

## 2017 INTERSTATE HIGHWAYS CONGESTION POLICY CHANGE LOG (Last Revision January 26, 2017)

The last version of the policy was updated in 2014. This update contains a number of key changes:

- The update reflects the changing role of the Work Zone Safety Section from an emphasis on the Review and Approval process to an emphasis on Quality Assurance. Except for TMD ITS Infrastructure Maintenance Exceptions and District Biennial Maintenance Exceptions, which will continue to be reviewed by the Work Zone Safety Section, review of all other IHCP Exceptions will be handled by the Technical Services Section of each District. Along with this, Policy Exception Approvers have changed as well as discussed in Appendix C.
- This update provides for a simpler process to make minor changes to the policy. Tables and templates have been removed from the policy document into a separate documents so that they could be updated without requiring the entire policy to be updated. The tables and templates will be posted on the IHCP Website with the policy.
- Work zone capacities have been increased by about 10%. This adjustment accounts for the conversion of Highway Capacity Manual capacities which are expressed in VEH/HR/LN to capacities expressed in PCE/HR/LN used in queue analyses.

This update also fixes a small number of errors in the policy and addresses confusion about how to prepare an exception request that remained after the prior update, specifically among consultants. This update focuses on reducing confusion and streamlining the exception process while still maintaining a high level of safety and mobility for the traveling public. Most of the additions were for the sake of improving clarity.

### COVER PAGE

1. A new picture was added to the cover page. The picture is of a work zone on I-65 in Lafayette.

### TABLE OF CONTENTS

Pages i - ii

1. The 2014 version of the policy did not have a table of contents. The policy was difficult to navigate at times. A table of contents was added so that a user could locate the part of the policy they were interested in more quickly. Note how Appendix C now breaks out each aspect of an exception request. This was done so that the policy could serve as a type of instruction manual on how to prepare an exception request.

## BODY OF THE POLICY

## Page 1

1. The policy statement was changed slightly to add more clarity to what activities were covered under the policy. The word restrict was removed and replaced with “reduce the number of lanes and reduce the width of lanes”. The intent of this change was to eliminate any ambiguity with regards to the term “restrict”.
2. An emphasis was placed on safety for both workers and motorists in the purpose section. The argument had been made that the policy did not address the safety of workers. It was made clear in the purpose that this was not the case.
3. There had been some confusion over the policy in the past, particularly over whether work could be done outside of the preapproved times. It was made clear in the purpose section that it is not the intent of the policy to prevent work from taking place. If work cannot be completed within the preapproved times, an exception should be requested. If the work cannot be completed without creating queues outside of policy limits, the end of the queue should be protected in some way.
4. The “Administered By” section was expanded to discuss the transitioning role of the Work Zone Safety Section from an emphasis on the Review and Approval Process of IHCP Exceptions to an emphasis on Quality Assurance.

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5. The definition of a queue was clarified to mean a slow moving line of vehicles. In the previous policy, the queue was defined as a line of vehicles traveling below the posted speed limit. This definition of queue included fast moving platoons of vehicles which was not the intent of the policy.
6. The definition for a ramp was reworded. The previous definition for a ramp was circular and used the word ramp in the definition.
7. The acronym section was removed. Acronyms are now defined throughout the policy. The previous version of the policy defined all the acronyms in the front, but then kept redefining them throughout. To avoid being redundant, the section was removed.
8. An interstate segment was defined. The term “Interstate Segment” is now used in a few locations throughout the policy and the term needed to be consistently defined.
9. Under application of the policy, many of the bullets were reworded slightly. Some of the bullets were combined.

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10. Under application of the policy, number 7 was added. The current version of the policy does not address shoulder closures in any detail. Rules regarding shoulder closures

were added to the policy. Many people preparing exception requests asked whether shoulder closures were covered by the policy or not. Also, closures were sometimes installed in the field during rush hour leading to some problems with traffic. A list of preapproved times for shoulder closures was created so that closures could still take place while avoiding negative impacts on traffic.

