

Chapter 10

Work Zone Traffic Control

The following are changes, additions or deletions to the January 2003, Topic #625-000-007, Plans Preparation Manual (PPM) - English, for use on Turnpike projects only:

10.2 References

Add the following to end of reference list

FDOT, Drainage Manual

10.4 Traffic Control Plans (TCP)

Add the following as item # 20

“For Turnpike projects, spread calculations along temporary barrier walls or curbing should limit the spread to outside of the travel lanes.”

10.5 TCP Development

Add the following to end of Step # 2

Maintain drainage conveyance and spread.

Add the following to end of Step # 4

5. Temporary drainage concepts and maintenance of drainage concepts.

Add the following to the end of Step #5

4. The Turnpike is unique in that there are many sections without viable alternate routes. The Turnpike has heavy holiday and seasonal traffic flows that may severely limit or prohibit construction operations using lane closures. These points shall be considered in analyzing alternatives.

5. Identify which areas do not meet drainage conveyance and spread objectives.

Add the following to end of Step # 6

13. Detail temporary drainage and maintenance of offsite drainage plans.

10.9 Signs

Add the following as paragraph 2

The Designer shall design any nonstandard signs that do not have a MUTCD or FTP number on guide sign worksheets in the plans.

10.12 Pavement Markings

Add the following as paragraphs 1 & 2

All proposed temporary or removable pavement markings shall be detailed completely in the plans for a proper layout. This would include either dimensions to physical features or stations and offsets.

The Turnpike does not use solid lane lines along temporary diversions of the roadway. Lane lines between adjacent lanes of travel shall only be 10' – 30' skip lines unless on the approach to a traffic signal. Solid lane lines shall not be used in transitions or in areas where the lanes have been shifted unless there is evidence or observations of an existing problem.

10.12.1 Removing Pavement Markings

Add the following paragraphs

The PPM and the Design Standards present positive options to control conflicting and misleading pavement scars created from water blasting as well as multiple pavement markings associated with multiple phase contracts.

The Turnpike is advising all consultants that overlays or milling with overlays will be the only acceptable method(s) to achieve a positive means for the obliteration of existing pavement markings in areas such as long term crossovers, diversions and in some cases tangent sections that provide a rough riding pavement.

High pressure water blasting is the only acceptable method for the removal of conflicting pavement markings in those areas not mentioned above.

10.14 Traffic Control Plan Details

Add items 10 & 11

10. Temporary pavement and drainage maintenance details.

11. Typical traffic control plan notes used for Turnpike projects are shown in latest Guide Drawings.

10.14.5 Superelevation

Add the following as paragraph 2 after table

The transition from existing to temporary pavements is a critical area. These areas are prone to flooding since all of the permanent construction features do not exist. These incomplete features include final pavement elevations and drainage facilities. Frequently, these temporary pavement transitions are superelevated with almost flat profiles. Elevations and grades with all superelevation data are required to be shown to ensure the intended design is constructed.

10.14.6 Lane Widths

Add the following as paragraph 2

Excluding issues to accommodate spread, shoulder widths associated with the travel lanes shall be designed to achieve a minimum of 2ft. in width. Any deviation from the 2 ft. shall be justified and approved by the Turnpike Design Engineer.

10.14.7 Lane Closure Analysis

Add the following paragraphs

The Turnpike System is a major intrastate facility that is vital in the case of evacuations due to weather and other disasters. The Turnpike also serves as a diversion route for various Interstates, including I-95 and I-4. It is essential that the Turnpike be able to reopen its facilities to all lanes even within construction zones. The development of a traffic control plan shall not include prolonged lane reductions. The staging of a particular construction project shall permit the roadway to be restored to its original number of lanes within 24 hours. If necessary the use of temporary bridges shall be included in the traffic control plans to avoid prolonged lane closures due to work on the bridge.

The Designer shall submit a lane closure analysis for review on any project proposing lane reductions. The Turnpike can grant waivers for low volume conditions with the concurrence of the Turnpike Traffic Operations Engineer. Lane closures shall comply with the Turnpike's lane closure policy, which is shown at the end of this chapter or can be provided by Turnpike Traffic Operations. The Designer will update lane closure analysis to comply with HCM saturation flow rates for four and six lane facilities, and will also consider the Turnpike lane closure analysis procedure.

