

INDIANA DEPARTMENT OF TRANSPORTATION

INTERSTATE HIGHWAYS CONGESTION POLICY 2017



INTERSTATE HIGHWAYS CONGESTION POLICY (IHCP)

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IHCP DOCUMENTS AVAILABLE ON THE IHCP WEBSITE

Tables

- B-1: 2017 IHCP Tables
- C-1: Capacities for District Biennial Maintenance Exceptions
- C-2: Capacities at Free Flow Speed (No Work Zone)
- C-3: Model Parameters for Working Hour Capacities
- C-4: Capacities for Ramps Ending in a Signalized Intersection
- C-5: Capacities for Ramps Ending in a Stop Controlled Intersection or Roundabout
- C-6: Open Lane Capacities for Shoulder Closures
- D-1: Distance A (Rolling Slowdowns)

Forms

- IHCP Exception Request Form (for INDOT Employee Use)
- Queue Measurement Report Form

For a list of differences between the 2014 IHCP and the 2017 IHCP, see the change log provided on the INDOT IHCP website.

LIST OF WEB LINKS

Links

INDOT IHCP Website.....	www.in.gov/indot/3383.htm
INDOT Work Zone Safety Website.....	www.in.gov/indot/2356.htm
INDOT District Media Contacts.....	www.media.indot.in.gov
INDOT Traffic Count Database System.....	indot.ms2soft.com/tcds
INDOT Traffic Count Adjustment Factors.....	www.in.gov/indot/3000.htm

POLICY STATEMENT

It is the policy of the Indiana Department of Transportation (INDOT) to limit operations which reduce the number of lanes, reduce the width of lanes, or may otherwise cause congestion to occur on an interstate route.

The goal of this policy is to ensure that work zones provide optimal safety for workers and all other users of the work zone. To achieve this goal, work zone restrictions on interstate facilities shall be scheduled to maximize efficiency by the appropriate selection of work hours, implemented with appropriate mitigating countermeasures, and maintained using Traffic Control Plans of sufficient detail and depth to provide the best level of service achievable for motorists while maintaining a safe and buildable work site.

Operations which reduce the number of lanes, reduce the width of lanes, or otherwise cause congestion to occur on an interstate route may NOT be conducted except as described below.

PURPOSE

This policy has been developed pursuant to federal requirements as outlined in 23 CFR 630 Subparts J and K to reduce congestion caused by temporary operations on interstate routes and to improve safety for both workers and motorists through thoughtful selection of work hours and strategy. Operations covered under this policy include, but are not limited to: construction, maintenance, utility work, data gathering, and facilitating special events.

It is not the intent of this policy to prevent work from taking place on interstate routes. If it is not possible to complete needed work within the preapproved closures and times as listed in Appendix B, a Policy Exception should be requested in accordance with Appendix C.

ADMINISTERED BY

This policy shall be administered and maintained by INDOT's Traffic Management Division. Specifically, the Work Zone Safety Section will provide a Quality Assurance Evaluation of selected approved documents. All approved IHCP Exceptions will be transmitted to the Supervisor of the Work Zone Safety Section (as noted in the distribution lists shown in each cover letter). No less than 10% of the IHCP Exceptions will be audited by the Work Zone Safety Section. Monthly reports will be provided to each approving authority and their Supervisor, detailing the efficacy of the analysis, appropriateness of selected countermeasures, and overall quality of the Exception (including, when possible, known queueing observed compared to queue predicted in the Approval).

NOTE

This language reflects the changing role of the Work Zone Safety Section, transitioning to an emphasis on Quality Assurance rather than an emphasis on the Review and Approval Process.

TERMS AND DEFINITIONS USED

- 1) Congestion is considered to exist when the traffic volume exceeds the roadway capacity.
- 2) A queue is defined as the length of the pavement occupied by a line or lines of closely spaced vehicles travelling below 30 mph and is measured from the point of the restriction towards oncoming traffic.
- 3) Ramps include any lanes that enter or exit an interstate highway. This definition includes ramps between interstates and collector/distributor lanes.
- 4) An intersecting roadway includes all of the non-interstate pavement inside the interchange area. This includes all of the pavement that is a part of a ramp touchdown intersection, including turn lanes, and the lanes between ramp touchdown intersections.
- 5) The total number of Passenger Car Equivalents (PCEs) is equivalent to the sum of the vehicles functionally classified in categories 1 through 3 plus two times the sum of the vehicles functionally classified in categories 4 through 15.
- 6) An interstate segment is defined as the mainline lanes and paved shoulders between two adjacent interchanges and may include acceleration lanes and deceleration lanes.

APPLICATION OF THE POLICY

This policy shall be followed for any activity which reduces the number of lanes, reduces the width of lanes, or may otherwise cause congestion to occur on Indiana's interstate highways:

- 1) This policy applies to all entities involved in researching, planning, designing, and performing work on Indiana's interstate highways, shoulders, ramps, and intersecting roadways, including, but not limited to: INDOT Employees, Local Governments, Consultants, Utilities, and Contractors.
- 2) Incident Management scenes, snow removal, and snow and ice related pavement treatment operations are exempt from this Policy.
- 3) Preapproved times for single lane closures are described in Appendix B. Additional lane closures may only be permitted by approved Policy Exceptions as described in Appendix C.
- 4) Any provision in this policy may be excepted as described in Appendix C.
- 5) Emergency and Urgent Closures, as described in Appendix A, are exempt from:
 - a) Preapproval schedules as described in Appendix B, and
 - b) Policy exception requirements as described in Appendix C.

- 6) Interstate to interstate ramps with more than one lane shall be under the same preapproved times for single lane closures and shoulder closures (as described in Appendix B) as the interstate from which they originate.
- 7) Work which is performed on a paved interstate shoulder or work which results in the storage of equipment, vehicles or material on a paved interstate shoulder for more than 30 consecutive minutes in a single interstate segment is considered a source of possible congestion and will be subject to the preapproved times for shoulders as described in Appendix B. Additional shoulder restrictions may only be permitted by an approved Policy Exception as described in Appendix C.
- 8) Any operation on a ramp or intersecting roadway which causes a queue in excess of one-half (1/2) mile on the interstate will be removed, if it is safe to do so, until the queue dissipates unless a Policy Exception has been approved.
- 9) The full closure of any interstate exit ramp for more than 10 minutes or the full closure of any interstate to interstate ramp for any period of time is considered a source of possible congestion and will require an approved Policy Exception in accordance with Appendix C.
- 10) Except for emergencies and incident management scenes, rolling slowdowns as described in Appendix D shall be used for any activity that requires all mainline lanes in one or both direction of an interstate to be clear of traffic for up to 20 minutes, unless a Policy Exception to use an alternate method has been approved.
- 11) It is necessary to continuously monitor traffic for the presence of queues as additional measures or adjustments may be required during the lane restriction(s).
- 12) Queue length and delay measurements shall be made as described in Appendix E on interstate projects when lane, shoulder or ramp restrictions will be in place in at least one direction for a total of at least 10 days.

PRE-REPORTING REQUIREMENTS

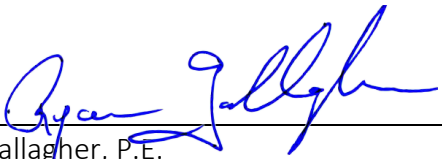
Any planned activity that will take place on, store materials on, and/or park equipment/vehicles on currently open paved surfaces (including shoulders) of interstate highways, ramps from interstate highways, or on intersecting roadways of an interstate highway shall be reported to the Traffic Management Center (TMC) via a Traffic Restriction Report, available online at the INDOT IHCP website (www.in.gov/indot/3383.htm) three business days prior to the start of the activity. A primary contact and back-up contacts shall be designated for each restriction and their contact information, including names, telephone numbers, and email addresses (optional), shall be included in the report. Additionally, immediately prior to the planned restriction, the primary contact shall call the local TMC Dispatch to confirm the restriction. The primary contact and/or their back-ups shall be available and responsive during the entire duration of the restriction. If the reduction of capacity will extend longer than 12 hours, the contact information shall indicate the time periods for which the contacts are responsible.

