Traffic Control and Work Zone Mobility

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Work Zone Limitations for Construction Projects on 4–Lane Highways
Length of one lane closures on 4–lane highways

- 2016 There were a number of complaints from the public
- Length of the work zone
- No activity in the work zone
- Speed limit signs not placed exiting the work zone
- Direction was to limit the length of a closure
What is the max length of daily construction area for a CPR project?

A) 3 miles ✗ 3 miles between work zones
B) 5.81 miles ✓ 6 mi work zone less 1,000 ft buffer
C) 6 miles ✗ max work zone length
D) 10 miles ✗ exceeds max work zone length
1,000 feet buffer space after entry taper
When two work zones are used on a CPR project, there is a 3 mile gap between the work zones. Where is the 3 miles measured?

- ✗ A) End taper to begin taper
- ✗ B) End to begin daily construction area
- ✓ C) Reestablished speed limit to reduced speed ahead
- ✗ D) Whatever fits
Gap between closures

- From reestablishing normal speed limit to reduced speed ahead for second closure
CPR

- Use maximum of 6 mile closure
- Two closures allowed
- Use 3 mile gap between closures
- Length of closure includes the daily construction area plus the longitudinal buffer space
- Pay for all necessary devices deployed
If a reestablished speed limit sign is not installed, which of the following is true?

- A) Continue driving the last posted speed
- B) Drive preconstruction posted speed
- C) HP can ticket based on last posted speed
- D) Possibility of speed differential
- E) Gun it when you see Roscoe Pico Train

Be sure to reestablish speed at end of work zone
HMA Overlays

- Maximum Length limited to one day’s production
  - Length paved in one day or
  - Length paved in one day plus the length milled in one day
- Base length on production rate for one day, not entire length of project for long projects
- Remove closures if no work for more than 3 consecutive days
- Pay for all necessary devices deployed
Microsurfacing and Slurry Seal

- Maximum Length limited to one day’s production
- Base length on production rate for one day, not entire length of project for long projects
- Remove closures if no work for more than 3 consecutive days
- Pay for all necessary devices deployed
Chip Seal

- Maximum Length limited to one day’s production
- Base length on production rate for one day, not entire length of project for long projects
- Chip seal so lanes are even at end of the day
- Remove closures at end of day
- Pay for all necessary devices deployed
3 Topics to Discuss

- Work Zone Safety and Mobility Process Review
- Portable Rumble Strips in Work Zones
- Speed in Work Zones on Standard Drawings
23 CFR 630 Subpart J requires each state to have a Work Zone Safety and Mobility (WZSM) policy

- NDDOT WZSM policy in February 2007
- Process review every 2 years
  - Method to assess effectiveness of work zone safety and mobility procedures
  - Lead to improvements in work zone safety and mobility
Who is the WZSM Process Review Team?

- David Ferrell – FHWA
- Kevin Gorder – Fargo District
- Craig Faul – Maintenance Division
- Seng Marohl – Local Government Division
- Phil Murdooff – Construction Services Division
- Donovan Slag – Programming Division
- Doug Schumaker – Design Division
January 2017 Last Process Review

- Evaluated Contractor compliance with respect to work zone traffic control specifications for watchperson reports
  - 149 projects in 2016
  - Random sample of 20% of the projects (31 projects)
  - Watchperson reports from 20\textsuperscript{th}, 40\textsuperscript{th}, 60\textsuperscript{th} and 80\textsuperscript{th} percentile interval of the project duration
  - In addition, any watchperson reports from any day a project had a crash reported (15 projects reported a crash)
Observations

- Watchperson reports were available on most projects
- Traffic Control Watchperson Report SFN 14634 or Contractor provided form were used
- Older versions of SFN 14634 were used
- Some projects had 2 reports per work day instead of 3 per day as per NDDOT specifications
  - Changed in 2014 specifications
- No reports stated cause of crash from construction vehicles or traffic control devices
Recommendations

