WORK ZONE SAFETY AND MOBILITY POLICY

2015

Puerto Rico Department of Transportation and Public Works (PRDTPW)
Puerto Rico Highway and Transportation Authority (PRHTA)

I. POLICY STATEMENT

The Puerto Rico Department of Transportation and Public Works (PRDTPW) and the Puerto Rico Highway and Transportation Authority (PRHTA) are committed to provide an efficient and safe flow of traffic through a highway work zone by developing and applying transportation management strategies and innovative techniques in the project delivery process.

II. GOALS AND OBJECTIVES

The following goals and objectives shall be accomplished to provide a safe and traffic efficient highway work zone:

Goal 1: Design work zones that provide a safe environment for workers and road users

Objective 1: Provide a design with the safety of the work zone in mind

- Use innovative methods and devices such as: temporary lighting, standard sign design and brighter sheeting in road signs, positive protection devices, brighter pavement markings, beacon lights, and changeable message signs.
- Use current Temporary Traffic Control Part of MUTCD, AASHTO Roadside Design Guide, and AASHTO A Policy on Geometric Design of Highways and Streets.
- Consider all road users (e.g., pedestrians, cyclists, and motorcycles) and identify effective safety countermeasures to accommodate them in work zone design.

Objective 2: Use work zone data to improve work zone designs

- Improve method of collecting operational and work zone crash data. Operational data may include information of incident response time and delay time during construction or maintenance.
- Develop a process to routinely analyze operational and work zone crash data.

Goal 2: Minimize delays and reduce congestion in work zones

Objective 1: Utilize innovative technology in work zones

- Provide strategies and technologies to monitor and avoid delays by controlling elements such as: speed, volume, queue, etc.
- Develop guidelines for the appropriate use of portable changeable message signs (PCMS) on work zones.

Objective 2: Communicate travel information to road users

- Use media to let road users know about road work and alternate routes.
- Use PCMS to let road users know about work zone conditions and possible delays.

Objective 3: Consider the combined impacts with other road projects

- Coordinate internal communication within PRDTPW agencies and areas about upcoming projects.
- Address impacts on other roads in the network.

Goal 3: Minimize mobility and access impacts to stakeholders

Objective 1: Improve project coordination

- Formalize coordination process with the emergency services (police, fire, public and private ambulances), community, and other entities.
- Coordinate with special events.

Objective 2: Provide adequate access around the work zone

- Provide adequate access to business and/or residences.
- Provide the contractor adequate access to the project.

Goal 4: Reduce Crashes in Work Zones

Objective 1: Address aggressive driving in work zones

- Enhance and promote effective law enforcement programs in work zones.
- Increase education and training for road users and law enforcement about safety impacts of aggressive driving.
- Evaluate strategies for aggressive driving including in the current Puerto Rico Strategic Highway Safety Plan (SHSP).

Objective 2: Raise public awareness of work zone safety

- Participate in National Work Zone Awareness Week.
- Provide work zone safety information on PRDTPW's website.
- Use public service announcements (PSA) on work zone safety.

Objective 3: Establish a program for the use of law enforcement in work zones

- Establish an agreement/memorandum of understanding for the use and payment of law enforcement services on projects.

Goal 5: Continuously improve work zone strategies and procedures

Objective 1: Conduct work zone process reviews

- Conduct post construction meetings of several projects in PRHTA five regions (each Region every other year) to ensure that the provisions on the maintenance of traffic plans are being implemented.
- Use a work zone safety checklist to ensure that the provisions on the maintenance of traffic plans are being implemented during construction.

- Every 2 years, conduct process review to identify potential improvements to PRDTPW & PRHTA's Work Zone Policy and procedures.