POLICY APPROVAL

Transmitted, herewith, is the Interstate Highways Congestion Policy (IHCP) for the Indiana Department of Transportation. This policy replaces all previous Interstate Lane Closure Policies (ILCP) and Interstate Highways Congestion Policies and shall be incorporated into daily operations and maintenance activities immediately. All existing Policy Exceptions to a prior version of the IHCP remain valid. All active projects/contracts which have a Ready for Contract (RFC) date less than 60 days after the approval date of this policy shall be governed by the 2014 Interstate Highways Congestion Policy executed on May 29, 2014.

Minor changes to this policy may be made via executive memorandum with approval from the Deputy Commissioner of Operations. These changes will be incorporated into the copy of the IHCP which is posted on the INDOT IHCP website (www.in.gov/indot/3383.htm).

Approved:



Ryan Gallagher, P.E.
Deputy Commissioner
Operations

1/6/17

Date

APPENDIX A – EMERGENCY AND URGENT REPAIRS

EMERGENCY REPAIRS

The District Deputy Commissioner (DDC) may declare that a condition is an emergency and requires immediate closure of one or more lanes. Such conditions may include, but are not limited to, pavement or bridge deck failures, bridge structure impact damage, damaged roadside appurtenances and slope stability. All such emergency declarations do not require an approved Policy Exception, as described in Appendix C. The Traffic Management Center (TMC) of jurisdiction shall be contacted as soon as the repair is determined to be an emergency and shall be kept informed of the times the work is being conducted. The restrictions shall be entered in the Condition Acquisition Reporting System (CARS) by the entity restricting the interstate highway. The TMC can assist with this if necessary. The information entered into CARS system shall provide the primary and secondary emergency contact names and phone numbers where they can be reached in the “My Group Comment” section of the CARS report. A completion time or duration time in addition to the other information shall be entered. In the case of an emergency lane closure or restriction, a memo shall be sent by the District to the Deputy Commissioner of Operations (DCO) with the Work Zone Safety Section Supervisor copied no later than two working days after the work begins, that:

- 1) Explains the emergency situation,
- 2) Gives the details of the closure, including;
 - a) Which lanes were closed or restricted,
 - b) The hours of the day for the closure/restriction, and
 - c) The length and times of day of any queuing that developed.
- 3) For construction projects, provide;
 - a) Contract Number
 - b) Project Engineer’s name
 - c) Area Engineer’s name
 - d) Project Manager’s name
- 4) For Maintenance Operations, provide the name of the District Work Unit

URGENT REPAIRS

If a repair does not require the roadway to be immediately shut down, the District Deputy Commissioner (DDC) may determine that it is urgent and that it requires work to be initiated within

24 hours of the determination or over a weekend when it is not possible to secure a Policy Exception. Such repairs may include: replacement of worn temporary pavement markings, correction of a drainage or slope issue in a temporary crossover, filling potholes, or other repairs that will close or restrict a lane or lanes which are otherwise required to remain open and unrestricted to traffic under this policy. All repairs determined to be urgent which occur outside of the preapproved times described in Appendix B, the times permitted by an approved project Policy Exception, or the times permitted by the current approved District Biennial Maintenance Policy Exception require a limited analysis by the District before proceeding.

If the DDC determines a repair is urgent, then the best time for the closure or restriction shall be selected by reviewing the traffic count data for the segment needing repairs. This data is available from the INDOT Traffic Count Database System (indot.ms2soft.com/tcds) or in the current applicable District Biennial Maintenance Policy Exception. The closure or restriction should be done during the lowest traffic volume period possible. The TMC shall be contacted as soon as the repair is determined to be urgent and shall be kept informed of the times planned for the work to occur. The TMC can be contacted by phone at 317-899-8690x1 and by E-mail at indytmc@indot.IN.gov. The restrictions shall be entered into the CARS by the entity restricting the interstate highway. The information entered into CARS system shall provide the primary and secondary emergency contact names and phones numbers where they can be reached in the "My Group Comment" section of the CARS report. A completion time or duration time in addition to the other information shall be entered. The appropriate District Public Information Office (DPIO), Indiana State Police (ISP) Post, and local emergency services should also be notified. Contact information for the District Media Contacts can be found at www.media.indot.in.gov. The Indiana State Police can be notified via E-mail at indpc@isp.IN.gov or by phone at the TMC, 317-899-8690x1.

If a queue over 1.5 miles in length develops, the repairs shall be suspended, if it is possible and safe to do so, until the queue dissipates.

If the same urgent repairs are required on a project more than one time or the need is anticipated to recur during the remainder of the project, then the District shall initiate a formal IHCP Exception process for these potential and/or anticipated closures.

Following an urgent repair, a memo shall be sent to the DCO with the Work Zone Safety Supervisor copied within two working days that:

- 1) Explains the Urgent situation,
- 2) Includes the traffic counts used for setting the time for the closure,
- 3) Gives the details of the closure, including;
 - a) Which lanes were closed,
 - b) The beginning and ending time of the closure,

- c) The length of any queuing that developed, and
 - d) Steps that can or will be taken to prevent recurrence of the need to conduct this, or similar, repairs under the Urgent Repair provisions on this project or this segment of interstate.
- 4) For construction projects, provide;
- a) Contract Number
 - b) Project Engineer's/Supervisor's name
 - c) Area Engineer's name, and
 - d) Project Manager's name
- 5) For Maintenance Operations, provide the name of the District Work Unit.

APPENDIX B - PREAPPROVED INTERSTATE CLOSURE AND RESTRICTION TIMES

To convey the details of the restrictions in the policy, a set of tables has been attached. Deviations from the schedule are only permitted if an exception is approved as described in Appendix C. **If the width of an open lane will be reduced below 11 feet, the preapproved times for single lane closures and shoulder closures listed in this appendix do not apply.**

Mowing operations are not subject to the preapproved times listed in this section as long as they do not encroach onto an open interstate lane. Instead, mowing operations may be completed at any time except in “Urban” areas, as designated in the “2017 IHCP Tables” within this appendix, where work will not occur on weekdays between 4:00 pm and 6:00 pm without approval from the Director of Maintenance Management or the District Deputy Commissioner.

INDOT maintenance forces are not subject to the preapproved times for shoulder closures. Using the preapproved times for shoulder closures as guidance, both the appropriate District Highway Maintenance Director and the TMC Director may allow INDOT maintenance forces to restrict or close shoulders at any time.

Closures where no work is occurring should not be left in place for a prolonged period of time (more than three days) when it is safe and prudent to reopen the lane, even during times when lane and shoulder closures are permitted.

The preapproved times listed in this appendix do not supersede INDOT policies or contract documents concerning work on designated holidays.

TIME DESCRIPTIONS FOR LANE CLOSURE DESIGNATIONS

Each segment of interstate is designated for lane closures using one of the five categories shown below. Lane closures are not permitted to occur except as described in the preapproval tables unless a Policy Exception has been approved as described in Appendix C.

Each preapproval category and its definition are listed below:

- Anytime: Single lane closures or single lane restrictions any time of day or night in each direction.
- Weekend or Nighttime Only: Single lane closure or single lane restrictions in each direction between Friday 9:00 p.m. through Monday 6:00 a.m. and weekdays 9:00 p.m. to 6:00 a.m.
- Weekday or Nighttime Only: Single lane closure or single lane restriction in each direction from Sunday 9:00 p.m. to Friday 6:00 a.m. Nightly lane closures allowed on Friday and Saturday from 9:00 p.m. to 6:00 a.m.
- Nighttime Only: Single lane closure or single lane restriction in each direction any day of the week from 9:00 p.m. to 6:00 a.m.