11. Under application of the policy, number 9 was added. The previous version of the policy was not clear on when work on ramps needed an exception request. The full closure of a ramp for a prolonged period of time should always have an exception approved. Details were also included in Appendix C on how to analyze the impacts of a full ramp closure on traffic.
12. Under application of the policy, number 11 was added to note the importance of monitoring traffic for the presence of queues during lane restrictions.
13. Under the pre-reporting requirements section, a Traffic Restriction Report will be added to the IHCP website. The IHCP website is a new tool where all information and aids concerning exceptions will be stored.

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14. Minor changes to the policy are now allowed to be made via memo. A full policy update for a small change is not desired.

#### APPENDIX A

Page 5

1. Very little was changed in this appendix. The email that was to be sent to the Traffic Support Section will now go directly to the supervisor of the work zone safety section.

#### APPENDIX B

Page 8

1. The maps were removed from Appendix B. The maps were hard to read and were overruled by the tables anyway. In order to keep things short and simple the maps were removed from the new version.
2. The preapproved tables will only be valid if open lane widths are maintained at 11 feet or wider. A reduction in number of lanes and reduction in lane width will need more analysis before taking place.
3. Mowing operations were exempted from the preapproved times. Mowing is a constant activity that works in almost all interstate segments over the summer. In order to prevent unneeded analysis and work, mowing will not need to follow the preapproved

- times. Mowing operations will still need to avoid working in urban areas from 4:00 pm to 6:00 pm.
4. Emphasis was given to the need to remove lane closures when work is not taking place and it would be safe and prudent to do so. There have been some complaints that closures are left in place for multiple weeks when it would be safe to open the lane to traffic. The practice is not desirable.
  5. It was noted that the preapproved times do not supersede INDOT policies concerning Holidays. This was already the case, but the verbiage was added for clarification.
  6. The definition of Weekday or Nighttime Only was changed so that weekend nighttime closures were allowed from 9p to 6a instead of 10p to 6a. This was done to add consistency. All of the other nighttime closures start at 9:00 pm.

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7. The designation of Minimum 3 Lanes / Direction was removed. This designation was only used at one location and added confusion to the otherwise similar designations. Now the preapproved times are all for single lane closures only.
8. A new section addressing preapproved times for shoulder was added. Each section of interstate now has specific times when a shoulder may be closed or restricted. These times aim to avoid closures during the peak hours while still allowing enough time to complete work.
9. The tables have been pulled out of the Policy document into a separate document with all the tables. The tables for preapproved times have been updated to address changing volumes, changing number of lanes, urban / rural designations and shoulder closures. A large number of items in these tables have changed.

APPENDIX C

Page 10

1. Appendix C was completely rewritten in the IHCP update. Since there was some confusion concerning the exception process, much time was spent on this appendix making sure that it clearly explained how to prepare and submit an exception request. Many exceptions that were requested under IHCP 2014 looked different from each other and there was little consistency. The goal is to have a known format and process for exception preparation.
2. The minimum lane width placed without a policy exception was changed from 10 feet to 11 feet. The reduction in lane width below 11 feet has a significant effect on capacity that should be analyzed prior to work commencing.

3. Full closures of ramps will now need a policy exception. The previous version of the policy was not clear on when work on ramps needed an exception request. The full closure of a ramp for a prolonged period of time should always have an exception approved.
4. Another comment about the interaction between INDOT holiday policies and exceptions was added. Exceptions will not supersede holiday policies unless they explicitly say they do on the cover page.
5. The person who is responsible for preparing an exception was clarified. The person who proposes the work (usually the designer of record) will be responsible for preparing any exceptions. This is not a change, only a clarification.

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6. An exception request work flow chart was added to the IHCP website to shed some more light on the exception process.
7. Policy Exception Approvers have been revised and reflect the increased role of the Districts in the review process.

