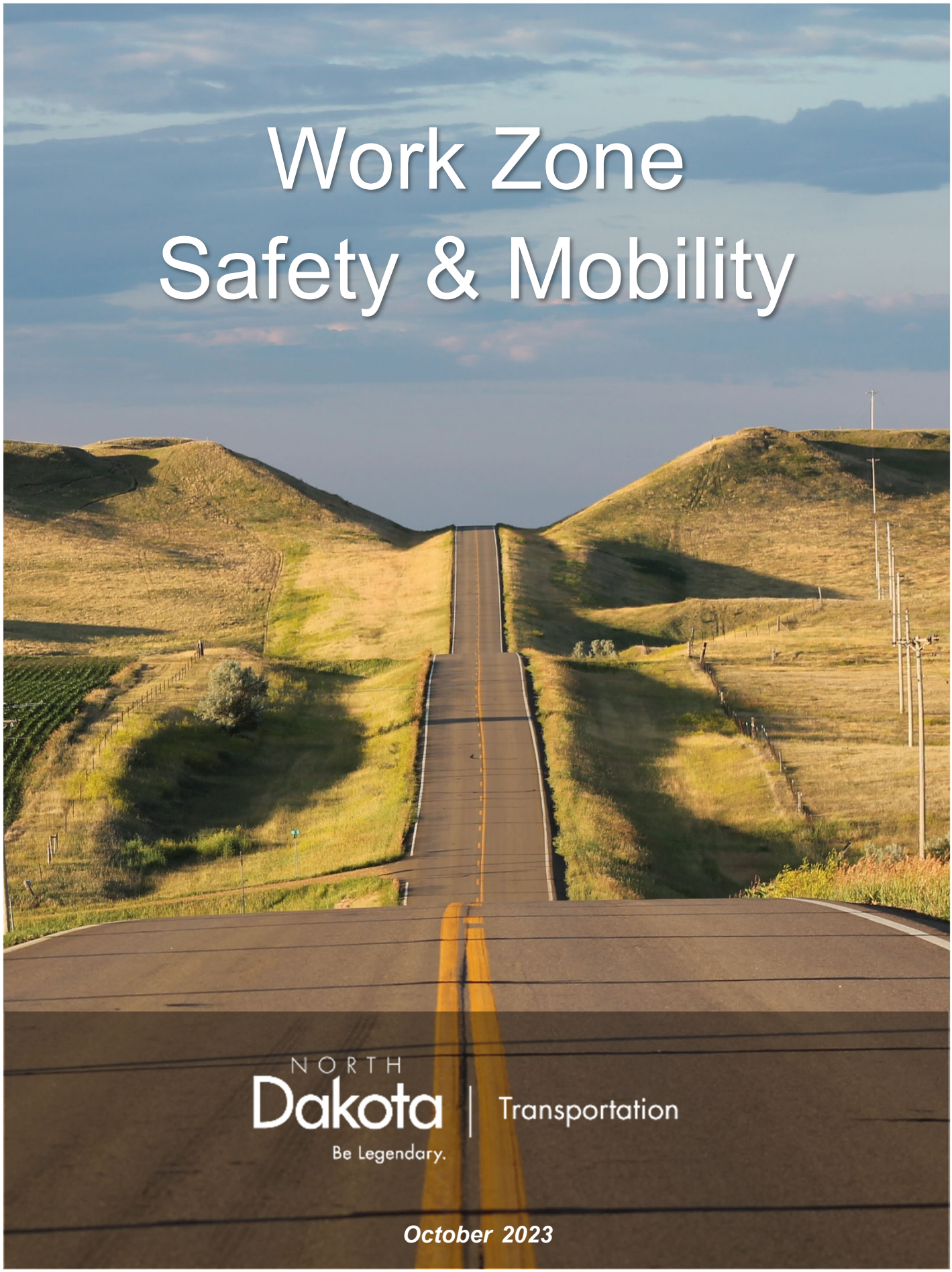
Work Zone
Safety & Mobility
NORTH
Dakota
Be Legendary.
Transportation
October 2023

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PREFACE

In September 2004, the Federal Highway Administration (FHWA) published updates to the work zone regulations at 23 CFR 630 Subpart J. This updated Rule, referred to as the Work Zone Safety and Mobility Rule, applies to all State and local governments that receive Federal-aid highway funding. Transportation agencies are required to comply with the provisions of the Rule by October 12, 2007. The changes made to the regulations broaden the former Rule to better address the work zone issues of today and the future.

Growing congestion on many roads, and an increasing need to perform rehabilitation and reconstruction work on existing roads, are some of the issues that have led to additional, more complex challenges to maintaining work zone safety and mobility. To help address these issues, the Work Zone Safety and Mobility Rule, hereafter, referred as "Rule", provides a decision-making framework that facilitates comprehensive consideration of the broader safety and mobility impacts of work zones across project development stages, and the adoption of additional strategies that help manage these impacts during project implementation. At the heart of the Rule is a requirement for agencies to develop an agency-level work zone safety and mobility policy. This policy is intended to support systematic consideration and management of work zone impacts across all stages of project development. The North Dakota Department of Transportation (NDDOT) has developed standard processes and procedures to support implementation of the policy. These processes and procedures include the use of work zone safety and operational data, work zone training, and work zone process reviews. NDDOT was also encouraged to develop procedures for work zone impacts assessment. The primary element of the Rule calls for the development of project-level procedures to address the work zone impacts of individual projects. These project-level procedures include identifying projects that NDDOT expects will cause a relatively high level of disruption and developing and implementing transportation management plans for all projects.