Certain activities require a total closure of a roadway. These activities include, but are not limited to, bridge beam setting and sign truss installation. The method most often used by the Turnpike for such activities is the rolling roadblock. A rolling roadblock includes the use of off duty highway patrol officers to slow the main line traffic slow enough and far enough in advance to give the Contractor approximately a 20 to 30 minute period to perform his work. This roadblock may involve stopping the traffic at the work site. If there are entrance ramps between the point where the rolling roadblock begins at the work site, then additional officers must be used to close the ramps temporarily. Often, the Turnpike performs this type of work at night to reduce traffic impacts and delays. In rural areas this work can be done in the daytime during off peak or weekend periods. Details are required in the plans if such work activities are necessary.

10.14.10 Drop-Offs in Work Zones

Add the following as paragraph 3

Many work activities require excavation work alongside active travel lanes or within existing roadways. The Designer shall consider and design for both the active and inactive work conditions. If necessary, the Designer shall describe in the plans restrictions in the daily work zone limit that can be accomplished in one work period. The Designer should also consider other methods that provide comparable safety features without unduly restricting the Contractor. Such methods could include the use of anchored steel plates to cover trenching and jack and boring instead of open cuts on low speed roadways.

10.14.11 Narrow Bridges and Roadways

Add the following as paragraph 2 & 3

In the development of the detailed traffic control plan, any existing guardrail and barrier wall end treatments shall be compared with standards to ensure the current standards are met. If the

traffic control plan impacts these end treatments, then protective device upgrades will be necessary.

The offsets to existing fixed obstacles such as bridge piers must be checked to ensure clear zone requirements are met. Otherwise, the plans must show temporary protective treatments.

10.14.16 Temporary Drainage

Add this new section

The Designer is responsible for designing the temporary drainage facilities necessary during construction. This would include pipe sizes, lengths, inlets and their related quantities.

The presence of temporary barrier walls in construction zones can be both a positive and negative for temporary drainage. The barrier wall can trap water on its uphill side resulting in a flooded roadway or the barrier wall can prevent water from crossing the roadway. The Designer shall note in the plans if temporary barrier walls with drainage slots will be used to address these conditions.

10.14.17 Temporary Retaining Walls

Add this new section

Some reconstruction projects may require the use of temporary retaining walls or sheet piling to facilitate construction due to constrained right of way. If such items are needed, the Engineer shall design and show them in the plans.

10.14.18 Friction Course on Temporary Pavement

Add this new section

New structural asphalt has similar friction factors as friction course. The use of friction course asphalt on temporary pavement during construction will be used on a case by case basis and consider the duration of the construction phase, drainage, cross slope, operating speed and horizontal curvature.

10.14.19 Rolling Roadblocks

Add this new section

A rolling roadblock is a traffic control technique to slow but not stop traffic to facilitate overhead construction without an elaborate and difficult detour or diversion. Off-duty FHP officers pace or slow the traffic to a speed that provides approximately 20-30 minutes to perform the overhead construction. The Turnpike has frequently used this technique for setting bridge beams, overhead sign structures and replacing overhead sign panels.

The rolling roadblock begins with approval of the exact date of the activity that shall be made 14 days in advance. Advance notification to the public shall begin at least one week in advance by Variable Message Signs (VMS). The Public Information Office, Traffic Operations Engineer and local emergency management agencies shall also be notified.

The day of the rolling roadblock, the VMS sign messages shall be revised to indicate the activity will occur that night or day. The rolling roadblock begins with a FHP supervisor at the work site

initiating the roadblock. An FHP officer starts an approach towards the work site maintaining speed with the cars ahead. He will be the last vehicle before the roadblock. As this FHP officer passes entrance ramps, other officers close these ramps. The arrival of the lead FHP officer at the work site is the beginning of the lift over the roadway. When the lead FHP officer reaches the work site, a group of FHP vehicles, one per lane, begin their approach to the work site. They form a roadblock and reduce the traffic stream to a predetermined speed, typically 25-30 mph. As they pass entrance ramps, the officers on the ramps reopen the ramps to allow vehicles to follow the roadblock. The intention is to not completely stop traffic unless there is an emergency. It is safer to keep the vehicles moving at a reduced speed because of the closure speed of a rear-end accident.

The starting point of a rolling roadblock must consider the following factors: the speed of the pacing officers, the location of entrance ramps, the required time needed to complete the work activity. In some instances, it may be necessary to close a lane at the work site to position a crane(s) and the materials to be lifted. All material to be installed shall be on-site before the work begins. It may be necessary to install temporary barrier walls to protect pre-positioned and assembled materials in the right of way. A typical detail for the rolling roadblock is shown in the latest guide drawings.