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8. For most projects, certain activities which would require an exception were overlooked when the initial request was submitted. A reminder to submit a request for all activities was added. Historically, towards the end of each year, the section receives numerous last minute requests to perform activities that have been known about since the start of the project. These activities should have been considered from the beginning.
9. An exception will now need 10 days advance notice to be processed. This has been an unwritten rule in the past to protect the reviewer from requests being submitted at the last minute. The statement in the policy only states that such last minute requests cannot be guaranteed to be approved in time. The statement does not prevent Districts from accepting and processing last minute requests. Last minute exceptions will still be processed, but it cannot be guaranteed that they will be completed in time. Last minute exceptions limit flexibility in work hours and defeat the purpose of the IHCP. The IHCP encourages careful consideration of work hour and strategy selection during project development. Requesting an exception so late in the process prevents any changes from being made to the current work strategy. Additionally, last minute exception requests do not allow advanced warning to be delivered to motorists about the upcoming closure.
10. An exception for contracted work has three options. It may do an analysis, it may use a biennial maintenance exception for maintenance type work, or it may reference a preexisting exception. All three of these options are explained in detail. The ability to

reference an old exception is a new addition to the IHCP process. It was noticed that many exceptions were being written for the same segment during the same year. Sometimes even by the same consultant. The IHCP no longer requires duplicate analysis for the same activity. These old IHCP exceptions may be provided to consultants by project managers upon request. When a previous exception is referenced, the requestor certifies that the analysis was done correctly.

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11. Districts now only need to update the annual maintenance exception every two years (biennially). All existing exceptions will remain in effect until they are updated again.
12. The capacities for the biennial maintenance exceptions have been pulled out of the Policy document into a separate document with all the tables. These values are listed in Table C-1.
13. Most of Appendix C has been broken up in the same way an exception request is broken up; transmittal letter, cover letter, body, and supporting information. Each of these sections overviews what information is required and how to prepare the information. A person preparing a request can simply refer to each subsequent section for guidance as they work through the request. Much of the information in these sections has not changed from 2014. However, the format and the ordering have been drastically changed.

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14. INDOT forces no longer need to include a transmittal letter when they request an exception. The transmittal letter is a place for the person preparing an exception to list their contact information. When an INDOT person prepares an exception request, the reviewer already knows how to contact them.
15. Cover letter templates were removed from the IHCP and were moved to the IHCP website. This will allow the section to update the templates as the need arises without amending the entire IHCP.
16. Requestors are encouraged to make their exception for the duration of the contract if possible to avoid additional exceptions at a later date. Many exceptions that were written in 2014 were too restrictive and additional exceptions were needed when the work was not completed on time. This could be avoided if the initial exception was for a longer period of time.

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17. The cover letter should also list any days when work will not be permitted. An example of a day when work should be suspended is the day of a sporting event. Many people were already doing this, but it was not written anywhere in the IHCP.
18. It was noted that the cover letter should list any holidays where work will be permitted despite existing INDOT policies. This is not a change; it is only to add clarity to the exception process. Holiday work must be approved in advance in accordance with INDOT Standard Specifications.
19. It is stipulated that the biennial maintenance exception counts will only be used for maintenance purposes. Often, these counts are not as accurate as a more recent count from a count station. In many cases these counts could be many years old. The biennial maintenance exception counts will not be allowed for use in preparing exception requests for non-maintenance type activities.

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20. The “Latest INDOT Traffic Adjustment Factors” will be used to grow traffic volumes from the year the counts were done to the latest year the Factors cover. From that year to the year of the closures, a minimum growth rate of 1% yearly is now dictated.
21. Conversion factors for Day of the Week adjustments are now provided on the IHCP website so that unique weekend counts can be created. If counts are available for every day of the week, those should be used instead. The official INDOT conversion factors only provide one flat factor that does not accurately describe the differing weekend traffic patterns. Unique hourly conversion factors are needed to generate accurate weekend counts.

## Page 17

22. QueWZ98 will not be allowed with the approval of the policy. This program is becoming outdated and does not run on most computers. It is being phased out. Other programs allow more flexibility in analysis. The INDOT Queue Analysis Spreadsheet is the preferred queue analysis tool and will be available from the IHCP website.
23. The IHCP now allows one segment to be modeled instead of every segment being modeled when the one segment has a higher volume per lane during every hour. This should reduce the work load for a person preparing a request in certain cases.
24. Urban areas may now increase their capacities by 10%. The HCM shows that traffic in urban areas travels at a higher density which can allow work zones to operate at an increased capacity.

