INDIANA DEPARTMENT OF TRANSPORTATION

INTER-DEPARTMENT COMMUNICATION

Standards Section – Room N642

Writer's Direct Line
232-6775

July 2, 2003

DESIGN MEMORANDUM No. 03-08
POLICY CHANGE

TO: **All Design, Operations, District Personnel, and Consultants**

FROM: ***/s/ Anthony L. Uremovich***
Anthony L. Uremovich
Acting Design Policy Engineer
Contracts and Construction Division

SUBJECT: **Interstate Highways Lane-Closure Policy**

EFFECTIVE: **January 21, 2004, Letting**

The Department's Interstate Task Force has developed a Lane Closure Policy for Indiana's Interstate Highways which has been approved by the Chief Engineer and the Deputy Commissioner of Highway Operations. The Policy is attached hereto. The designer should determine lane closures for projects on Interstate highways in accordance with the Policy.

Attachments
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INDIANA
DEPARTMENT OF TRANSPORTATION

INTERSTATE HIGHWAYS
LANE CLOSURE POLICY

I. POLICY STATEMENT:

The Indiana Department of Transportation is committed to the continuous movement of traffic through all work zones by the elimination or reduction of delays. It is our goal to minimize the impacts on the traveling public resulting from the implementation of the work zone. Therefore, Districts and Central Office Divisions shall analyze the projected effect of construction of projects on traffic flow and take the steps necessary to prevent traffic delays to the extent possible.

Compliance with this policy will benefit the traveling public, the construction industry and the business community by reducing work zone crashes and travel time. Because of its impact on project development, the determination and analysis of options for maintenance of traffic must occur at the beginning of the planning process as described herein.

In order to satisfy customer demands to eliminate or reduce delays, the Indiana Department of Transportation will be required to accept some increases in project costs. The cost increases in order to comply with the policy may include permanent lane additions and/or bridge widening or the use of accelerated construction methods and materials. The cost increases associated with this policy and the corresponding impacts to District programs and goals will be evaluated on a project by project basis. The corresponding benefit will be the elimination or reduction of delays and road user costs.

This policy outlines the procedures to be followed and the parties responsible for its fulfillment. The Indiana Department of Transportation can waive mandatory conditions contained in the policy upon approval by the Chief Engineer or Deputy Commissioner of Highway Operations based on sound engineering judgment.

II. SCOPE:

This policy applies to all individuals, except for INDOT District Operations, Traffic and Subdistrict personnel, involved in planning, designing and performing work on Indiana's Interstate highways.

III. BACKGROUND AND PURPOSE:

Construction and maintenance work continues to be a source of congestion on Indiana's Interstate highways. It is essential that all reasonable countermeasures to eliminate or reduce traffic delays in freeway work zones have been considered prior to implementation of the work zone.

The intent of this policy is to consolidate past work zone practices with new requirements to eliminate or reduce traffic delay caused by work zones. Guidelines will be established for developing and implementing a Traffic Management Plan for work zones. These plans will enhance our accountability and ensure that all options have been considered. Central to these plans is managing the capacity to maintain traffic flow. Ultimately this will enhance customer satisfaction while traveling through work zones.

IV. POLICY COMPLIANCE PROCESS:

A. GENERAL:

The attached maps define the allowable times a lane(s) may be closed on Indiana's Interstate System. This Policy is based on the threshold of lane restrictions which may generate up to a 1.0 mile queue or 10 minute road user delay and applies to all contracted expansion, preventive and planned maintenance activities, except for work activities denoted in INDOT's Work Management System as Performance Standards, performed by INDOT personnel.

At the times when an Interstate Highway is designated as an alternate / detour route for another Interstate Route (i.e. I-465 for Hyperfix6570 in 2003), then the allowable times for lane closures does not apply. Only work designated as "Emergency" can be performed during this time.

1. Map:

   For illustration of this policy, the two attached maps have been created. The first map (Sheet 1) illustrates when and at what times restrictions can be present along the rural portions of Indiana's Interstate System. The second map (Sheet 2) illustrates allowed lane closures for the Interstate Systems in four urbanized areas (Calumet Area, Fort Wayne, Indianapolis and Falls City Area).

2. Time Descriptions:

   a. Anytime: Unlimited lane closures.

   b. Weekend or Night-time Only: Unlimited lane closures between Friday 9:00 p.m. through Monday 6:00 a.m. and weekdays 9:00 p.m. to 6:00 a.m. Along routes with significant commuter traffic.

c. Weekday or Night-time Only: Unlimited lane closures except from Friday 6:00 a.m. to Sunday 9:00 p.m. Pertains to routes which experience significant increases in traffic during the weekends.

d. Night-time: Any day 9:00 p.m. to 6:00 a.m. Generally along routes with heavy traffic where queues > 1.0 mile can be expected during the daylight hours.

e. Executive Approval: Only along the heaviest (Average Annual Daily Traffic (AADT) > 50,000 vehicles/day) traveled rural four lane routes. Except for conditions designated as an "Emergency", an approved request by the Chief Engineer (Design Division developed projects) or Deputy Chief of Highway Operations (District developed projects) is required before any lane closure takes place.

f. Minimum 2 Lanes / Direction: Generally along six lane urban interstate with AADT < 100,000 vehicles / day. A minimum of two lanes per direction shall be open at all times.

g. Minimum 3 lanes / Direction: Along urban routes with eight lanes or greater. A minimum of three lanes per direction shall be open at all times.