Several issues have been brought to the Turnpike's attention regarding the implementation, application and design of a rolling road block. While the Turnpike evaluates these issues the designers should evaluate their plans and the use of the rolling road block. This technique is not something to be used or applied to all designs.

Evaluating the need to provide the contractor with a 30 minute work period, without stopping traffic, begins with the designer evaluating and including in their plans the distance at which the road block should start. With 20 mph vehicle speed this could be as much as 10 miles from the work location. When this happens, interchanges along the path and the horizontal and vertical profiles all have to be evaluated. It is the designer's responsibility to adjust the rolling road block to fit the project.

On certain projects the road block may not be adaptable. The designer should evaluate the design (generally structures) and the traffic control plan and present a solution that allows the contractor to work effectively and minimize disruption to the Turnpike's customer.

10.15 Speed Zoning

Add the following as paragraphs 1 & 2

The FDOT Design Standards contain many example Index Drawings for various work zone traffic control installations. These examples are divided into rural and urban conditions. Urban conditions are primarily associated with low operating speeds (35 mph or less), which is indicative of the lane reduction tapers of 200 feet. Urban condition Index Drawings are not to be used on roadways with operating speeds greater than 35 mph.

10.15.1 Regulatory Speeds in Work Zones *Add the following as paragraph 11*

All transitions and tapers for work zones shall be based upon the preconstruction speed limits. For any locations incorporating speed reductions, speed limit signs shall be installed departing the work zone to "restore" the speed limit to its preconstruction limit. During non-construction periods the speed limits shall be restored to preconstruction limits.



Florida Department of Transportation

JEB BUSH
GOVERNOR

JOSÉ ABREU
SECRETARY

Lane Closure Policy and Procedure

- Purpose:** To establish guidelines to minimize the disruption of the flow of traffic in conjunction with any production or operations activities on Florida's Turnpike System.
- Authority:** Sections 334.046, 335.15, Florida Statutes
- ADT:** Average Daily Traffic Volumes
- Department:** Florida Department of Transportation, Turnpike Enterprise
- Emergency:** Any occurrence, or threat thereof, whether accidental, natural, technological, or manmade, in war or in peace, which results or may result in substantial injury or harm to the population or substantial damage to or loss of property [F.S. 252.34(3)].
- Engineer:** The Department's Engineer(s) authorized to monitor and control activities on the State Turnpike System. [F.S. 334.14]
- Lane Closure:** Temporary closure of one (1) or more through traffic lane(s), auxiliary lane(s) or ramp lane(s).
- MUTCD:** Manual on Uniform Traffic Control Devices, Millennium Edition
- Indexes:** FDOT Design Standard indexes (600 series), current edition

General Policy: NO LANE CLOSURE SHALL OCCUR ON THE TURNPIKE SYSTEM UNLESS ALL OTHER POSSIBLE ALTERNATIVES HAVE BEEN EXPLORED AND FOUND TO BE NOT POSSIBLE OR PRACTICABLE. THE REASONS FOR THE CLOSURE MUST BE WARRANTED AND DOCUMENTED. WHEN ABOVE CONDITIONS ARE MET, THEN CLOSURES CAN ONLY OCCUR DURING SPECIFIED HOURS AND MUST BE APPROVED BY THE DEPARTMENT AT LEAST 48 HOURS IN ADVANCE.

During the holiday weekends of Memorial Day, Independence Day, Labor Day, and Veterans Day, no lane closures will be permitted from 12:01 p.m. the preceding Friday to 11:59 p.m. Monday. If Independence Day or Veterans Day occurs midweek, there will be no lane closure restrictions.

During Easter, no lane closures will be permitted from 12:01 p.m. the preceding Friday to 11:59 p.m. Sunday.

During Thanksgiving, no lane closures will be permitted from 12:01 p.m. the preceding Wednesday to 11:59 p.m. Sunday.

Lane closure restrictions during the Christmas and New Year's Day holiday periods will be dependent upon which day of the week the legal holiday falls.

- During Christmas, lane closures will not be permitted from 12:01 p.m. Christmas Eve through 11:59 p.m. the following Sunday.
- During New Year's, lane closures will not be permitted from 12:01 p.m. New Year's Eve through 11:59 p.m. the following Sunday.
- When Christmas and New Year's occur on Monday, lane closures will not be permitted from 12:01 p.m. the previous Friday through 11:59 p.m. Monday.

