

# Designing Safer Work Zones

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# Designing Safer Work Zones

Work Zone Law Enforcement Officer (LEO)

Barrier Wall

A + B Construction

Lane Closure Policy

# Designing Safer Work Zones

## Work Zone Law Enforcement Officer (LEO)

Develop and INDOT RSP for local law enforcement in work zones

- **A Unique Special Provision (USP) has been developed and was approved by the INDOT Standards Committee Meeting. The USP contains the following:**
  - The LEO shall be in full police uniform and shall be a graduate of the Indiana Law Enforcement Academy.
  - The Contractor and the LEOs shall follow the standards for placement of LEOs in work zones set forth by the Federal Highway Administration and the National Cooperative Highway Research Project .
  - Each LEO shall confirm the completion of the National Highway Institute web based training.
  - At least one representative from the Contractor, who has also completed this training, shall be onsite whenever a LEO is present.
  - LEOs shall also provide a response to any incident or situation that involves public safety near or within the project limits to ensure the safety of the parties involved, and the motoring public.
  - Law enforcement officers will be paid for at the contract unit price per hour, currently set at \$34 per hour.

# Designing Safer Work Zones

## Work Zone Law Enforcement Officer (LEO)

- **Seek to increase funding for work zone patrols in work zones**
  - INDOT, ICI and FHWA have obligated \$1 million/year of federal funds to augment the current State funding to pay for Indiana State Police (ISP) patrols in work zones.
  - These funds will be available starting in Calendar year 2018 and obligated on a two-year basis.
- **Support efforts to adopt automated enforcement in work zones**
  - Camera Enforcement was included in proposed legislation this past session and the current session.

# Designing Safer Work Zones

## Work Zone Law Enforcement Officer (LEO)

- Deploy more “Your Speed Is” buggies
  - A USP was developed and is on the list of approved USPs.
- Initiate Public Education for moving over for amber lights during the Work Zone Awareness Week
  - Move over for Amber lights was included in the 2017 Work Zone Awareness Messaging.



# Designing Safer Work Zones

## Barrier Wall

- Clarify Type 1 Anchor Barrier Wall Specs. Clarify the differences between usage of Type I and Type II barrier walls
  - **Type 1 Temporary Wall**
    - Only concrete wall allowed for two-way traffic separation
    - INDOT is currently reviewing specifications to consider the appropriate applications of steel wall in Type 1 situations
    - Concern exists with steel wall anchoring details and deflections.
  - **Type 2 Temporary Wall**
    - Used to separate traffic from work zone.
    - Walls made from other materials (such as steel) are acceptable as long as they have met the appropriate test level 2 or 3 NCHRP 350 crash test standards or MASH Standards.
    - New products will have to comply with the latest MASH Standards.

# Designing Safer Work Zones

## Barrier Wall

- Clarify Type 1 Anchor Barrier Wall Specs. Clarify the differences between usage of Type I and Type II barrier walls
  - **Type 3 Temporary Wall**
    - Concrete barrier that is left in place upon completion of a contract
    - Limited application for permanent usage.
  - **Type 4 Wall**
    - Otherwise known as moveable wall
    - INDOT currently considering options to incorporate wider use of this type
    - Wall types that meet the appropriate test level 3 NCHRP 350 crash test standards are allowed
    - Strategic sequencing of projects might allow wall to be stored in Indiana on short term basis
    - At present, INDOT has no plans to purchase movable wall

# Designing Safer Work Zones

## Barrier Wall

- Integrate “Positive Protection” philosophy into the design policy and manuals

### Chapter 503 Traffic Maintenance

- The Chapter has been updated.
- Second draft was completed and sent to ICI and ACEC for Review.
- Meeting was held Aug. 14<sup>th</sup>, 2017 where ACEC and ICI discussed comments with INDOT
- Comments were reviewed by INDOT and incorporated as appropriate.
- The Update is ready to send to FHWA.
- Following FHWA review, the Update will then go to the Standards Committee



# Designing Safer Work Zones

Integrate “Positive Protection” philosophy into the design policy and manuals

## □ Chapter 503 Highlights

- **503-2.0 Transportation Management Plan** – The TMP should minimize the exposure to potential hazards for both motorists and highway workers in the work zone vicinity.
- **503-2.05** Since work zone types that completely separate traffic from other work area significantly increases worker safety and it is INDOT’s practice that their use be considered before other types that do not provide separation.....
- **503-2.05(03) Work Zone Phasing and Worker Safety Strategies** this section provides summaries of the strategies that should be considered during the development of the TMP.
  1. Reconstruction by Halves or Sides
  2. Parallel or adjacent Reconstruction
  3. Segmental Reconstruction
  4. Complete Closure
  5. Combinations (Reconstruct shoulders, shift traffic, etc)