Chapter 4 of the 2007 Work Zone Safety and Mobility Policy is being amended to reflect the decision document from July of 2014 that the Upper Great Plains Transportation Institute and the NDDOT completed. This decision document outlines a training program for individuals involved in the work zone safety and mobility process.

WORK ZONE SAFETY AND MOBILITY POLICY

I. POLICY STATEMENT:

North Dakota Department of Transportation (NDDOT) policy is to provide a smooth and efficient flow of traffic, while retaining safety through a highway work zone.

II. GOALS AND OBJECTIVES:

- Provide a safe work environment
- Provide safety for the traveling public
- Reduce delays to 15 minutes or less in work zones
- Provide a level of service no more than two levels below the existing level of service.
- Work "Towards Zero Deaths" in work zones
- Utilize current ITS technology that reduces delays, improves safety, etc.
- Develop a training program for all project staff in plan development and construction administration related to work zones.
- Develop a data base of work zone related crashes and a review process to improve work zone designs
- Reduce crashes involving the traveling public in work zones on all types of construction and maintenance activities
- Establish and maintain a Work Zone Safety and Mobility Team
- Maintain a crash rate in work zones that is equal to or less than the crash rate that existed prior to implementation of the work zone.
- Conform with the most current version of the Manual on Uniform Traffic Control Devices (MUTCD) that has been adopted by the Director

III. SPECIFIC POLICY PROVISIONS:

- Identify significant projects at the time that the State Transportation Improvement Program (STIP) is developed.
- Develop, implement, and maintain work zone assessment and management procedures.
- Develop, implement, and maintain Transportation Management Plan (TMP) procedures for work zones.
- Engage in public information and outreach procedures.
- Develop, implement, and maintain a training program for personnel involved with work zone traffic control.
- Develop, implement, and maintain process review procedures.

Definition: A "significant project" may include:

i. Any project which exceeds an estimated $3,000,000 in cost and is on the urban regional system that either goes through a Metropolitan Planning Organization (MPO) boundary or city over 25,000 in population.

ii. 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 area population of over 200,000, or upon special request from the Governor and the MPO, or under special circumstances designated for the area.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

GUIDANCE ON WORKZONE SAFETY AND MOBILITY

CHAPTER 1

WORK ZONE ASSESSMENT AND MANAGEMENT PROCEDURES

1. Requirements of the Rule

The Rule encourages agencies to develop and implement procedures to assess work zone impacts in project development, and to manage safety and mobility during project implementations.

The Rule requires that the scope of the work zone assessment and management procedures be based on the characteristics of projects or project classes. This aspect of the provision is intended to account for the variation that exists in project types, characteristics, and complexity.

The Rule requires agencies to use work zone data at both the project and process-level to manage and improve work zone safety and mobility.

- At the project-level, agencies are required to use field observations, available work zone crash data, and operational information to manage the work zone impacts of individual projects while the projects are underway in the field.
- At the process-level, agencies are required to analyze work zone crash and operational data from multiple projects to improve agency processes and procedures,and in-turn continually pursue the improvement of the overall work zone safety and mobility.

The Rule recommends that agencies maintain elements of the data and information resources that are necessary to support the use of work zone data at the project and process-level.

2. Guidance for Implementation

The Rule brings about a new focus and new requirements to address work zone safety and mobility impacts. An important aspect of the Rule is that it advocates (1) the comprehensive and systematic consideration of the broader safety and mobility impacts of work zones through a project's life cycle; and (2) the development and implementation of appropriate management strategies that help manage these impacts.

Work zone assessment and management procedures can provide a framework within existing project development processes to help agencies:

- Identify and understand the work zone safety and mobility implications of alternative project options and design strategies.
- Understand the work zone safety and mobility implications of alternative project options and design strategies
- Identify significant projects and better allocate work zone management resources to those projects likely to have greater work zone impacts.
- Identify transportation management strategies to manage the expected work zone impacts of a project.
- Estimate costs and allocate appropriate resources for the implementation of the work zone management strategies.
- Implement the strategies and monitor and manage work zone impacts during construction, maintenance, or utility work, and adjust the TMP if needed.
- Conduct post-construction work zone performance assessment for assessing the performance of work zones and to improve work zone policies, practices, and procedures.

Work zone data, as described below, are necessary to make an informed assessment of the success of efforts to manage work zones and their impacts. Work zone field data also enable agencies to assess how well planning and design estimates of anticipated impacts match what happens in the field. Work zone data support performance assessments at both the project and program-levels. Available data and information provide the basis for assessing performance and taking appropriate actions to improve performance on individual projects as well as overall processes and procedures.

3. NDDOT Implementation

A detailed breakdown of Responsibilities is in Table 1.

A. Project Application for Significant Projects

Project development level:

Two separate analyses will be done to look at the mobility of the traffic. Planning and Programming, Traffic Operation section will do the analysis part and Design division/Consultant/Local Agency will do the proposed traffic control including any proposed traffic signal timings within the work zone.