Objective 2: Assure appropriate level of knowledge, skills, and abilities for all responsible parties to manage and evaluate construction zone safety and mobility

- Require the Contractor to have a trained person responsible for implementing the TMP and other safety and mobility aspects of the project.
- Require training for traffic control professionals, including PRDTPW and PRHTA personnel and consultants.
- Update MUTCD supplement and Standard Highway Signs Book supplement according to their latest editions.
- Review and update PRHTA's Standard Drawings and Specifications to meet current Federal regulations and guidelines.
- Develop useful guidelines for the selection and implementation of traffic control devices, as part of the Work Zone Action Plan between PRHTA and Federal Highway Administration (FHWA).

III. DEFINING SIGNIFICANT PROJECTS

The first step is to determine if a highway project is considered a significant project. A **"Significant"** project is one that, alone or in combination with other concurrent projects nearby, is anticipated to cause sustained work zone impacts to the road users, businesses, or local communities during construction. Significant projects will receive additional scrutiny and have additional measures implemented in an effort to reduce their overall impacts to the greatest extent practical. Significant projects will be identified during the beginning of the design phase using the following table:

Table 1. Significant Project Criteria (Case A or B)
A. Projects with one or more activities in a location that fulfills all of the following criteria: • more than three days • with either intermittent or continuous lane, ramp or facility closures • in a roadway with AADT within the project limits ≥ 35,000 vehicles per day
B. Projects in roadways with AADT within the project limits < 35,000 vehicles per day, but may have detours or closures that will adversely affect the traffic operation of a roadway with AADT ≥ 35,000 vehicles per day.

Note: Stationary or moving work zones, such as green area maintenance, pavement patching, small traffic sign installation, pavement marking, utilities upgrade, guardrail/barrier works, and traffic signal system upgrade are not considered significant.

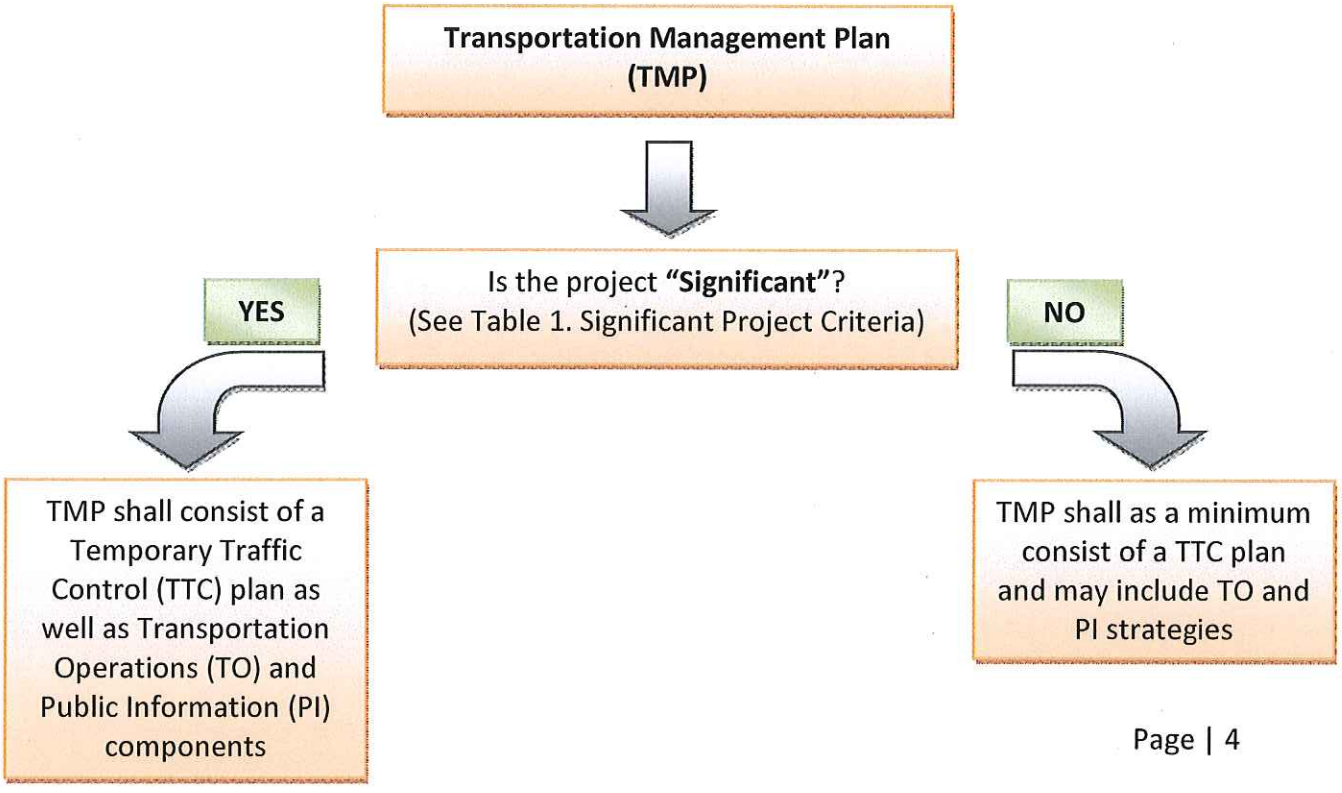
IV. TRANSPORTATION MANAGEMENT PLANS (TMPs) FOR PROJECTS