- Executive Approval: Except for conditions designated as an “Emergency” or “Urgent”, a Policy Exception approved by the appropriate authority is required before any lane closure or lane restriction takes place in these segments.

TIME DESCRIPTIONS FOR SHOULDER CLOSURE ONLY DESIGNATIONS

Each segment is given a “Shoulder Closure Only Designation” in Table B-1. Work which is performed on a paved interstate shoulder or work which results in the storage of equipment, vehicles or material on a paved interstate shoulder for more than 30 consecutive minutes is considered as a source of possible congestion and will be subject to these preapproved times for shoulders. Work outside of these preapproved times will not be permitted to occur unless a Policy Exception has been approved as described in Appendix C.

For all segments, Temporary Traffic Control devices such as drums and signs may be placed on the outside edge of the shoulder at any time.

Each preapproval category and its definition are listed below:

- Anytime: Shoulder closures or shoulder restrictions any time of day or night in each direction.
- Weekend or Night-time Only: Shoulder closures or shoulder restrictions in each direction between Friday 9:00 p.m. through Monday 6:00 a.m. and weekdays 9:00 p.m. to 6:00 a.m.
- Nighttime Only: Shoulder closures or shoulder restrictions in each direction any day of the week from 9:00 p.m. to 6:00 a.m.
- 9A to 3P, 7P to 6A, M-F & Weekend: Shoulder closures or shoulder restrictions in each direction between 9:00 am and 3:00 pm and between 7:00 pm and 6:00 am on Mondays-Fridays and from Friday at 7:00 pm to Monday at 6:00 am.

Table B-1, which contains the 2017 IHCP Tables, can be found on the INDOT IHCP website (www.in.gov/indot/3383.htm).

APPENDIX C – POLICY EXCEPTIONS

A Policy Exception is a formal document which is signed by INDOT executive staff that gives approval to close or restrict lanes, ramps or shoulders during certain times. Work which requires a Policy Exception may not proceed until the required Policy Exception documents are approved, unless approval to proceed is given verbally or by email, in which case all required Policy Exception documents will be signed as soon as circumstances permit.

Unless the work is declared to be an “Emergency” or “Urgent” as described in Appendix A, an approved Policy Exception will be required prior to proceeding with:

- A closure or restriction outside the preapproved times or for more lanes than as described in Appendix B.
- A Rolling Slowdown as described in Appendix D if;
 - The speed for the Pilot Vehicles will be less than 20 MPH,
 - The traffic count exceeds 800 Passenger Car Equivalents (PCE) during any hour of the work, and/or
 - The duration of the rolling slowdown will exceed 20 minutes.
- An alternative to a Rolling Slowdown.
- The restriction of a lane to less than 11 feet in width. Even if the number of lanes has not been changed, a reduction in lane width to less than 11 feet is not permitted without an approved Policy Exception.
- Any closure or restriction of lanes on an interstate highway that occurs over a major holiday, as defined in the version of the INDOT Standard Specifications that was current when the contract is let or, for non-contracted work, when the work occurs.
- Any closure of a lane on an interstate highway which is designated as a detour/alternate route for another interstate highway project.
- The full closure of any interstate ramp for more than 10 minutes.

Unless it is explicitly stated on the Cover Letter, IHCP Exceptions will not supersede INDOT policies or contract documents concerning work on designated holidays.

PARTY RESPONSIBLE FOR COMPLETING AND SUBMITTING AN EXCEPTION REQUEST

The person planning or proposing a restriction, lane / road closure, or operation on any interstate lane, including paved shoulders, any ramp to, from, or between interstate highways, or an intersecting roadway will be responsible for determining if the proposed restrictions / closures fall

within the policy guidelines. If it does not, then a Policy Exception must be prepared by that person or their designee and sent for approval as described in this Appendix. **For contracted activities, the designer of record or their designee will be the person responsible for preparing all exceptions.** The IHCP Exception Work Flow Chart, which can be found on the INDOT IHCP website (www.in.gov/indot/3383.htm), details the Policy Exception process.

POLICY EXCEPTION APPROVERS

Policy exceptions are approved by the appropriate party as shown below. Approvers may appoint a designee in their absence on a short-term basis to cover time away from work and other instances where they are unavailable.

- Policy exceptions developed during the design phase must receive the approval of the INDOT Statewide Technical Services Director (STSD) in the Engineering & Asset Management Business Unit or his/her designee.
- Policy exceptions developed for contract work in progress, including utility work for the contract, must receive the approval of the District Deputy Commissioner (DDC) or his/her designee.
- Policy Exceptions for non-contract work may be obtained in two manners:
 1. District Biennial Maintenance Exceptions are specific to each district and provide pre-approval periods for single or multiple lane closures along each interstate highway. District Biennial Maintenance Exceptions must receive the approval of the Maintenance Management & District Support Director (MMDSD) in the INDOT Central Office, Operations Business Unit or his/her designee.
 2. Additional periods of work for non-contract work outside of the restrictions allowed in the District Biennial Maintenance Exceptions must receive the approval of the District Deputy Commissioner (DDC) or his/her designee.

Non-contract work includes, but is not limited to, testing, inspection, research, and maintenance work.

- Policy exceptions for Permit work of any kind must receive the approval of the District Deputy Commissioner (DDC) or his/her designee.
- Policy exceptions for the repair or replacement of Traffic Management Division's ITS infrastructure must receive the approval of the Traffic Management & District Support Director (TMDS) in the INDOT Central Office, Operations Business Unit or his/her designee.
- Policy exceptions for contract work in progress which makes use of the District Biennial Maintenance Policy Exceptions for work activities of a maintenance nature that are of a

short duration must receive the approval of the District Deputy Commissioner (DDC) or his/her designee.

PREPARING AN EXCEPTION REQUEST FOR CONTRACT WORK

Exception requests should be prepared as early as possible during the planning or design process. In some cases it may be necessary to revise an exception once a pavement recommendation has been formulated or required bridge work has been determined. In all cases, exception requests for contract projects should occur before the final design begins.

Exception requests may cover multiple aspects of the work. For instance, a single request may analyze lane closures, shoulder closures, and ramp closures for a specific project. Special attention should be given to additional short term needs for the initial traffic maintenance setup and during traffic maintenance phase changes. Including all of the closures needed for the various types of work and phasing planned for the entire duration of a project into a single request will decrease the amount of paperwork required and the number of Policy Exceptions that will need to be prepared, reviewed and approved.

Work which will occur towards the end of construction, such as placing pavement markings or completing punch list items, is often overlooked during the preparation of the initial exception. Thought should be given to which types of work will be performed throughout the life of the project and an exception request should be prepared for any activity where one will likely be required. Requesting exceptions at the start of the project, rather than immediately prior to work commencing, decreases the probability of work delays due to requests being denied by an Approver. **When an exception is requested less than 10 business days before the start of the work, it cannot be guaranteed that the request will be processed in time.**

One of the three following methods will be used to prepare an exception request for contracted activities.

1. The requestor shall complete a quantitative analysis of the impact on the motoring public of any proposed closure or restriction. They will also describe methods to inform/protect traffic such as those used in a Transportation Management Plan (TMP). If queuing in excess of the policy limits described in this appendix is expected, steps should be taken to warn traffic of the queue and to protect the end of the queue. In this case, the exception request should be submitted as described in this appendix. Work may not commence until this exception has been approved.
2. If the work activity is of a maintenance nature, of a short duration and if the proposed closures or restrictions will be completed within the times allowed in the District Biennial Maintenance Policy Exception, the requestor may cite the relevant District Biennial Maintenance Policy Exception for the district, note the affected highway segment in their Policy Exception request, and describe the activity and traffic control plan. In this case, an analysis of the impact on the motoring public will not be required. This type of exception request should be submitted

directly to the appropriate District Deputy Commissioner for approval. Work may not commence until this exception has been approved.