1. An analysis will be done to determine the existing Level of Service (LOS) and existing traffic delays.
2. A second analysis will be done utilizing the proposed traffic control to determine the expected LOS and traffic delays.
3. After the analyses have been completed a comparison will be done to determine if the NDDOT meets the goal of a LOS no less than two lower than the existing and if expected traffic delays will be less than 15 minutes.
    a. If either of these goals is not met, other design construction staging, or allowable work hours may be considered to bring the project within the goals and objectives of the NDDOT.

A crash analysis will be done to determine the pre-work zone crash rate within the project limits. This data will aid in determining how the NDDOT is meeting one of its work zones goals.

Documentation associated with the Work Zone Assessment shall be maintained and become part of the project records.

Project construction level:

A work zone crash assessment will be done by the district during construction, on a on-going basis to determine if the NDDOT is meeting its goal. If the rate exceeds the pre-existing rate, consideration should be given, to make modifications to the TMP.

A work zone mobility assessment will be done monthly while the project is under construction to determine if the traffic delay goal is being met. This assessment will be performed and documented by the district and will consist of a drive through of the work zone and/or detour routes to determine what the actual delays are. If the delay is longer than the goal, consideration should be given to make modification to the TMP.

The public will be allowed to input information on the NDDOT Web Site as it relates to

ease of getting through the work zone, clarity of construction signing, travel time delays, etc. The purpose is to get feed-back from those who drive the work zone daily. The Construction Division in cooperation with the Communication Division will monitor and develop this site.

Documentation associated with the Work Zone Assessment shall be maintained and become part of the project records.

Process Review level:

The Work Zone Safety and Mobility Team, as identified in chapter 5, will review each of these areas and the documentation that relates to these areas during their review of the project, and make recommendations to the Deputy Director for Engineering on changes that should be made to TMP's.

B. Project Application for Non - Significant Projects

Surveys will be conducted, at least every two years, to determine what the public perception is as it relates to ease of getting through the work zone, clarity of construction signing, travel time delays, etc. This survey will be part of the customer satisfaction survey.

A database to track and analyze crashes in work zones will be developed and a yearly report will be generated.

The Work Zone Safety and Mobility Team will be required to review these surveys and reports; and make recommendations to the Deputy Director for Engineering on changes that should be made to TMP's.

TABLE 1: Work Zone Assessment and Management Procedures

Significant Project

	Programming	Design	Construction Services	District	Work Zone Safety and Mobility Team	Communications
Analysis of Existing Level of Service and Traffic Delays	x					
Analysis of Expected Level of Service and Traffic Delays With Proposed Traffic Control	x					
Comparison to Determine if Goal is Reached; LOS is Reduced by 2 or Less and if Wait is Less than 15 Minutes	x					
If Goal is not met, Consider Modifying Staging or Allowable Work Hours		x				
Crash Analysis of Pre-work Zone	x					
Maintain Records for Inclusion in Project files	x			x		
Work Zone Crash Assessment - Goal not being met				x		
Work Zone Mobility: Assess (monthly) to Determine. If not, consider modifying the TMP if Goal is being met				x		
Survey to Determine Public Perception			x			x
Work Zone Mobility: Maintain Documentation of Work Zone Assessment and Include in Project Records				x		
Review Each of the Above Areas					x	
Make Recommendations to DDE on Changes to the TMP					x	

Non-Significant Project

	Programming	Design	Construction Services	District	Work Zone Safety and Mobility Team	Communications
Public Survey Every Two Years			x			x
Database to Track Crashes in Work Zone and Produce a Yearly Report	x					
Review Surveys and Reports to Make Recommendations to DDE					x	

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

GUIDANCE ON WORKZONE SAFETY AND MOBILITY

CHAPTER 2

DEVELOPING AND IMPLEMENTING TRANSPORTATION MANAGEMENT PLANS FOR WORK ZONES

1. Requirements of the Rule

The Rule requires a TMP to lay out a set of coordinated transportation management strategies and describe how they will be used to manage the work zone impacts of a road project.

2. Guidance for Implementation

TMP lays out a set of coordinated transportation management strategies and describes how they will be used to manage the work zone impacts of a road project. The scope, content, and level of detail may vary based on agency's work zone policy and the anticipated work zone impacts of the project. TMP development should begin during systems planning and progress through the design and construction phase of a project.

3. NDDOT Implementation

A detailed breakdown of Responsibilities is in Table 2.3.

The State shall establish and implement TMPs that best serve the safety and mobility needs of the traveling public, highway workers, businesses, and community.

The TMP development will begin at the time of project programming and will continue through the post-construction phase.

All projects will require a TMP.

4. Project Application for Significant Projects

Significant projects TMPs will consist of a temporary traffic control (TTC) plan, as well as a transportation operation (TO) component and a public information (PI) component. The TMP will be an ongoing process from the scoping process through the construction process. Pavement Management and Scoping Section will suggest alternate routes and additional studies required for the TMP. Once a project has been incorporated into the STIP a milestone activity will be used to identify when the TMP team will need to begin, which in general will be before the environmental document. The district shall take the lead and develop a TMP team consisting of members from Planning and Programming Division, Maintenance and Engineering Services Division, Construction Services Division, Design Division, District, FHWA, local municipality, and others as necessary. The TMP team shall review the Work Zone Assessment and Management Procedures, Chapter 1, regarding goals and recommendations to implement in the TMP. The TMP team shall address the TMP strategies and identify general concepts to be identified in the Environmental Document. TMP strategies may consist of strategies shown in Table 2.1 for Temporary Traffic Control, Chapter 3 for Public Information and Table 2.2 for Transportation Operations.