A TMP lays out a set of coordinated strategies and describes how these strategies will be used to manage the work zone impacts of a project. Careful considerations of the TMP should result in minimizing confusion and delays to motorists and pedestrians, as well as reduce crashes, and provide greater safety to the various parties involved in the project.

For **"Significant"** projects, the TMPs shall consist of a Temporary Traffic Control (TTC) plan as well as Transportation Operations (TO) and Public Information (PI) components.

- A TTC plan addresses traffic safety and control through the work zone.
- The TO component addresses sustained operations and management of the work zone impact area.
- The PI component addresses communication with road users, area residents and businesses, appropriate public entities, and other concerned stakeholders, about a road project, the impacts expected from the project's work zone, and changing conditions on the project.

TMP's for all non-significant projects shall as a minimum consist of a TTC plan and may include TO and PI strategies.



V. DEVELOPMENT AND IMPLEMENTATION OF THE TMP

TMP development begins during the design phase of the project. Existing project development processes can provide valuable information to guide TMP development.

Design Phase – Identify the TMP content and compile project material

The project design team begins by compiling available project materials such as:

- Project definition (project scope, roadway and traffic characteristics, other factors such as public outreach, community information, etc.)
- Construction phasing/staging approaches and plans
- Preliminary work zone management strategies
- Preliminary cost estimates for strategy implementation

The project design team should check with the PRHTA's Programming Office to see if additional nearby projects have been added to the Construction Improvement Program (CIP) and verify if coordination has occurred. A TMP draft report shall be developed during the 30% plans completion stage.

The design team should work with appropriate technical specialists to develop the best combination of design, construction staging, and work zone management strategies for the TMP:

- PS&E shall provide traffic control plan sheets, in the Maintenance of Traffic and Staging (Project Schedule) section, specific to the phasing of traffic control needs of the project.
- Every project may include Motorist Awareness System Devices, such as:
  - ✓ Portable Changeable Message Signs (PCMS). The primary purpose of PCMS in work zone traffic control is to advise the driver of unexpected traffic and routing situations.
  - ✓ Highway Advisory Radio (HAR). The HAR can disseminate transportation information by broadcast radio to travelers.
  - ✓ Radar Speed Display Unit (RSDU). The primary purpose of this device is to make motorists aware of the speed they are traveling so that they adjust to the work zone regulatory speed.
  - ✓ Speed and Law Enforcement Officers. These will monitor the motorists' speeds and serve as restrainers to aggressive drivers in the work zone.
- For all significant projects, and for other projects as appropriate, transportation operations (TO) strategies shall be included. Some examples of TO strategies are: traffic signal retiming, alternate routes, traffic incident management, moveable traffic barrier, and ITS.