B. NON-MAP COMPLIANT:

1. Procedure:
If an operation is to restrict or extend lane closures outside of the listed allowable times illustrated on the map, the designer/planner shall complete a quantitative analysis and a traffic management plan with the request for an exception. For all repairs deemed emergency, see Section "Emergency Repairs".

a. The Central Office Engineering Assessment Section, Design Division or District Development shall analyze the impact on the motoring public of any proposed lane closure not permitted by the map.

b. For contract work, the analysis shall occur during the planning process after the pavement recommendation has been formulated and/or bridge work has been determined. In all cases, analysis for contract projects shall occur before scoping of the final design begins.

c. For Design-Build projects the Traffic Management Plan will be completed, approved and reflected in the scope of services.

d. Analysis of permit or force account work zone impacts shall occur prior to the implementation of any lane restrictions.

2. Analysis:

   A quantitative analysis shall be performed to determine queues that will be generated any time a lane closure is proposed outside of the listed allowable times illustrated on the map.

   a. Projected queue less than thresholds:

      The final development process may commence. Documentation of the analysis must be retained on file. Any work zone strategy chosen that will result in impacts less than the allowable delay thresholds but increases the project cost by 20% or $1,000,000 shall be submitted to the Chief Engineer for approval.

   b. Projected queue exceeds thresholds:

      An exception request shall be submitted to the Chief Engineer or Deputy Commissioner of Highway Operations. The exception request will identify the alternative selected as the preferred option and the reasoning for the selection. The exception request will also address the impact on the current INSTIP program if the request is denied.

3. Traffic Management Plan (TMP):

   The TMP will be completed for the strategy selected and shall incorporate the following additional elements as applicable:

   a. Consideration of stakeholders' needs during the decision-making process

   b. Incident management strategies

   c. Public relations campaign

   d. Identification of alternate routes

C. EMERGENCY REPAIRS:

All repairs deemed an emergency which occur outside of the listed allowable times require no prior approval before a lane closure action is taken. Such repairs include, but are not limited to, pavement or bridge deck failures, bridge structure impact damage, roadside appurtenances and slope stability. Notification of the closure shall satisfy current departmental procedures.

D. ROUTINE DISTRICT MAINTENANCE:

Some non-contractual routine maintenance activities, such as crack sealing, pavement markings, rpm restoration, etc. are performed on a recurring basis by the District Maintenance forces. These activities are exempt from this policy and are addressed under a separate District Maintenance Interstate Lane Closure Policy developed by the Districts and Operation Support Division.

E. PROJECTS IN CONSTRUCTION:

Implementation of the TMP on all construction contracts will include the following functions:

1. Work zone setup shall be verified by the Engineer for conformance with the approved TMP as well as INDOT standards, INDOT Design Manual and the Manual of Uniform Traffic Control Devices.

2. Work zone queues shall be monitored by the Worksite Traffic Supervisor (Indiana Standard Specifications Sec. 801.03) for the specified contract and compared against the expected queues generated by the computer model. Unless the new work zone or construction phase causes extremely long queues, the queue measurements should be made about one week after a project or phase change begins in order to allow drivers to become accustomed to navigating the new conditions. Copies of all monitoring results shall be submitted to the District Construction Engineer, Contracts and Construction Division Field Engineer and Design Division Specialty Projects Group Manager.

3. If the TMP generates queues measured by the Worksite Traffic Supervisor after one week exceeding the expected queue length, the District Construction Engineer shall be informed of the situation and of proposed corrective action. The cause for the discrepancy between the expected queues generated by the computer model and the actual conditions will be determined by the Contracts and Construction Division.

4. A contractor may submit an alternate TMP for consideration prior to the start of work. Construction changes can not be implemented until the alternate plan is approved by the District Director.

5. A Queue Analysis shall be completed as prescribed below and submitted with the revised TMP to the District Construction Engineer, Contracts and Construction Division Field Engineer and Design Division Specialty Projects Group Manager.

6. Revised Maintenance of Traffic plans will be verified for conformance with the approved TMP by the Engineer.

V. QUEUE ANALYSIS:

The criteria used to determine the impact of proposed work zones shall be queue length. QuickZone, Quewz-92, Synchro/Simtraffic, Corsim or similar programs may be used to model the expected queues that will be generated. Multiple stages of construction shall be analyzed for each of the maintenance of traffic phases. The speed limit used in the computer models should be the posted legal construction zone speed limit. Volume data supplied by INDOT for input into the models should be current (not older than three years), should account for seasonal traffic surges that may occur during construction, and should reflect current regional traffic patterns. Traffic volumes should be expanded to construction year levels through the use of growth factors. In urban areas where congestion occurs under normal unrestricted conditions, the queue length shall be considered.