5. Project Application for Non-Significant Projects

Non-significant project's TMP will consist of a TTC plan and consideration should be given to a TO component and a PI component. If the non-significant project is a reconstruction project, the project designer, Design Division and the District will develop the TMP strategies. Projects other than reconstruction projects, project designer will consult with Design Division and the District. The TMP will address level and strategies prior to and shall be identified in the

Environmental Document. TMP strategies may consist of strategies shown in Table 2.1 for Temporary Traffic Control, Chapter 3 for Public Information and Table 2.2 for Transportation Operations. If the project is a programmatic CATEX the consideration of the TMP will be done during the design phase.

TABLE 2.1: Work Zone Management Strategies by Category, Part I

Temporary Traffic Control (TTC)		
Control Strategies	**Traffic Control Devices ***	**Project Coordination, Contracting and Innovative Construction Strategies**
• Construction phasing/ • Full roadway closures • Lane shifts or closures – Lane width reductions (constriction) – Lane closure – Reduced shoulder width – Shoulder closure – Lane shift to shoulder/median • One-lane, two-way operation • Two-way traffic on one side divided facility (crossover) • Reversible lanes • Ramp closures/relocation • Freeway-to-freeway interchange closures • Night work • Weekend work • Work hour restrictions for peak travel • Pedestrian/bicycle access improvements • Business access improvements • Off-site detours	• Temporary signs – Warning – Regulatory – Guide/ information • Channelizing devices • Temporary pavement markings • Arrow panels • Changeable Message Signs (CMS) • Flaggers and uniformed traffic control officers • Temporary traffic signals • Lighting devices • Other safety devices	• Project coordination – Coordination with other projects – Utilities coordination – Right-of-way coordination – Coordination with other transportation infrastructure • Contracting strategies – Design build – A+B bidding – Incentive/ disincentive clauses – Lane rental • Innovative construction techniques (precast members, rapid cure materials)

* This is intended to be a partial list. A wide range of safety devices are described in part 6 of the Manual on Uniform Traffic Control Devices (MUTCD) and are widely used to enhance safety and mobility in highway work zones.

TABLE 2.2: Work Zone Management Strategies by Category, Part II

Transportation Operations (TO)			
Demand Management Strategies	**Corridor/Network Management Strategies**	**Work Zone Safety Management Strategies**	**Incident Management and Enforcement Strategies**
• Transit service improvements • Transit incentives • Park-and-ride promotion • Shuttle services • Parking supply management • Variable work hours • Telecommuting	• Signal timing/ coordination improvements • Temporary signals • Street/intersection improvements • Turn restrictions • Parking restrictions • Separate truck lanes • Truck/heavy vehicle restrictions • Ramp closures • Bus turnouts • Reversible lanes • Dynamic lane closure system • Railroad crossings controls • Speed limit reduction/ variable speed limits • Coordination with adjacent projects	• Changeable Message Signs (CMS) • Temporary traffic signals • Temporary traffic barrier • Crash-cushions • Temporary rumble strips • Intrusion alarms • Warning lights • Construction safety supervisor/inspectors • Project task force/ committee • Team meetings • TMP monitor/ inspection team • Windshield surveys • Project on-site safety training • Safety awards/incentives • Speed Radar Trailers • Traffic Control Review Team	• ITS for traffic monitoring/management • Surveillance (Closed-Circuit Television (CCTV), loop detectors, lasers, probe vehicles) • Traffic Screens • Total station units • Photogrammetry • Changeable Message Signs (CMS) • Highway Advisory Radio (HAR) • Media briefings • Local detour routes • Transportation Management Center {TMC) • Contract support • Incident/emergency management coordinator • Incident/emergency response plan • Dedicated (paid) police enforcement • Cooperative police enforcement • Increased penalties for work zone violations

TABLE 2.3: Developing and Implementing Transportation Management Plans for Work Zones

Significant Project

	Programming	Project Designer	Design	Construction Services	District	Transportation Management Plan Team	Work Zone Safety and Mobility Team	Communications
Suggest Alternate Routes and Additional Studies	x							
Develop Transportation Management Plan Team					x			
Temporary Traffic Control Plan						x		
Transportation Operation Component						x		
Public Involvement Component						x		
Review Work Zone Assessment and Management Procedures to Implement in the TMP						x		
Identify Concepts for the PCR						x		

Non-Significant Projects

	Programming	Project Designer	Design	Construction Services	District	Work Zone Safety and Mobility Team	Communications
For Reconstruction Projects							
Temporary Traffic Control Plan		x	x		x		
Consider Transportation Operation Component		x	x		x		
Consider Public Involvement Component		x	x		x		
Other Than Reconstruction Projects							
Will Consult Design and District		x					
All Non-significant Projects							
Include TMP in PCR		x					

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CHAPTER 3

PUBLIC INFORMATION AND OUTREACH

1. Requirements of the Rule

The Rule requires that the PI component of the TMP shall include communications strategies that seek to inform affected road users, the public, area residences and businesses, and appropriate public entities about the project, the expected work zone impacts, and the changing conditions on the project. The scope of the PI component should be determined by the project characteristics and the public information and outreach strategies identified by the State. Public information should be provided through methods best suited for the project, and may include, but not be limited to, information on the project characteristics, expected impacts, closure details, and commuter alternatives.