3. The District Technical Services Section may apply a Policy Exception that has previously been approved for the same segment during the previous two years, regarding the same or more restrictive type of work, during the same or higher volume time period. Regardless of who requested the previous exception, the requestor may reference this exception in place of performing any additional analysis. In this case, a new cover letter, transmittal letter, and body must be prepared, but no new analysis needs to be done. By referencing a previous Policy Exception, the requestor certifies that the analysis was done correctly. Justification for the use of a previous exception should be included in the body of the new exception. The previous exception should be referenced in, and included as an attachment at the end of, the new exception. In this case, the exception request should be submitted as described in this appendix. Work may not commence until this new exception has been approved.

PREPARING AN EXCEPTION REQUEST FOR NON-CONTRACTED WORK

Each District may apply for a Biennial Maintenance Policy Exception every two years. For a two year period beginning January 1 of an even numbered year, Crawfordsville, LaPorte, and Seymour Districts may apply for a Biennial Maintenance Policy Exception. For a two year period beginning January 1 of an odd numbered year, Fort Wayne, Greenfield, and Vincennes Districts may apply. Each District Biennial Maintenance Policy Exception will evaluate each segment during each hour for Weekdays, Fridays, Saturdays and Sundays. The minimum number of lanes which must be open for each segment will be specified for each hour and each day. Any such request will include the traffic counts they are based upon. Once approved, the District Biennial Maintenance Policy Exception may be used for any non-contracted work throughout the district for the next two years.

Table C-1 contains the theoretical capacities for the preparation of District Biennial Maintenance Exceptions. Table C-1 can be found on the Interstate Highways Congestion Policy Website (www.in.gov/indot/3383.htm). They are only to be used to determine the number of lanes which may be closed for each segment.

If non-contracted work will result in lane closures or lane restrictions outside of the policy allowable times as described in Appendix B and outside of the times allowed by an approved District Biennial Policy Exception, the District shall complete a formal request for a Policy Exception as described in this Appendix.

PARTS OF AN EXCEPTION REQUEST

At times, both contracted and non-contracted work will require a Policy Exception to complete needed work activities. Each exception requests will have four sections. Each of these sections is outlined below:

I. Transmittal Letter

The transmittal letter will only be used for exception requests which are not prepared by INDOT employees. The transmittal letter will be typed on the letterhead of the company that prepared the request. It will contain contact information as well as a brief overview of the request. The transmittal letter should list all enclosures that are being submitted to the reviewer including analysis models, traffic counts, traffic conversion factors, maintenance of traffic (MOT) plans or any other supporting documentation as described in this appendix.

In lieu of a transmittal letter, for exception requests prepared by an INDOT employee a note will be placed at the end of the Body. This note will give the name and contact information of the person preparing the request.

Additionally, if an INDOT employee will be completing an exception request on the behalf of another INDOT employee who is planning the work, the IHCP Exception Request Form, which is available on the INDOT IHCP website (www.in.gov/indot/3383.htm), should be prepared by the person planning the work and given to the person preparing the request. This form will ensure that the person preparing the request has all the necessary information available to them.

II. Cover Letter

Cover letter templates can be found at the INDOT IHCP website (www.in.gov/indot/3383.htm). The cover letter will be submitted to the reviewer in the Word document format. The cover letter is an overview of the request that at a minimum contains:

- Whom the exception is To, Through, and From as well as a distribution list. The cover letter will always be From the initial reviewer, Through the secondary reviewer and To the Approver.
- General information about the project including a project description, the route number, the contract number, permit number and DES number if available.
- The preapproved category as listed in Appendix B.
- The route and location where the closure will occur.
- Information about the requested closure including time of day, day of week, specific year when work will occur (or duration of contract) as well as the number of lanes closed, number of lanes open, and directions impacted. Where possible, the request should cover the duration of the contract. In situations where work during high volume months would lead to undesirable queuing, the request can be for specific months.
- The expected duration of the work and the expected date when the work will occur. This section is not binding but just serves as additional information for the Approver.

- A list of days when work will be prohibited. An example of this would be the weekend of a major sporting event.
- A list of any days when work will be permitted to take place on holidays despite existing INDOT policies. Holiday work should be avoided unless it is absolutely necessary to complete work on these days. Holiday work must be preapproved in advance in accordance with INDOT Standard Specifications.
- The minimum lane widths of the open lanes and the type of barrier to be used.
- An overview of the predicted impacts of the request and a determination on whether the expected queues will be within policy limits as described in this Appendix.
- The Approver's name and a signature line.

III. Body

The body of the exception request provides detailed information about the nature of the work, the analysis that was done to evaluate the impact on traffic and, if needed, any mitigation measures that are to be implemented to address adverse effects on safety and mobility.

A template for the body of an exception request is included on the INDOT IHCP website (www.in.gov/indot/3383.htm). The body must contain the following four parts:

- A. Need for Work: This section describes the project and the need for the requested closure/restriction. It should outline what closures/restrictions are needed and the reason that the closures/restrictions must be performed. In this section, rejected alternatives and the reasoning behind the selected traffic control setup may be described. This section is usually no longer than a few paragraphs.
- B. Analysis: This section describes the methods used to evaluate the impact of the work on traffic. It will cover the source for the traffic counts, the methods used to adjust the traffic counts, the method used to evaluate the impact on traffic (e.g. the INDOT Queuing Analysis Tool or QuickZone 2.0), the input values used for the model (e.g. capacities), and the results of the analysis. The criteria used to determine the impact of proposed work zones shall be queue length. The analysis section of the request should be between three paragraphs and three pages in length. All methods and parameters described in this section may be altered with written justification and prior approval from the Work Zone Safety Section. The process for evaluating the impact of the work on traffic is detailed below:
 1. Source of Traffic Counts: Traffic counts are typically generated one of two ways. They may either be retrieved from the INDOT Traffic Count Database System (indot.ms2soft.com/tcds), or they may be estimated using the District Biennial Maintenance Exceptions that have been approved for most INDOT Districts. Non-INDOT persons may only use the traffic counts pulled from the District Biennial

Maintenance Exception for work of a maintenance nature and of a short duration as was described earlier in this appendix.

If the traffic counts are from a different source, the source should be cited and information on how the counts were generated should be provided. Complete traffic counts from the most recent year available should be used. Hourly traffic volumes should be used.

2. Adjusting Traffic Counts: The following method should be used to adjust traffic counts for use in the analysis:

i. Adjust to PCEs: Traffic counts should be converted from vehicles to PCEs. The total number of PCEs is equal to the sum of functional classifications 1 through 3 plus two times the sum of functional classifications 4 through 15. Approved District Biennial Maintenance Exception traffic counts have already been converted to PCEs.

ii. Adjust for the year: Traffic counts should be adjusted from the year when the count is taken to the first year when the work will take place. Utilizing the Annual Growth Factors taken from the Latest INDOT Traffic Adjustment Factors (www.in.gov/indot/3000.htm) will adjust the counts to the latest year covered by the factors. To further adjust the counts to the year when the work will take place, use a 1% annual growth compounded yearly or the known growth rate, whichever is higher.

iii. Adjust for the month: Traffic counts should be adjusted from the month when the count was taken to the month when work will be taking place. The adjustment for month may either be made prior to entering volumes into the model or it may be done within the model. If the work will take place over the course of multiple months, only the month with the highest traffic volumes will be evaluated or each month will be analyzed separately.