# Designing Safer Work Zones

## Barrier Wall

- Hold and Industry/INDOT forum to review methods to build Patch Jobs, bridge Jobs, cable-rail jobs to ensure that the products meet the quality needed and set that time consistent with work zone duration requirements in contracts
  - ICI and INDOT representatives met on February 13, 2017, and proposed:
    - Expanded continuous lane closures in lieu of nightly closures. Consider Interstate Highway Lane Closure policy waivers to allow for continuous lane closures beginning on Sunday at 9:00 p.m. and ending on Friday at 12:00 p.m. This recommendation would decrease maintenance of traffic (MOT) installs/removals from four sets or eight total occurrences when workers are exposed to direct traffic down to two and decrease patching project durations up to 50%.

# Designing Safer Work Zones

## A + B Construction

- **Develop Awareness**

- INDOT met with all of the INDOT Project Managers in January 2018
- Designers
- INDOT meeting with Field Personnel during current construction conferences.

- **Implement Guidelines**

- Design Manual
- GIFE/Memorandums

# Designing Safer Work Zones

A + B Construction/Lane Rental/Road Closure/CRI

- **Think Road Closure first**
  - Include thoughts of A+B, Crossovers, and Lane Rental
- **Think Positive Protection second**
- **Think buffer zone third**
- **User costs don't tell the whole story of closure impacts**
  - What about cost savings and user benefits of early completion?
  - What about Enhanced Worker Safety?
  - What about accurate assessment of changes in driver habits?



# Designing Safer Work Zones

A + B Construction/Lane Rental/Road Closure/CRI

- Although user costs are important, primary use should not be to rule out closure, but to determine the best TMP to use
- Have engagement with the Work Zone Safety Group early in project development to assess ramifications of several Traffic Management Plans
- If motorist safety is a concern with respect to other options, consider:
  - adding police to manage queues
  - adding message boards to recommend alternate routes



# Designing Safer Work Zones

A + B Construction/Lane Rental/Road Closure/CRI

- **Cost Reduction Incentive (CRI)**

- **Section 104.04 allows Contractor to submit an alternate MOT plan**

- has nothing to do with CRI

- shall not increase the cost of maintaining traffic

- **Section 109.04 allows for an approval of a time savings CRI even at the expense of an increased cost to the project**

# Designing Safer Work Zones

## Interstate Highways Congestion Policy (formerly the *Lane Closure Policy*)

- Flag/Line item in project scheduling to trigger designers to review MOT and TMPs to determine if a policy exception is needed
  - This was a long-term item for a possible change to SPMS. The intent was to provide a flag to project management and others early on in the development of project that it may be affected by the IHCP and may require a policy exception.
  - Also, it was felt that TMPs are being underutilized for significant projects and that such a flag would encourage them being developed more. The RSP (discussed in later a slide) addresses catching any needed exceptions at the late end before lettings.

# Designing Safer Work Zones

## 4) Interstate Highways Congestion Policy (IHCP)

- Complete an alternative analysis for MOT with the new policy in mind.
  - This is a long-term item that, along with the intent to push MOT considerations earlier in the life of a project, would require designers to perform alternative analyses.
  - It may be implemented by including this step into the Scoping and Design process. The Work Zone Safety Section biennial process review may explore and delve into this as well.

# Designing Safer Work Zones

## Interstate Highways Congestion Policy (IHCP)

- Confirm that a project MOT is compatible with the new policy or get a policy exception prior to letting.
  - Recurring Special Provision (RSP) 801-T-216 “Lane Closures”
  - Adopted January 19, 2017. Effective for Lettings on or after July 1, 2017.
  - Basis for Use: Required for all contracts on interstate routes.
  - Requires compliance with the IHCP.



# Designing Safer Work Zones

## Interstate Highways Congestion Policy (IHCP)

- Training developed and presented to designers for uniform application of the policy

- The 2017 Interstate Highway Congestion Policy (IHCP) was approved and went into effect March 2017.
- Most of the IHCP Exception Request reviews have shifted to the Districts.
- Training sessions were held for Exception Reviewers, Preparers and Approvers.
- The Work Zone Safety Section will continue to offer the training periodically to internal and external stakeholders.