2. Guidance for Implementation

A work zone public information and outreach campaign involves communicating with road users, the public, area residences and businesses, and appropriate public entities about a road construction project and its implications for safety and mobility. Developing and implementing a public information and outreach campaign should be started well before road construction begins and will need ongoing monitoring throughout the life of the project. Planning and implementing a public information and outreach campaign involves a set of key steps that ideally will be coordinated and outlined in a public information and outreach plan.

3. NDDOT Implementation

A detailed breakdown of Responsibilities is in Table 3.3.

The public information and outreach process will begin in the preliminary engineering phase of project development, continue through construction, and may include post-construction activities. These strategies are detailed in Tables 3.1 and 3.2.

All significant projects are required to include a public information and outreach component. A public information and outreach component may be added to non-significant projects if it is deemed necessary by the project development team.

Continue the development and improvement to our driver education and safety program.

4. Project Application for Significant Projects

Significant projects are identified in the STIP with a "wz" annotation. The Public Information and Outreach Strategies will be addressed in the "Traffic Control – Work Zone Safety and Mobility" section of the environmental document on significant projects. The project development team, using input from project stake holders and the affected traveling public, will determine which strategies are to be implemented on the project. The strategies to be implemented as determined during the preliminary engineering process will be included in the environmental document. Typically, the following strategies may be implemented on all significant projects:

A. Brochures, flyers, fact sheets, and newsletters
B. Public meetings, task forces, workshops, and project related events
C. Paid newspaper advertising
D. Paid TV advertising
E. Radio traffic news
F. Emergency and Information Booklet
G. Web Based Construction Map

5. Project Application for Non-Significant Projects

The determination of what types of work zone safety and mobility components are necessary on a non-significant project will be determined by the project development team in the environmental document. In some situations, it may be determined that a public information and outreach component is warranted for a non-significant project. In such cases, the types of strategies to be implemented will be determined by the project development team in conjunction with project stakeholders. Typical strategies on non-significant projects may be:

A. Brochures, flyers, fact sheets, and newsletters
B. Public meetings, task forces, workshops, and project related events
C. Web Based Construction Map

TABLE 3.1:NDDOT Public Information and Outreach Strategies for Significant Projects

Strategy	Who	Primary Target Audience	Benefit	Issues	Implementation Phase	Relative Cost to Project
Website	- Communications Office/ Hired Public Information Coordinator	- Pre-trip travelers - Most other audiences	- Access to real-time information. - Ability to access all project related in one place. - May be easy to update	- Target audience must be aware of the web site. - May not reach all of the target audience (excludes people without an Internet connection. - Information must be current and active. - Cost will vary dependent on complexity of web site. - Site should be updated daily.	- Pre-construction - Construction - Post-Construction	Low/ Medium
Web-connected traffic cameras	- Communications Office/ Hired Public Information Coordinator/IT/MESD	- Pre-trip travelers - Most other audiences	- Allows users to view real-time traffic conditions. - Users find information credible because they can	- May exclude users with a dial-up connection. - Cameras can be costly.	- Construction	Medium
Brochures / flyers Fact sheets / newsletters	- Communications Office/ Hired Public Information Coordinator	- Local travelers - Commuters - Commercial drivers - Residents	- Low cost - Easy to distribute	- Information can become stale quickly. - Often targets local motorists only. - Must be designed in a manner that makes drivers	- Construction - Post-Construction	Low/ Medium
Public meetings/ task forces / workshops / events	- Designer (preconstruction) - District (during construction)	- Local travelers - Major trip generators - Residents - Businesses - Public officials - Major employers - Local agencies	- Good exposure to the public. - Give agency a chance to raise credibility with the public. - Gives public a chance to voice their concerns.	- Need to make sure the right audience is at the events. - Need to be wary of making "empty" promises.	- Pre-construction -Construction	Low

TABLE 3.1: NDDOT Public Information and Outreach Strategies for Significant Projects

Strategy	Who	Primary Target Audience	Benefit	Issues	Implementation Phase	Relative Cost to Project
Paid newspaper advertising	- Communications Office/ Hired Public Information Coordinator	- Local travelers (pre-trip) - Commercial drivers (pre-trip) - Major trip generators - Residents and small businesses	- Can reach many people at one time. - The same ad can be used in many different newspapers. - Agency controls the content and timing of the message.	- May not target local motorists. - Newspaper readers may skip over ads. - Requires targeted audience to receive the paper.	- Pre-construction - Construction - Post-Construction	Medium/ High
Paid TV advertising	- Communications Office/ Hired Public Information Coordinator	- Pre-trip travelers - Local travelers	- Can reach many people at one time. - Agency controls the content and timing of the message.	- May not target local motorists. - Time of broadcast	- Pre-construction - Construction - Post-Construction	High
Radio traffic news	- Communications Office/ Hired Public Information Coordinator/ District	- Pre-trip travelers - Local travelers	- Can reach many people at one time. - Little or no cost. - Target people who are likely to use the information.	- May only target local motorists. - Coverage more likely for major projects. - Don't have as much control of the message	- Construction	Low
Project hotline / 511 System	- Maintenance and Engineering Services	- Pre-trip travelers - Drivers in route	- Information can be accessed whenever it is needed. - Can allow motorists to provide feedback via recorded message. - May be easy to update.	-Information must be current. - Audience needs to be aware of the hotline number.	- Construction	Low/ Medium
Dynamic message signs (OMS)	- Districts/ Contractor	- Drivers in route	- Provides information directly to motorists affected by the project. - Can provide detour information.	- Message must be easy to read. - Signs must be placed appropriately. - Information should be useful and accurate.	- Construction	Low/ Medium/ High
Emergency and Information Booklet	- Districts	- Construction Staff - Contractors - Emergency Services	- Make information easily available. - Possible faster response time	- Requires contacts to be made by district personnel. - Information needs to accurate	- Construction	Low