If QuickZone 2.0 is being used for the analysis, the duration of work should not be such that it spans multiple months. For most QuickZone 2.0 models, a work duration of 1 week during the highest volume month will suffice.

The five year average Seasonal Adjustment Factors, taken from the Latest INDOT Traffic Adjustment Factors (www.in.gov/indot/3000.htm), should be used.

District Biennial Maintenance Exception traffic counts represent the average for the year and must be converted to the month when work will be taking place before being used in analysis.

iv. Adjust for the day of the week: Traffic counts should be adjusted for day of the week. For the purpose of analysis, Mondays, Tuesdays, Wednesdays and Thursdays may

all be modeled together as an “Average Weekday”. Fridays, Saturdays, and Sundays must each be analyzed separately. If traffic counts are available for Fridays, Saturdays and Sundays, those counts should be used. If traffic counts are not available for weekends, the Hourly Day of the Week Factors provided on the INDOT IHCP website (www.in.gov/indot/3383.htm) should be used to estimate Friday, Saturday and Sunday volumes. These Hourly Day of the Week Factors are not provided by the INDOT Division of Engineering and Asset Management, Office of Asset Planning. They may only be used in analysis for an IHCP exception request.

3. *Evaluating Impacts on Traffic for a Lane Closure*: At this point, further analysis is not necessary if the adjusted volumes are less than the theoretical capacity of the work zone during every hour. The analysis section of the body should simply state that volumes do not exceed capacity during any hour and that no queuing is expected.

If the adjusted volumes are greater than the theoretical capacity of the work zone during any hour, a further analysis is required. The INDOT Queuing Analysis Tool, a spreadsheet developed by INDOT, is the preferred software for modeling the expected queues that may be generated as a result of a lane closure. The INDOT Queuing Analysis Tool, other INDOT developed tools, as well as a template input file for QuickZone 2.0 are provided on the INDOT IHCP website (www.in.gov/indot/3383.htm). Other similar software preapproved by the Work Zone Safety Section may also be used to evaluate the impact of a lane closure on traffic.

Proprietary traffic modeling software, such as VISSIM and Synchro, may only be used with the prior approval of the Work Zone Safety Section. The designer will be expected to provide a justification for the need and use of alternative tools to justify queue predictions as well as a detailed explanation of modeling methodology.

With the approval of this policy, QueWZ98 will not be a permitted modeling tool for use when justifying new IHCP Exception Requests.

i. Required model parameters are listed below:

- Each Maintenance of Traffic stage should be analyzed separately.
- Where the work will occur over multiple segments, each segment should be modeled separately. If one segment has a higher volume per lane than every other segment for every hour it can be modeled as the worst case scenario in lieu of modeling every segment separately. Segments are from interchange to interchange.
- The speed limit used in the model should be the posted pre-work speed limit.
- Base work zone capacities used in the model may be increased by 10% for hours where traffic is restricted but no work is taking place.

- Base work zone capacities used in the model may be increased by 10% for locations designated as “Urban” in the 2017 IHCP Tables provided in Appendix B. In urban areas where traffic is restricted but no work is taking place capacity may be increased by a total of 20%.
 - Diversions shall not be used in the analysis. However, where traffic diversions are expected, a note should be added to the analysis section of the exception request describing predicted diversion patterns and detailing viable alternate routes. Additionally, the abbreviated Transportation Management Plan may include verbiage on how traffic is to be encouraged to take alternate routes.
 - When traffic is to be placed on the left (inside) shoulder, if the shoulder has a rumble strip, the base work zone capacity for that lane will be 15% less than the base work zone capacity listed in table C-3.
 - The Jam density should be 190 PCEs/mi/ln unless an alternate value can be justified. The Jam density will never be larger than 190 PCEs/mi/ln.
 - The inbound direction will always be the positive direction (the direction with increasing Mile Markers). For most routes this means that the inbound direction will be Northbound or Eastbound.
 - If the INDOT Queuing Analysis Tool is used, the pre-work lanes are designated clearly in the spreadsheet; lane reductions are explicitly designated by the hour. If QuickZone 2.0 is used, the number of lanes for each segment in the “Links” menu should be equal to the pre-work number of lanes.
 - If QuickZone 2.0 is used, the reported queue length should be the “After and Baseline” queue length. If work is occurring on a segment which experiences reoccurring daily congestion when work is not taking place, a note should be added to the analysis section to that effect.
 - Tables C-2 and C-3 contain other required model parameters. The parameters in C-2 and C-3 based on parameters found in the Highway Capacity Manual. Tables C-2 and C-3 can be found on the Interstate Highways Congestion Policy Website (www.in.gov/indot/3383.htm).
- ii. **Policy Limits.** The following criteria shall be used to evaluate the viability of continuous or multiple day closures:
- No queues of any length should be permitted to exceed 6 continuous hours duration or 12 total hours in any calendar day.
 - Queues greater than 0.5 miles in length should not be permitted to exceed 4 continuous hours.

- Queues greater than 1.0 mile in length should not be permitted to exceed two continuous hours.
- Queues greater than 1.5 miles in length should not be permitted.

If these criteria are not met, the work shall be considered “Outside of Policy Limits” and the cover letter of the request should indicate that “Queues outside of policy limits are expected as a result of this work” in bold-emphasized text. Queues outside of policy limits should be avoided whenever possible. **If it is not possible to complete the work within policy limits, additional measures should be taken to mitigate the effect on traffic.**

iii. For projects with daily, non-continuous lane closures the following additional guidance should also be followed:

- If queuing can be eliminated by adjusting the hours worked while still completing the project in a reasonable time frame, then the adjustment should be made.
- Whenever possible, the closure should not begin during an hour which will generate a queue.
- If the last hour planned for work is the first one in which queuing will be generated, then the schedule should be adjusted away from closing during that hour if possible.

4. Analysis for Non-Lane Closures: Certain activities other than lane closures may require an exception. The methods for analyzing the impact of these activities on traffic are different than those used for lane closures. Examples of non-lane closure activities that may require exceptions are listed below:

i. Rolling Slowdowns: Rolling slowdowns are discussed in further detail in Appendix D. A Policy Exception is needed if a rolling slowdown will be performed with pilot car speeds less than 20 mph or if a rolling slowdown will be performed when volumes exceed 800 PCEs per hour during any hour of work. An exception will also be required if an alternative to a rolling slowdown is used (e.g. a temporary stoppage). Alternatives to rolling slowdowns are often needed where tight interchange spacing restricts the ability to perform a standard rolling slowdown. If an exception is needed for a rolling slowdown or an alternative to a rolling slowdown, one of the following methods should be used to prepare the request:

1. If an exception is required and the rolling slowdown or alternative to a rolling slowdown can be completed between Saturday night at 9:00 pm and Sunday morning at 11:00 am, an exception request should be prepared and submitted

directly to the appropriate District Deputy Commissioner for approval. In this case, no analysis of the impact on traffic is required.

2. If an exception is required, and the rolling slowdown or alternative to a rolling slowdown cannot be completed during the times shown above, an exception request should be prepared and submitted as described in this appendix. The closure will be modeled on paper or in excel as if traffic were completely stopped for the duration of the rolling slowdown (typically this is 20 minutes), and the impact to traffic should be analyzed as described below:

Step 1: Traffic volumes should be converted to PCEs and adjusted as described earlier in this Appendix.

Step 2: The number of PCEs entering the segment during the hour with the highest volume will be divided by 60 and multiplied by the number of minutes that traffic will be slowed to calculate the approaching volume during that time period.

Step 3: This volume is then divided by the number of open lanes to calculate the volume approaching per lane.