- For all significant projects and for other projects as appropriate, public information (PI) strategies shall be included. This effort shall be coordinated between the PRHTA's Construction Area, PRHTA's Traffic Engineering Area and PRDTPW's Communications Office. Some examples of PI strategies are: project information through media, radio, and web page.
- A level of service (LOS) review of the work zone area will be done for all projects to help select the proper design, construction staging, and work zone management strategies. For significant projects, simulation tools should be used to conduct the review.
- Facilities shall be provided to ensure pedestrian traffic is provided in a safe manner in the work zone area. Otherwise, alternate pathways should be provided.
- Adequate detours shall be provided, with appropriate signing and other traffic devices as per the most current MUTCD, when a roadway is closed.

Construction Phase

The construction phase of a project will include the following:

- The Contractor and PRHTA shall provide a trained person to ensure that the TMP and other safety and mobility aspects of the project are implemented. These persons shall ensure that the Maintenance of Traffic, Staging, and Work Zone area procedures are enforced at all times.
- Project personnel are required to wear high-visibility garments meeting ANSI Class 2 or 3 standards and other necessary equipment in accordance with the latest OSHA Work Zone regulations and specifications.
- The members of Work Zone Safety and Mobility Committee can schedule field inspections on PRHTA's projects to ensure that the provisions on the maintenance of traffic plans are being implemented.

VI. TRAINING

As part of the implementation of the PRDTPW & PRHTA's Safety and Mobility Work Zone Policy is important to provide the necessary skills, knowledge and awareness to all the personnel or individuals involved in a project development and construction. This will also help to establish uniformity in the implementation of the Policy from project to project.

It is necessary that technical personnel involved in planning & design, construction, maintenance and any other personnel, internal or external, that are required to perform task inside work zone areas have knowledge about the Policy and the work zone standards, specifications and best practices.

PRDTPW, PRHTA, public agencies, and private companies may consider available internal and external resources in the coordination of work zone trainings. Some entities that have available courses and workshops are:

- Federal Highway Administration (FHWA)
- National Highway Institute (NHI)
- Local Transportation Assistance Program (LTAP) in University of Puerto Rico – Mayagüez Campus
- Occupational Safety and Health Administration (OSHA)
- American Traffic Safety Services Association (ATSSA)
- Institute of Transportation Engineers (ITE)

Work zone trainings are intended for an understanding of the rule and its requirements. Also, the internal resources in the PRDTPW and PRHTA will continuously improve the work zones trainings to reach others offices and areas that external courses could not get to. PRDTPW and PRHTA will maintain contact with Puerto Rico FHWA officials in order to promote the interchange between other FHWA divisions or States officials. This is a very important part of the training development in order to identify best practices and apply them to the program. PRDTPW and PRHTA expect from the contractors to also promote and maintain proper training for their own field personnel. Examples of this are administrators, foreman, flaggers and others that are required to perform any task on work zone areas.

VII. PROCESS REVIEW

Every 2 years, the Work Zone Safety and Mobility Committee will conduct a process review to identify potential improvements to PRDTPW & PRHTA's Work Zone Policy and procedures. The next process review is schedule for September 2016.

WORK ZONE SAFETY AND MOBILITY COMMITTEE MEMBERS:

Savitri Guadalupe De La Matta
Industrial Safety Office, PRHTA

Carlos Céspedes Gómez, PE
Construction Area, PRHTA

Brenda Martínez Rivera, PE
Design Area, PRHTA

Irwin Vázquez Pedraza, PE
Traffic Engineering Area, PRHTA

Cándido Camacho Ayala, PE
Federal Liaison Office, PRHTA

Juan C. Rivera Ortiz, PE
Highway Safety Division, PRHTA

RECCOMMENDED BY:

Carmen Villar Prados
Executive Director, PRHTA

March 31, 2015
Date

APPROVED BY:

Miguel A. Torres Díaz, PE
Secretary, PRDTPW

Date