TABLE 3.2:NDDOT Project Information and Outreach for Non-Significant Projects

Strategy	Who	Primary Target Audience	Benefit	Issues	Timing	Relative Cost to Project
***Brochures / flyers Fact sheets / newsletters**	- Designers/District	- Local travelers - Commuters - Commercial drivers - Residents	- Low cost - Easy to distribute	- Information can become stale quickly. - Often targets local motorists only. - Must be designed in a manner that makes drivers	- Pre-construction - Construction - Post-Construction	Low/ Medium
****Public meetings / task forces / workshops / events**	- Designer (preconstruction) - District (during construction)	- Local travelers - Major trip generators - Residents - Businesses - Public officials - Major employer - Local agencies	- Good exposure to the public. - Give agency a chance to raise credibility with the public. - Gives public a chance to voice their concerns.	- Need to make sure the right audience is at the events. - Need to be wary of making "empty" promises.	- Pre-construction - Construction	Low
Web Base Construction Map	- District	- All travelers	- Low cost - Timely Information - Can provide detour information	- Target audience must be aware of the web site. - May not reach all the target audience (excludes people without and Internet connection. - Information must be current and active. - Cost will vary dependent on complexity of web site. - Site should be updated daily.	- Construction	Low

TABLE 3.2:NDDOT Project Information and Outreach for Non-Significant Projects

Strategy	Who	Primary Target Audience	Benefit	Issues	Timing	Relative Cost to Project
Project hotline / 511 System	- Maintenance and Engineering Services	- Pre-trip travelers - Drivers in route	- Information can be accessed whenever it is needed. - Can allow motorists to provide feedback via recorded message. - May be easy to update.	-Information must be current. - Audience needs to be aware of the hotline number.	- Construction	Low/ Medium
***Dynamic message signs (OMS)	- Districts/ Contractor	- Drivers in route	- Provides information directly to motorists affected by the project. - Can provide detour information.	- Message must be easy to read. - Signs must be placed appropriately. - Information should be useful and accurate.	- Construction	Low/ Medium / High

* Only for projects that are in an urban area..
•• Only for projects where a decision has been made in the PCR to include with this project.
*** For projects that effect the traveling public with detours

TABLE 3.3: Public Information and Outreach

Significant Project

	Programming	Project Designer	Design	Construction	District	Transportation Management Plan Team	Work Zone Safety and Mobility Team	Communications/ Hired Public Information Coordinator
Input From Stakeholders and Public						x		
Determine Strategies to be Implemented						x		
Possibly:								
Brochures, Flyers, Fact Sheets, and Newsletters								x
Public Meetings, Task Forces, Workshops and Project Related Events		x (preconstruction)			x (During construction)			
Paid Newspaper Advertising								x
Paid TV Advertising								x
Radio Traffic News								x
Emergency and Information Booklet					x			
Web Based Construction Mao								x
Include PI Strategy in the Traffic Control Work Zone Safety and Mobility Section of the Environmental Document		x						

Non-Significant Project

	Programming	Project Designer	Design	Construction	District	Transportation management Plan Team	Work Zone Safety and Mobility Team	Communications/ Hired Public Information Coordinator
Get Input form Stakeholders						x		
Determine Necessary Components						x		
Determine Strategies to be Implemented						x		
Possibly:								
Brochures, Flyers, Fact Sheets, and Newsletters								x
Public meetings, Task Forces, Workshops, and Project Related Events		x (preconstruction)			x (during construction)			
Web Based Construction Map								x
Include PI Strategy in the Traffic Control-Work Zone Safety and Mobility Section of the Environmental Document		x						

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

GUIDANCE ON WORKZONE SAFETY AND MOBILITY

CHAPTER 4

TRAINING

1. Requirements of the Rule

The Rule specifies that agencies require appropriate training for personnel involved in the development, design, implementation, operation, inspection, and enforcement of work zone related transportation management and traffic control. Further, the Rule also states that agencies require periodic training updates for these personnel. These periodic training updates are to reflect changing industry practices and agency processes and procedures.

The Rule also clarifies appropriate training as training that is relevant to the job decisions that everyone is required to make.

2. Guidance for Implementation

Personnel involved in the development, design, implementation, operation, inspection, and enforcement of work zone related transportation management and traffic control need to be trained. This includes design engineers, traffic operations, data collection staff, safety personnel, construction project staff, maintenance staff, consultant engineers working for the NDDOT on state projects, and contractor and utility staff. This may also include executive-level decision-makers, policy makers, senior managers, information officers, and law enforcement and incident responders.