Step 4: Then the volume per lane is multiplied by 27.8 to calculate the length of the theoretical queue in feet. This length should then be converted to miles. This theoretical queue length should be compared to the guidelines used to evaluate the viability of closures that were listed earlier in this Appendix.

In either case, the abbreviated Transportation Management Plan section of the exception request should include detailed instructions on how the rolling slowdown is to be performed. These instructions should be based on Appendix D of this policy.

- ii. Ramp Closures: For certain types of work, a ramp must be completely closed. All ramp closures lasting longer than 10 minutes require an approved exception. For most ramp closures, traffic is detoured to another interchange where it can turn around. The exception request must include an analysis of the expected traffic impacts on every leg of the detour.

To analyze the traffic impacts on every leg of the detour, the initial volume in plus the volume being detoured for each hour will be compared to theoretical maximums. If traffic volumes for any hour exceed these maximums, the exception request should indicate that queuing outside of policy limits is expected. If it is known that two detours will use the same route, combined traffic volumes should be used for analysis. All volumes should be in PCEs. These maximums are listed below:

- Traffic detoured over a standard interstate segment: The initial volume of the segment plus the detoured volume should be compared to the maximum hourly volume handled by that interstate segment in a typical week. If it is higher than the maximum hourly volume handled then it should be compared to the number of open interstate lanes times 2200 PCE/hr/ln. If it is higher still, then the closure is considered out of policy limits.
- Traffic detoured over a loop ramp that ends in a merge: The initial volume of the ramp plus the detoured volume should be compared to the maximum hourly volume handled by that ramp in a typical week. If it is higher than the maximum hourly volume handled then it should be compared to the number of ramp lanes times 1800 PCE/hr/ln. If it is higher still, then the closure is considered out of policy limits.
- Traffic detoured over a non-loop ramp that ends in a merge: The initial volume of the ramp plus the detoured volume should be compared to the maximum hourly volume handled by that ramp in a typical week. If it is higher than the maximum hourly volume handled then it should be compared to the number of ramp lanes times 2200 PCE/hr/ln. If it is higher still, then the closure is considered out of policy limits.
- Traffic detoured over a ramp ending with a signal: The initial volume of the ramp plus the detoured volume should be compared to the maximum hourly volume handled by that ramp in a typical week. If it is higher than the maximum hourly volume handled then it should be compared to the capacity shown in table C-4. If it is higher still, then the closure is considered out of policy limits unless a detailed signal analysis is performed proving otherwise. Table C-4 can be found on the Interstate Highways Congestion Policy Website (www.in.gov/indot/3383.htm).

For this type of detour, see the suggested verbiage shown in III. D. 3. of this appendix to be included in the Abbreviated Transportation Management Plan portion of the exception request.

For contracted work, the PE/S will be responsible for contacting the Traffic Control Systems Section. For non-contracted work, the Unit Forman will be responsible for contacting the Traffic Control Systems Section. Additionally, the Traffic Control Systems Section Supervisor must be included on the distribution list for all exceptions with detour traffic through a signalized intersection.

- Traffic detoured over a ramp ending with a stop controlled intersection or roundabout: The initial volume of the ramp plus the detoured volume should be compared to the maximum hourly volume handled by that ramp in a typical week. If it is higher than the maximum hourly volume handled then it should be compared to the capacity shown in table C-5. If it is higher still, then the closure

is considered out of policy limits unless a detailed intersection analysis is performed proving otherwise. Table C-5 can be found on the Interstate Highways Congestion Policy Website (www.in.gov/indot/3383.htm).

The exception request for ramp closures must also include a detail of the detour route in the supporting information section of the request. If an interstate to interstate ramp is being closed, the abbreviated Transportation Management Plan section of the exception must include verbiage (see III. D. 3. of this appendix) indicating that approval from the Federal Highway Administration (FHWA) must be obtained before work can commence. For contracted work, the PE/S will be responsible for ensuring that approval from FHWA has been received.

- iii. Mainline Shoulder Closures: Other than for INDOT maintenance forces, shoulder closures which occur outside of the preapproved times for shoulders listed in Appendix B require a Policy Exception. The impact of a shoulder closure on mainline traffic should be modeled in the following way.

The analysis used will be similar to that of a normal lane closure, as discussed in this section, except for the capacities of the open lanes. Table C-6 contains open lane capacities for shoulder closures. Table C-6 can be found on the Interstate Highways Congestion Policy Website (www.in.gov/indot/3383.htm).

- iv. Ramp Shoulder Closures: A shoulder closure on a ramp does not require an exception request unless it is a multilane interstate to interstate ramp and it will take place outside of the preapproved times described in Appendix B. However, if the shoulder closure on a ramp causes a queue in excess of one-half (1/2) mile on the interstate, the closure will be removed until the queue dissipates unless a Policy Exception has been approved. For situations where queuing onto the interstate is predicted, an exception should be requested in advance to avoid the possibility of suspending work to allow a queue to dissipate.

If the ramp is a multilane interstate to interstate ramp it will be treated as a mainline segment for the purpose of analysis and will be subject to the same preapproved times for shoulders listed in Appendix B for the interstate segment from which it originates.

- C. Work Hours Selection: The work hours selection section of the body describes the process for picking the hours of work. It details why a shorter or different time period could not be used. This section is typically only one paragraph long.
- D. Abbreviated Transportation Management Plan: Every exception request should include an abbreviated Transportation Management Plan. The abbreviated Transportation Management Plan will overview how traffic flow is to be maintained and will outline any extra queue protection measures that will be used on the project. The Approver may call for additional measures to protect the queue to be added before they sign the request. If

the work is done without following the items described in this section of the exception it will be considered to be in violation of this policy. Possible verbiage to be included in the abbreviated Transportation Management Plan are listed below:

1. All exception requests will include the following mandatory verbiage:

- *“The _____ will notify the TMC at least 3-days ahead of any MOT change so that the appropriate ATIS messages (if available) can be displayed to inform motorists of the upcoming closure and for general information concerning the status of traffic operations on the Interstate Highways. The E-mail addresses for these notifications are: indpc@isp.IN.gov and indytmc@indot.IN.gov. The _____ shall call the TMC (317-899-8690x1) immediately prior to implementing any lane or shoulder restriction as a final notification and to provide project contacts / phone numbers that will be available for the duration of the restriction.”*
- *“All lane or shoulder restrictions will be closed and/or shifted in accordance with the IMUTCD and INDOT Specifications 105, 107 and 801.”*
- *“Unless explicitly stated otherwise in this Approval, Recurring Special Provision 108 C 585, which concerns holiday closures, will be followed.”*

Case specific bullet points for inclusion in the Abbreviated TMP can be found in the IHCP Body templates which are provided on the INDOT Work Zone Safety Website (www.in.gov/indot/2356.htm).

2. If queuing is expected, the following verbiage may be included:

- *“PCMS’s shall be installed in accordance with the INDOT Guidelines for Portable Changeable Message Signs (PCMS). The guidelines can be found at: <http://www.in.gov/dot/div/contracts/design/PCMS.pdf>. Care should be used to monitor the excessive queues and place the PCMS’s in advance of the observed queues to mitigate the risk to all stakeholders.”*
- *“Portable Temporary Rumble Strips should be incorporated into the lane restrictions and placed in advance of the queues in accordance with Recurring Special Provision 801 T 209 and 801-T-209d.”*
- *“In instances where observed queuing is significantly greater than queuing predicted by modeling during the design phase, Portable Temporary Rumble Strips should be considered as a measure to mitigate the risk caused by those lane restrictions. They should be placed in advance of the observed queues in accordance with Recurring Special Provision 801-T-209 and 801-T-209d.”*
- *“‘Watch for Stopped Traffic’ signs shall be placed in advance of the queue.”*

- Where queues are expected, additional advanced work zone warning signage should be specified for placement at the distances noted in the MUTCD ahead of the anticipated queue through appropriate verbiage in this section.