- Provide 3 inspections per work day
- Revise watchperson form (SFN 14364)
- Educate and make personnel aware of process review
- Create process for Project Engineers to track watchperson report submittals
- Gather data for future process reviews
Thoughts to take with you

- WZSM Process Reviews are conducted to make the work zone a safer work place.
- Watchperson reports are useful information
- 3 watchperson reports per day when work is performed, 2 per day when no work is performed
- Use most current version of the Traffic Control Watchperson Report
Looking Ahead to Future Projects

- Watchperson Report SFN 14634
  - Current version (June 2016)
TRAFFIC CONTROL WATCHPERSON REPORT
North Dakota Department of Transportation, Construction Services
SFN 14634 (6-2015)

The undersigned certify that on the date and hours indicated, a project patrol was made according to standard specification 704.04 C.2 with the following noted findings and corrective action taken.

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Looking Ahead to Future Projects

- Watchperson Report SFN 14634
  - Current Version (June 2016)
  - Possible revision soon

- Future Process Review
  - User delays in work area
  - Flagging station delays
  - Survey will be sent out to Project Engineers
Portable Rumble Strips

- Topic brought up at 2016 Construction and Material Coordinator Conference

- 2017 Construction Trial
  - To see how effective rumble strips got driver’s attention by providing physical and audible warnings to motorist
  - 8 projects (chip seals, overlays, sliver grading, slide)
  - Survey sent to Project Engineers

- January 2018 Decision Document Signed
Decision Document Requirements

- All Construction and Maintenance Work Zones where:
  - Flagger Station is used
  - Paved surface available to place rumble strips
  - Pre-construction posted speeds are greater than 25 MPH
Purpose of Rumble Strips

- Get the attention of the driver to make them aware of the flagger, signs, and workers in the immediate work area.
Portable Rumble Strip Specifications

- Made of rubber or engineered polymer
- No adhesives or fasteners for placement
- Manufacture’s speed rating meets or exceeds posted speed limit
- Each strip weighs a minimum of 100 lbs
  - Single piece
  - Interlocking segments or
  - Two pieces hinged at the middle
What to look for in plans

Currently
- Standard note in Section 6 of the plans
- Details in Section 100 of the Plans

Future
- Spec book
- Standard drawings
Portable Rumble Strips

- Project NH-3-281(131)154
Manufacturers

- TrafFix Devices, Inc. (TrafFix Alert)
  - Does not meet specifications
  - Each strip weighs 72 lbs
    - Consist of 3 pieces interlocked together

- Plastic Safety Systems (RoadQuake 2 or 2F)
  - Meets current specifications
  - Each strip weighs 110 or 115 lbs
    - RoadQuake 2 consist of three interlocking pieces
    - RoadQuake 2F consist of a single piece hinged in the middle
Plastic Safety Systems CRIB
PSS Retrieval System

Retrieval System:
• Reduces workers’ exposure to live traffic.
• Reduces manual exertion, possible injury.

With Retrieval System, removal of Rumble Strips is a 1 person operation.
Moving Operation with One Lane Closure Revision
Recommend using 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.
Why Do We Recommend 40 MPH

- ATSSA created document from FHWA Grant which considers positive protection near high speed traffic
- High speed traffic is generally 45 mph or higher
- Speeds 40 mph or lower considered low speed and positive protection may not be necessary
Why Do the Standard Drawings Have XX in Signs

- During design phase the roadway condition or location may not be known during construction
  - Roadway surface may not be adequate
  - Sight distance may be limited
- Terminology XX provides flexibility for the Project Engineer to determine a safe speed based on existing conditions
What if a Speed Limit is Shown as a Number?

- If some geometric feature has a design speed less than the recommended speed, actual design speed should be specified.
- Some standard drawings may have actual numbers on the speed limit signs.
Summary

- Typically the maximum length of work zone is stated in section 6 of the plans and this length should be followed.

- Work Zone Safety and Mobility Process Reviews

- Portable rumble strips used in work zones and move along with the flagging operation.

- Speed limit in work zones generally recommended at 40 mph near workers unless conditions warrant otherwise.
Questions ??
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