The training needs to be appropriate to an individual's job responsibilities and to the job decisions that each individual needs to make. The department will not be responsible for training contractors or their staff.

The department has both internal and external training needs. External needs include those for project development and those for construction activities (project development or construction engineering consultants). The department needs to consider these needs and identify appropriate means to ensure that external partners are trained and knowledgeable. The training needs need to be reviewed every two years to ensure their effectiveness.

3. NDDOT Implementation

The NDDOT shall develop comprehensive work zone traffic control training programs to meet the intent of the Rule. When such programs are developed, consideration should be given to include our partners (cities, counties, consultants and construction industry) in the training.

The NDDOT shall develop a training program that addresses the training needs and expectations of designers, traffic engineers, safety engineers, construction project staff, maintenance staff, and consultant engineers working for the NDDOT on state projects.

When developing these training programs, consideration can be given to utilization of outside consultant services to develop necessary training programs.

The Rule also requires training of contractors for such activities as implementing or setting up work zone traffic control. The NDDOT will not be responsible to train contractors; however, the NDDOT will require trained contractor personnel through its contracts, by having specification in place that require such training. NDDOT's specifications clearly describe the required training for contractors working on NDDOT projects. No additional requirements for trained contractor personnel are recommended at this time.

Training shall focus on specialty/exposure areas rather than divisions/district. NDDOT personnel involved as lead designers, reviewers of plans, construction staff, maintenance staff, data collection staff, and other construction project staff are required to receive training. Training Guidelines for NDDOT personnel and agents of the NDDOT:

Lead Designers/Design Consultants (Engineer of Record or Person in Responsible Charge)

- ATSSA 2-day Traffic Control Designer Specialist
  - Within 1 year of holding position
  - Every 4 years thereafter (retake of original course, ½ day refresher or approved course like original) at supervisor discretion
  - Participate in ongoing WZS training annually

Construction Inspection Staff and Inspection Consultants

- ATSSA Traffic Control Technician OR Modified ATSSA Traffic Control Technician Course (ND Standard Drawings and NDDOT Operations on Highways and Streets handbook)
  - Once within first 2 years of employment
  - Half day refresher course every 4 years (distance learning delivery) or:
    1. TC3 Maintenance of Traffic for Technicians (web based)
    2. A course may be developed specific to group or NDDOT
  - ND Flagger Training
  - Participate in ongoing WZS training annually

Maintenance Staff (any one of the following) plus ND Flagger Training and Annual Training

- Maintenance Academy
  - Within 2 years of hire or TC3 Maintenance of Traffic for Technicians (web based)
  - Participate in ongoing WZS training annually
  - Half day refresher course every 4 years (distance learning delivery
    1. A course may be developed specific to group or NDDOT Standard

- ATSSA Traffic Control Technician OR Modified ATSSA Traffic Control Technician Course (ND Standard Drawings and NDDOT Operations on Highways and Streets handbook)
  - Once within first 2 years of employment
  - Half day refresher course every 4 years (distance learning delivery)
    1. TC3 (web based) Maintenance of Traffic for Technicians
    2. May be developed specific to group or NDDOT Standards

Data Collection Staff

- ATSSA Traffic Control Technician OR Modified ATSSA Traffic Control Technician Course (ND Standard Drawings and NDDOT Operations on Highways and Streets Handbook)
  - Once within first 2 years of employment
    1. Half day refresher course every 4 years (distance learning delivery)
       a. TC3 Maintenance of Traffic for Technicians
       b. May be developed specific to group or NDDOT Standards
  - Participate in ongoing WZS training annually
- ND Flagger Training (As Required)

Construction and Maintenance Coordinators

- ATSSA Traffic Control Technician OR Modified ATSSA Traffic Control Technician Course (ND Standard Drawings and NDDOT Operations on Highways and Streets Handbook)
  - This course is a pre-requisite for the supervisor course
- ATSSA Traffic Control Supervisor Course 2 day
  - Once within first 2 years of holding the position
  - Refresher course every 4 years (distance learning delivery)
    a. To include NDDOT policy, MUTCD and Standard Drawings revisions
  - Participate in ongoing WZS training annually
- ND Flagger Training (As Required)

Traffic Control Review Tearn

- ATSSA Traffic Control Technician OR Modified ATSSA Traffic Control Technician Course (ND Standard Drawings and NDDOT Operations on Highways and Streets Handbook)
  - This course is a pre-requisite for the supervisor course ATSSA Traffic Control Supervisor Course 2 day
  - Once within first 2 years of holding the position
  - Refresher course every 4 years (distance learning delivery)
    1. To include NDDOT policy, MUTCD and Standard Drawings revisions
  - Participate in ongoing WZS training annually
- ATSSA Traffic Control Supervisor Course 2 day
  - Once within first 2 years of holding the position
  - Refresher course every 4 years (distance learning delivery)
    1. To include NDDOT policy, MUTCD and Standard Drawings revisions
  - Participate in ongoing WZS training annually

Additional supplemental training to consider may include the following among others as per the discretion of the supervisor:

- Urban Work Zone Design (ATSSA) (1-day)
- Work Zone Strategies (ATSSA) (1.5-day)
- Comprehensive Inspection Training Course (ATSSA - Self-Paced Training CD) (13 modules)
- Temporary Traffic Control for Short Duration Activities (ATSSA- Self-Paced Training CD) (20 modules)
- Introduction to Highway Construction
- Incident Traffic Control for Responders (HP & Related for WZ monitoring)
- Various printed brochures and flyers made available through the work zone safety and mobility clearinghouse: www.workzonesafety.org

The training identified above is meant to be a guideline and starting point. It is not all inclusive and the training courses may be adjusted based upon the needs and results of the two-year process review. FHWA and its partners are continually developing new training that may replace or renew the training identified. The NDDOT Work Zone Safety & Mobility team will need to ensure that the training is viable, sustainable, and updated.