3. Miscellaneous verbiage to be considered:

- For work which will utilize a detour, and where the detour will pass through a signalized intersection, the following will be included:

“The Supervisor of the Traffic Control Systems Section at the TMC shall be notified at least three business days before the detour. The hourly traffic volumes passing through the signalized intersection for the duration of the detour will be reported to the Traffic Control Systems Section.”

For contracted work, the PE/S will be responsible for contacting the Traffic Control Systems Section. For non-contracted work, the Unit Foreman will be responsible for contacting the Traffic Control Systems Section. Additionally, the Traffic Control Systems Section Supervisor must be included on the distribution list for all exceptions with detour traffic through a signalized intersection.

- For instances where an interstate to interstate ramp is being closed or where the full closure of an interstate mainline movement is planned, the following shall be included:

“The Federal Highway Administration (FHWA) must grant approval of this closure before work can commence.”

For contracted work, the PE/S will be responsible for ensuring that approval from FHWA has been received. For non-contracted work, the Unit Foreman will be responsible for ensuring that approval from FHWA has been received. If approval is received prior to the preparation of the exception, the approval should be included with the exception as supporting information.

- Other verbiage should be included as deemed appropriate.

IV. Supporting Information

Most exception requests will need to include supporting information of some kind. This supporting information will be used by the reviewer to check the analysis for errors. Examples of supporting information are included below:

- If traffic counts were used in the analysis they should be included in the submittal. These counts should be included as an Excel file if possible.

- If traffic counts were manipulated via conversion factors, the factors and the calculations should be included as an Excel file or, if hand calculations were used, they should be scanned and provided as a PDF file.
- If the INDOT Queuing Analysis Tool was used, the spreadsheet file (containing the model and results) should be included. If QuickZone 2.0 was used to evaluate the impact on traffic, the input files for the model should be included.
- If a model was used to evaluate the impact on traffic, the outputs, showing the impacts on traffic, should be included with the submittal as a PDF file.
- If MOT plans have been prepared for the project, they should be included with the submittal.
- Documentation supporting FHWA approval, such as emailed correspondence as a PDF file.

SUBMITTING AN EXCEPTION REQUEST

Requests for TMP ITS Infrastructure Maintenance Exceptions and for District Biennial Maintenance Exceptions will be submitted via email to the Supervisor of the Work Zone Safety Section. All other exception requests will be submitted via email to the District Technical Services Director or his/her designee of the District in which the project is located.

The email address for the Supervisor of the Work Zone Safety Section is provided on the Work Zone Safety Website (www.in.gov/indot/2356.htm). Email addresses for District contacts are provided on the INDOT IHCP Website (www.in.gov/indot/3383.htm). If possible, all exception requests should be submitted at least 10 business days before the work is planned.

The email submittal will consist of the following:

- The email should briefly state:
 1. What work is being done.
 2. When the work is being done. If the work is going to take place soon, emphasis should be given to the date and time that work is to take place and the email should be marked with “High Importance.”
 3. Who prepared the exception request and should provide contact information.
- The following attachments should be included:
 1. A single PDF containing the complete Policy Exception request with all four parts: Transmittal Letter (if applicable), Cover Letter, Body of the Policy Exception and Supporting Information.

2. If applicable, the IHCP Exception Request Form should also be included.
 3. The individual documents for all four parts in their source format (DOC, DOCX, XLS, XLSX, etc.). This may include, but is not limited to:
 - a) Word documents for the letters and the body of the Policy Exception.
 - b) Excel documents for Traffic Count Data, any Traffic Count Adjustment computations, Queue Analysis spreadsheets and Detour Route Analysis spreadsheets.
- The Project Manager, Project Engineer/Supervisor, and Unit Foreman should be copied on the email as applicable.

APPENDIX D – ROLLING SLOWDOWNS

A rolling slowdown provides up to 20 minutes to complete activities of a limited duration that require the entire roadway be clear of traffic prior to proceeding. Such activities may include, but are not limited to, placing overhead beams, erecting overhead signs, clearing debris, patching potholes with a bituminous patching material, removing disabled vehicles, and installing power lines. A Policy Exception may be requested to permit an alternate method of providing up to 20 minutes of clear time and will include the following:

- Details of the procedure and method that will be used, and
- A costs-benefits analysis of the requested alternate.

Alternatives to rolling slowdowns are often needed where tight interchange spacing restricts the ability to perform a standard rolling slowdown. Any proposed rolling slowdown (or approved alternate) shall be reported to the following entities at least 24 hours prior to proceeding:

- District Public Information Officer.
- TMC Dispatch Center of jurisdiction.
- Local ISP post.
- Toll Road (if applicable).

ADVANCE WARNING FOR A ROLLING SLOWDOWN

Standard temporary warning signs (black lettering with a retroreflective orange background) will be placed ahead of the beginning of the slowdown with the following messages;

- “ROAD WORK (CONSTRUCTION) AHEAD” (if one is not already in place.) placed 1500 feet ahead of the PILOT CARS AHEAD sign),
- “PILOT CARS AHEAD” placed 1000 feet ahead of the WATCH FOR STOPPED TRAFFIC SIGN),
- “WATCH FOR STOPPED TRAFFIC” placed a distance A+2640 feet (see Table D-1) ahead of the work area,
- “OVERHEAD SIGN INSTALLATION” [XW104-1] may be added below the previous sign (the words “BEAM” or “WIRE” may be used in place of the word “SIGN” if appropriate.)

Table D-1 can be found on the Interstate Highways Congestion Policy Website (www.in.gov/indot/3383.htm).

Portable changeable messages signs (PCMS) should be placed ahead of the upstream (preceding) exit to alert drivers about the slowdown at a point where the decision to detour can be made and

the exit maneuver completed safely. The sign should be activated when the pilot vehicles are ready to enter the road and continue until the traffic speeds are close to normal. A typical message sequence would begin with "ROLLING SLOWDOWN AHEAD" for the first phase and display the times for the rolling slowdowns on the second phase. If the signs are in place more than 24 hours before the start of rolling slowdowns they shall display the date the rolling slowdowns are scheduled to begin in place of the word "AHEAD" on the first phase and the times they will occur in the second phase.

A Pre-Warning Vehicle may be used to further alert drivers to the slowed traffic ahead by positioning it approximately 1/2 mile behind the anticipated queue. A PCMS should be used on this vehicle. This vehicle should be repositioned or another Pre-Warning Vehicle placed further back if the queue reaches the expected length and continues to grow. This vehicle may also be a marked law enforcement vehicle with its lights activated.

Other temporary traffic control devices may be needed due to field conditions such as intersecting interstate highways within the area affected by the rolling slowdown.

PROCEDURE FOR A ROLLING SLOWDOWN

One pilot vehicle per open lane and a single chase vehicle shall be used. If either shoulder is $\geq 8'$ wide, another pilot vehicle (preferably a law enforcement vehicle) should be used on that shoulder. Law Enforcement vehicles used for pilot or pre-warning vehicles should have standard red and blue lights placed as specified by the department supplying the vehicle. Pilot vehicles (except for law enforcement vehicles) shall be equipped with:

- High-intensity rotating, flashing, oscillating, or strobe warning lights with 360° visibility, and
- Mounted on the rear of the pilot vehicle, either;
 - An arrow panel in caution mode and a sign with the legend, "PILOT CAR FOLLOW ME", or
 - A truck mounted changeable message sign with the messages "PILOT VEHICLE" for one phase and "FOLLOW ME" for the other phase.