**INDOT**  
INDIANA DEPARTMENT OF TRANSPORTATION

### INTERSTATE HIGHWAYS CONGESTION POLICY EXCEPTION PREPARER TRAINING

**WHAT?**  
The INDOT Work Zone Safety Section will be holding training for preparing Exceptions to the Interstate Highways Congestion Policy (IHCP). There is no fee to attend this 2-day course.

**WHO?**  
This class is intended for Consultant and INDOT Designers, Construction Personnel, INDOT Maintenance Staff, INDOT Permit Investigators and others that will be responsible for the preparation of IHCP Exception requests. This class can serve as a refresher for anyone responsible for reviewing or approving IHCP Exceptions.

**WHY?**  
Upon completion of the course, participants will have a better understanding of:  
• The 2017 INDOT Interstate Highways Congestion Policy and notable revisions.  
• Resources available from the Work Zone Safety Section web page.  
• Tools to be used in the preparation of an IHCP Exception request.  
• How to access interstate traffic counts and make appropriate adjustments for use in IHCP Exceptions.  
• An overview of the queue analysis methodology used in the preparation of IHCP Exceptions.  
• How to conduct a queue analysis to account for lane closures or other restrictions (i.e. reduced lane width, shoulder closures, etc.).  
• How to determine the burden of traffic on detour routes due to interstate ramp closures.  
• How to summarize the results of the above analyses.  
• How to prepare and submit an IHCP Exception request package.  
• Content and documentation requirements  
• Routing and approval

**REGISTRATION**  
Click this link to sign up at [SignUpGenius.com](http://SignUpGenius.com). The class will include in-class exercises and demonstrations. Laptops are recommended.  
Attendees will earn 10.5 Professional Development Hours.

**YOU MUST REGISTER PRIOR TO ATTENDING.**  
• There is no fee to attend this 2-day course.  
• Attendance is required for both days.  
• INDOT staff will be responsible for their own travel costs.  
• All classes will begin promptly at 8:30 AM and end at 4:00 PM.  
• Breaks will be provided as well as 1 hour for lunch both days.  
• Additional classes may be offered based on the level of response.

**WHERE?**  
Training will be offered at four locations:

**SOUTHERN INDIANA**  
INDOT Bloomington Sub District Office  
2965 N. Prox Road  
Bloomington, IN 47404  
May 8-9, 2017  
Monday & Tuesday  
8:30 AM – 4:00 PM both days  
Maximum 25 participants

**CENTRAL INDIANA**  
INDOT Indianapolis Sub District Office  
7105 E. Brookville Rd  
Indianapolis, IN 46239-1263  
May 11-12, 2017  
Thursday & Friday  
8:30 AM – 4:00 PM both days  
Maximum 35 participants

**CENTRAL INDIANA**  
INDOT Indianapolis Traffic Management Center  
8620 E 21st Street  
Indianapolis, IN 46219  
May 16-17, 2017  
Tuesday & Wednesday  
8:30 AM – 4:00 PM both days  
Maximum 35 participants

**NORTHERN INDIANA**  
INDOT Warsaw Testing Lab  
2790 North Fox Farm Road  
Warsaw, IN 46582  
May 22-23, 2017  
Monday & Tuesday  
8:30 AM – 4:00 PM both days  
Maximum 30 participants

**QUESTIONS?**  
Mischa Kachler  
INDOT Work Zone Safety Section  
[mkachler@indot.in.gov](mailto:mkachler@indot.in.gov)  
(317) 899-8604



# Designing Safer Work Zones

## Interstate Highways Congestion Policy (IHCP)

- Address multi-lane closure approaches within the policy
  - Long term goal: development of a web-based queue analysis tool connected to INDOT's Traffic Count Database System (TCDS).
    - On-the-fly queue analysis based on the latest traffic data.
    - “Pre-Approved” tables in the IHCP would no longer be needed.
  - Initial planning started, but development time unknown.
  - In the interim, the Work Zone Safety Section will look at revising the “Pre-Approved” tables to provide single and dual lane closures in an update by the beginning of the 2018 construction season.

# Designing Safer Work Zones

## Interstate Highways Congestion Policy (IHCP)

- Look for opportunities to create a “buffer” zone by closing an extra lane of traffic.
  - Work zone safety strategy for multi-lane facilities
  - An additional lane is closed to provide a lateral buffer space between traffic and the work space.
  - Compatible with the IHCP and is a valid option to consider when evaluating alternatives.
  - The Work Zone Safety Section stressed looking at alternatives during the recent training sessions held.

# Designing Safer Work Zones

## Next Steps

- (Complete the work that is still in progress)
- (Mainstream this effort to keep the Focus?)

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Thank you!