I. Production and Operations Activities (excluding Department Work Program Construction Projects)

1. See general policy. When lane closures are allowed, every possible effort must be made to minimize the length of time of closure.
2. All lane closure requests should be accompanied by a Maintenance of Traffic (MOT) plan that is in compliance with the Department's Design Standards and the MUTCD. If the proposed MOT is not a Standard Index, a separate signed and sealed Plan, by an engineer registered in the State of Florida, shall be provided for the anticipated work activity.
3. Lane closures will not be allowed on the Turnpike during peak traffic hours, unless site-specific conditions dictate otherwise. Requestor shall provide supporting evidence of "site specific conditions." Peak hours are generally defined as 6:30 a.m. to 9:30 a.m. and 3:30 p.m. to 6:30 p.m., Monday through Friday. However, they may vary from location to location.
4. The basis for establishing time of closure limits, other than above, will be the consideration of ADT, peak hour volumes, site-specific conditions, available lane capacity, and personal knowledge of traffic patterns and roadway conditions.
5. Allowable lane closure time for all activities authorized by the Department will be specified by the Department on the lane closure form.
6. The Department reserves the right to modify previously approved or specified time of closure when, if in the opinion of the Engineer, it becomes necessary to do so in the interest of public safety.
7. A variance from the "most current edition" will be accepted if projects were let using previous editions of the Design Standards.
8. The Department may require the construction of lane shifts or additional (temporary) pavement to maintain the same number of traffic lanes as in the pre-activity condition.
9. Notification to the Florida Highway Patrol (FHP) of lane closure durations in excess of two (2) hours must be made as required by FDOT Rule Chapter 14-65.007. The following FHP posts should be notified:

Miami Post 1

(305) 252-4423

West Palm Beach Post 4

(561) 640-2831

Orlando South Post 7

(407) 855-5383

Notification must also be made to local Fire Departments and emergency medical services.

10. Notification of proposed lane closures must be accomplished by completing the "Anticipated Lane Closure Form" (see attached) a minimum of two (2) weeks in advance of the proposed closure. Media notification by the Public Information Office will occur upon approval of the lane closure by the Department. The Anticipated Lane Closure Form is processed through Turnpike Traffic Operations, PO Box 9828, Fort Lauderdale, FL 33310.
11. Prior to any lane closure, the Engineer must approve in writing, any exceptions to the criteria established herein.

II. Department Work Program Construction Projects

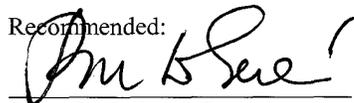
1. Lane closure requirements within the limits of individual Department construction projects will be established during the development of Maintenance of Traffic (MOT) Plans for each project (or during the PD&E phase for large, complex projects). These will be developed using 24-hour counts to determine peak hour restrictions and will comply with the limitations of the other categories of work.
2. The Contractor shall comply with all the provisions outlined in this policy.

3. If lane closures are required, the "Anticipated Lane Closure Form" will be needed for every phase of the MOT plan a minimum of two (2) weeks in advance of the proposed closure. Media notification by the Public Information Office will occur upon approval of the lane closure by the Department. The Anticipated Lane Closure Form is processed through Turnpike Traffic Operations, PO Box 9828, Fort Lauderdale, FL 33310.
4. MOT implementation phase involving lane closures, will not be allowed until the construction work requiring the lane closure is ready to begin nor will it be allowed to remain in place for longer than the work's duration.
5. Construction projects with lane closures will be monitored. If, in the opinion of the Engineer and the Turnpike Construction Project Manager, the lane closure is unsafe, unnecessary, or is creating undue traffic delay and congestion, he/ she may suspend the contract or modify the MOT plans. This includes maintenance, permits, utilities, and other work within the limits of an active construction project.

III. Emergency Conditions

1. Restricted hours of lane closures are waived under emergency conditions as defined under Florida Statute 252.34 (2).
2. Unless otherwise approved by the Engineer, work is to be performed on a continuous round-the-clock basis to minimize time of closures.
3. The Turnpike Public Information and Traffic Operations Offices are to be notified of any lane closure that exceeds or is expected to exceed two (2) hours.

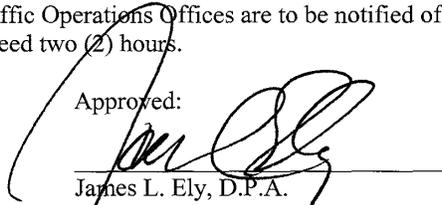
Recommended:



Bruce D. Seiler, P.E.
Director of Highway Operations
Florida's Turnpike Enterprise

3/27/03 Date

Approved:



James L. Ely, D.P.A.
Executive Director
Florida's Turnpike Enterprise

3/28/03 Date