The slowdown will proceed as follows:

- Starting at a point that will allow them to achieve the posted speed limit by the time they are distance A (see Table D-1) from the work area, the chase vehicle, followed by the pilot vehicles, pulls off the shoulder onto the first lane and accelerates to the posted or operating speed (whichever is lower.) All warning lights should be activated when the vehicles start moving if they are not already activated. Alternatively, the vehicles may enter the roadway from the preceding entrance ramp if they will be able to meet the required speed before they reach the point at distance A from the work area. Table D-1

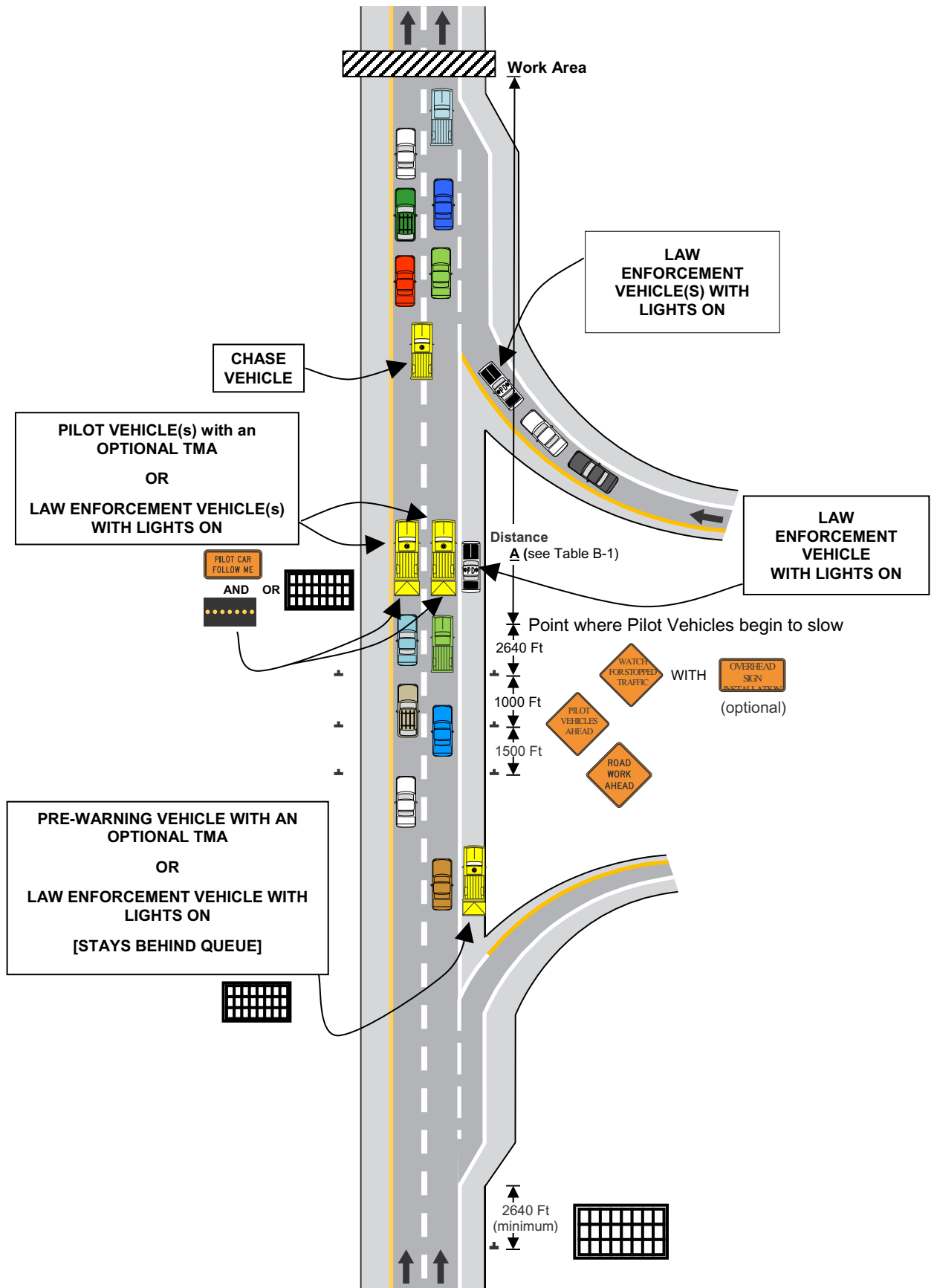
can be found on the Interstate Highways Congestion Policy Website (www.in.gov/indot/3383.htm).

- Once they have reached the posted speed limit and are 1000 feet past the “WATCH FOR STOPPED TRAFFIC” sign, the pilot vehicles shall activate their PCMS (if so equipped), then move into their assigned lane, and then proceed to line up next to each other.
- At a point that is distance A ahead of the work area, the pilot vehicles begin to slowdown gradually, over a distance of up to 1 mile, to the designated speed of 20 MPH (lesser speeds of 10 and 15 MPH may not be used unless a Policy Exception to do so has been approved). The pilot vehicle should not stop unless unforeseeable delays prevent the completion of the work in the planned clear time.
- Any law enforcement vehicles used in conjunction with the pilot vehicles should remain on the shoulder of the roadway, stay behind the backup, or be used to close the entrance ramps. The law enforcement vehicle’s flashing red and blue lights should be activated for the duration of the queuing (See Figure D-1).
- Entering traffic shall be stopped at every entrance ramp until the pilot vehicles pass the end of the ramp.
- The chase vehicle follows the last free moving vehicles and work may begin once the chase vehicle passes the work site. If the free moving traffic in front of the chase vehicle is travelling less than the posted speed limit, then the operation should be suspended and reset after the reason for the slowed traffic has been resolved, or the Pilot Vehicles may reduce their speed slightly to permit the desired clear time.

If more than one rolling slowdown is required the next slowdown shall not begin until all of the traffic slowed down in the prior rolling slowdown has passed the beginning of the slowdown or twenty minutes, whichever is longer. All vehicles must be in their designated starting position prior to beginning the next slowdown.

Good communication is essential among all traffic control vehicles, flaggers, the chase vehicle and the job site. A competent person at the job site should be assigned to keep in contact with the TMC, law enforcement, the chase vehicle, pilot vehicles, and the work crew for adjustments. The foreman of the crew performing the rolling slowdown will have a phone number for at least one 24 hour towing company prior to the start of the rolling slowdowns if towing is not included in the TMP for the project.

Figure D-1: Rolling Slowdowns



APPENDIX E – QUEUE MEASUREMENT AND REPORTING

REQUIREMENTS

Queue length and delay measurements are to be made on interstate projects when lane, shoulder or ramp restrictions will be in place in at least one direction for a total of at least ten days.

For purposes of taking measurements, the ten days of restriction do not need to be consecutive and any portion of a day is counted as a whole day. In order to allow traffic to settle in to a given traffic maintenance pattern, measurements generally should not be taken until three to five days after:

- An initial traffic maintenance setup,
- a change in traffic maintenance phase,
- a shift of traffic maintenance from one highway segment to another,
- a change in traffic maintenance setup in response to excessive queue lengths, or
- a significant change in the traffic maintenance setup.

Likewise, the PE/S generally should not wait more than seven to ten days after any of the above occurrences to take and record queue length and delay measurements.

Measurements are required to be reported at least twice during the highest traffic volume period when restrictions are in place. If a restriction is in place for at least seven consecutive days, at least one measurement should be made during the highest volume period on a weekend day.

REPORTS

A Work Zone Queue and Delay Report form should be completed each time a set of measurements is taken. The original is to be submitted to the District Traffic Engineer, a copy is to be sent to the Work Zone Safety Section and a copy is to be placed in the project file. The form can be found on the Interstate Highways Congestion Policy Website (www.in.gov/indot/3383.htm).

Figure E-1: Queue Measurement Diagram