25. Diversion is now prohibited from being used in analysis. Experience has shown that often submitters/preparers will attempt to artificially diminish the predicted queues by reducing the traffic count volumes through diversion. Also, the implementation used in QuickZone and in the spreadsheet tool applies the reduction directly to the traffic volumes across every hour. Many submitted models used a significant amount of diversion in their analysis. In the field, this amount of diversion is rarely realized. Most diversion takes place when the queue reaches the nearest exit. The base/primary queue analysis should be prepared without diversion; however, it may be used to support mitigation strategies. Diversion can still be encouraged in the TMP through secondary/alternative models.
26. Traffic placed on a shoulder rumble strip will now have a reduction in capacity by 15%. It was noted in the field that traffic will travel much slower when it is placed on a shoulder rumble strip. Specifically the left inside shoulder. On the outside right shoulder, traffic can often straddle the rumble strip, but on the inside left shoulder the wheels are placed right on top of the rumble. The analysis will now reflect that reduction in capacity.
27. The maximum allowable Jam Density will now be 190 PCEs/mi/ln. The assumed jam density has a direct impact on queue length. Guidance on Jam density was set in this update to add consistency to exception requests.
28. The inbound direction in the modeling software will now be the positive direction only. Many exceptions came in with the reverse which led to confusion during the review.
29. For analyses using QuickZone 2.0, the reported queue length will now be "After and Baseline" only. The queue length reported in the exception request may be used to place signs or rumble strips. If only the "After" queue is reported, the real end of the queue may not be accurately reported by the exception request.
30. Short term work will no longer affect the analysis. The definition for short term work in the HCM was very vague and could be taken to mean any number of things. To add consistency and clarity, all work will be analyzed as if it were long term with this update.
31. Work zone lane capacity values in Table C-3 were changed to make them more logical. Particularly for a 3-to-1 lane reduction, the capacities should not be the same as a 3-to-2 lane reduction. Similarly, 4-to-2 and 4-to-1 lane reductions were also changed to fall in line with the other capacities. Capacities were also increased by 10% to correct for the fact that the work zone capacities taken from the Highway Capacity Manual are in VEH/HR/LN while our analysis uses PCE/HR/LN. The conversion assumed a conservative 10% trucks, therefore  $PCE = 0.9 \cdot VEH + 2 \cdot (0.1 \cdot VEH) = 1.1 \cdot VEH$ . (We are, however, looking at the capacities that have been used since the 2014 version for total modification as evidence exists that they systemically predict queues greater than

those observed. JDM, 9/2/15) Tables C-2 through C-6 have been pulled out of the Policy document into a separate document with all the tables.

Page 19

32. Some clarification on “out of policy limit queues” was added. Queues outside of policy limits should be avoided if possible. If it is not possible to avoid them, extra measures should be taken to address the end of queue situation.
33. The Analysis for Non-Lane Closures section was added to describe the recommended procedure for the analysis of some common operations. The previous version of the policy was silent on these topics. The methodology for analyzing the impact of rolling slowdowns, ramp closures and shoulder closures is detailed in this section.

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34. The TMP section of an exception request was renamed the Abbreviated TMP. There were many exceptions where the entire TMP was included in the exception. This made the exceptions very long and hard to review. The Abbreviated TMP will only include elements of the TMP that are relevant to the lane closure and queue management. Recommended and required verbiage is included in the Abbreviated TMP section of the IHCP.

Page 25

35. A section with the process for submitting an exception request was added to Appendix C. This will add consistency to the manner in which requests are submitted for review.

## APPENDIX D

Page 27

1. Little changed in Appendix D other than formatting.
2. The first section describes in greater detail when an alternative to a rolling slowdown would be needed.

Page 29

3. Table D-1 has been pulled from the Policy document into a separate document with the Tables. The forms formatting was updated.

APPENDIX E

Page 31

1. Little changed in Appendix E other than formatting.

Page 32

2. The Work Zone Queue & Delay Report Form was pulled out of the Policy document and is be a separate document that can be downloaded from the IHCP Website.