4. Certification

The Rule does not require certification in work zone safety & mobility programs. It only requires that the training is ongoing and periodic reviews are conducted. Therefore, the NDDOT will not require a formal certification process for department personnel; however, consultant engineers are required to provide proof that their staff is trained and meets the intent of the Rule. The only exception will be those required to perform flagging operations.

5. Tracking & Recording Training:

Although certification is not required, except for flagging operations, NDDOT personnel will be required to receive a baseline training in their areas identified above and be re-taken every four (4) years as well as ongoing training as identified above Training will be tracked utilizing the department's Enterprise Learning Management (ELM) system. ELM will allow for employees and their supervisors to re-visit their training records to identify applicable training to ensure future training needs are completed and met.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

GUIDANCE ON WORKZONE SAFETY AND MOBILITY

CHAPTER 5

PROCESS REVIEW

1. Requirements of the Rule

The Rule requires agencies to conduct process reviews at least every two years.

2. Guidance for Implementation

The Rule states that the ultimate objective of the process reviews is to enhance efforts to address safety and mobility on current and future projects. It does not require that the results of the review be forwarded to the FHWA Division Administrator for approval but does encourage the DOT to include FHWA in the review.

3. NDDOT Implementation

A detailed breakdown of responsibilities is in Table 5.

To assess the effectiveness of work zone safety and mobility procedures, the NDDOT shall perform a process review at least every two years. This review may include the evaluation of work zone data, and/or review of randomly selected projects. Every other year, the Work Zone Safety and Mobility Team would reconvene as a "process review team". The team would go through the questions listed below and go through the outputs of various other activities that are completed as annual or ongoing activities.

The team would be led by the Traffic Design Section Head with a representative from Construction, Planning, Local Government, District, City or County, and Federal Highway.

This review team would gather information from the Traffic Control Review Team (TCRT), crash data collected in the work zone, operational performance of work zones, construction efficiency/effectiveness, and public perception/satisfaction. FHWA completes an annual traffic review, and this information could be useful.

CERT Reviews – This includes documented field reviews stressing contract compliance, effectiveness and efficiency, including as it relates to work zones.

Other Process Reviews – While looking at other functional areas, occasionally traffic handling processes are mentioned incidental to other reviews and this feedback should be documented and captured.

Project Wrap-Up Reviews – This includes objective outcome reviews of what went right/wrong on projects to provide feedback to design.

The following are examples of questions that the process reviews may help answer:

- How are work zones performing with respect to mobility and safety?
- Are the best possible decisions in planning, designing, and implementing our work zones being made?
- Are customer expectations being met with respect to maintaining safety and mobility and minimizing business and community impacts both through, and in and around the work zone?
- Can areas for improvement be identified?
- How have areas for improvement that were identified in the past been addressed?
- What has both worked and not worked – which strategies have proven to be either more or less effective in improving the safety and mobility of work zones?
- What other strategies can be considered for implementation?

- Are there certain combinations of strategies that seem to work well?
- Can any work zone safety and mobility trends be identified, at the national level or local level? What can be done to advocate characteristics associated with good trends? What can be done to remedy the problems associated with bad trends?
- How do work zone performance, the effectiveness of strategies, or areas of improvement vary between day work and night work?
- Should policies or agency procedures be adjusted based on what has been observed or measured?
- Can consistency be brought about in the identification of such trends, issues, and problems and in the standardization of tools and guidelines for application at the agency, State, and/or national level?

Work zone performance assessment aspects addressed in the process reviews may involve two tracks: 1) the overall work zone management process and 2) work zone field performance and management strategies. This may include:

- Collection of data including project related information as well as public and stakeholder perception.
- Synthesis and analysis of data at multiple levels (project, local, regional, State, and national) and comparison of findings to performance metrics.
- Application of the analysis results toward continually improving work zone practices, policies, processes, and procedures.

Four performance measure areas of interest for the work zone process review are safety, mobility, construction efficiency and effectiveness, and public perception and satisfaction.

Conducting process reviews should include the following action items:

- Develop review objectives.
- Determine review methods.
- Conduct review.
- Analyze and interpret results.
- Develop inferences, recommendations, and lessons learned.
- Prioritize recommendations and lessons learned.
- Set performance objectives for next review.
- Apply recommendations and lessons learned.

TABLE 5.1: Process Review

Bi-annually

	Work Zone Safety and Mobility Team
Develop Review Objectives	x
Determine Review Methods	x
Conduct Review	x
Analyze and Interpret Results	x
Develop References, Recommendations, and Lessons Learned	x
Prioritize Recommendations and Lessons Learned	x
Set Performance Objectives for Next Review	x
Apply Recommendations and Lessons Learned	x