Use of a microscopic model (Synchro/Simtraffic, Corsim, etc.) is encouraged for modeling of work zone queues. The effect of significant ramp merges on queues should be included in the model.

A vehicle will be considered part of a queue if its average operating speed is approximately 10 mph or less. Discretion is required during both the analysis portion and field evaluation of the implemented work zone in determining what constitutes a queue. In general a condition that causes driver frustration due to stop and go operations should be considered a queue.

The following thresholds shall be used for the evaluation of project queue lengths as determined by the computer model:

1. For queues less than 1.0 mile, the work zone impacts are acceptable.

2. For queues greater than 1.0 mile and less than 1.5 miles, the work zone impacts are acceptable if the queue exceeds 1.0 miles for two hours or less. Where queues are expected, additional advanced work zone warning signing should be specified.

3. For queues longer than 1.0 mile for more than two hours or longer than 1.5 miles for any period of time, the work zone impacts are unacceptable. Alternate strategies shall be considered per the provisions of this policy.

Transmitted, herewith, is the Interstate Lane Closure Policy for the Indiana Department of Transportation. This policy shall be incorporated into the daily operations and maintenance activities and into active projects immediately. All active projects / contracts which have a Ready for Contract (RFC) date on or before the approval date of this policy are exempt.

Approved: ***/s/ Richard K. Smutzer*** ____6-12-03____
Richard K. Smutzer, Date
Chief Engineer

Approved: ***/s/ Timothy J. Jeffers*** ____6-23-03____
Timothy J. Jeffers, Date
Deputy Commissioner of Highway Operations

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(DATE)_____

MEMORANDUM

TO: ***_____
Chief Engineer or
Deputy Commissioner of Highway Operations

THRU: ***_____
Chief, Design Division or District Director

***_____
Design Development Section Manager 0r
District Development Engineer (if applicable)

***_____
Design Review Consultant (if applicable)

FROM: ***_____
Project Manager

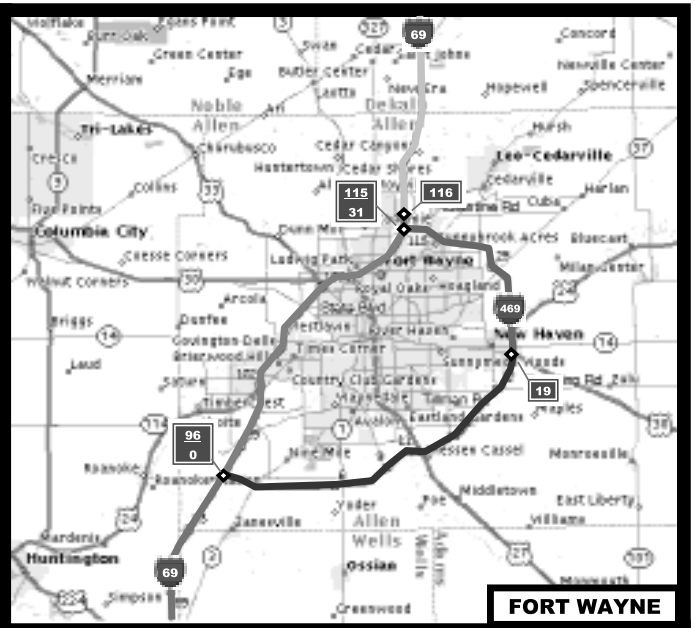
RE: Interstate Lane Closure Exception Request
***
***
Route No.: _____
Structure: _____
PE Project No.: _____
Des. No.: _____

Transmitted, herewith, is an Interstate Lane Closure Exception request for the above referenced project. The documentation has been reviewed for procedure compliance with the approved Policy. Based on the attached analysis and justification, we believe that the exception is justified and recommends approval.

Concur: _____ _____
Chief Engineer or Date
Deputy Commissioner of Highway Operations

cc: CPG Manager/CPG Group/Review Consultant
Specialty Project Group Manager
District Construction Engineer
District Development Engineer
FHWA Field Engineer
File

LAPORTE
FORT WAYNE
SEE SHT 2
FOR DETAIL
LAPORTE
CRAWFORDSVILLE
FORT WAYNE
GREENFIELD
SEE SHT 2
FOR DETAIL
GREENFIELD
SEYMOUR
SEE SHT 2
FOR DETAIL
VINCENNES
SEYMOUR
INTERSTATE
TASK FORCE
INTERSTATE
LANE CLOSURE
POLICY
June 2003
SHEET 1 of 2
N
LEGEND
Anytime
Weekend or
Night-time Only
Weekday or
Night-time Only
Night-time Only
Executive Approval
See Sheet 2 For Detail
XX
Exit Number



LEGEND - URBANIZED AREAS

- Anytime
- Weekend or Night-time Only
- Weekday or Night-time Only
- Night-time Only
- Executive Approval
- Min. 3 Lanes / Direction All Times
- Min. 2 Lanes / Direction All Times
- XX Exit Number

N

INTERSTATE TASK FORCE

INTERSTATE LANE CLOSURE POLICY
JUNE 2003
SHEET 2 of 2