



2017 CAPA Presentation

*Work Zone Safety & New Interstate
Resurfacing Provision*

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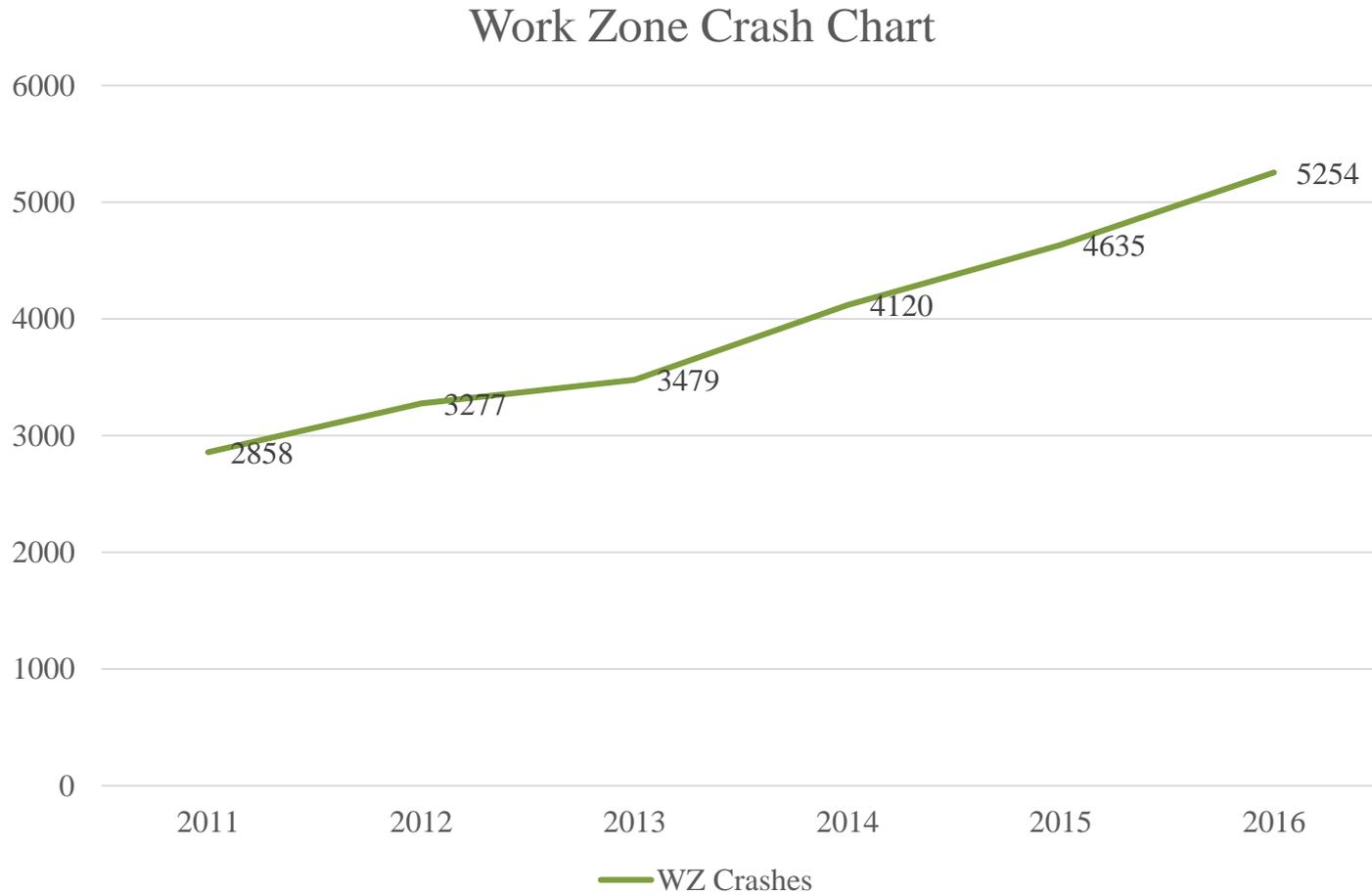


Work Zone Safety Data

- In 2016, Approximately 600 construction projects across NC (not including Maintenance and Utility work zones)
- **26 Fatalities in 2016 (5 Year Average = 20.4)**
- We're projecting that 2016 WZ crashes will be 5,254 based on recent trends)
- 2015 Work Zone Crash Data
 - 4,635 Work Zone Crashes
 - Of those, 2,475 Involved Injuries (over 50%)
 - 19 Work Zone Fatalities
 - Over 80% of the Fatalities are Motorists
 - Most crashes occur on clear, dry days
 - Most crashes occur in Metropolitan areas (66%)
 - Most crashes occur between Noon and 6 PM with the majority occurring between 3 and 4 PM

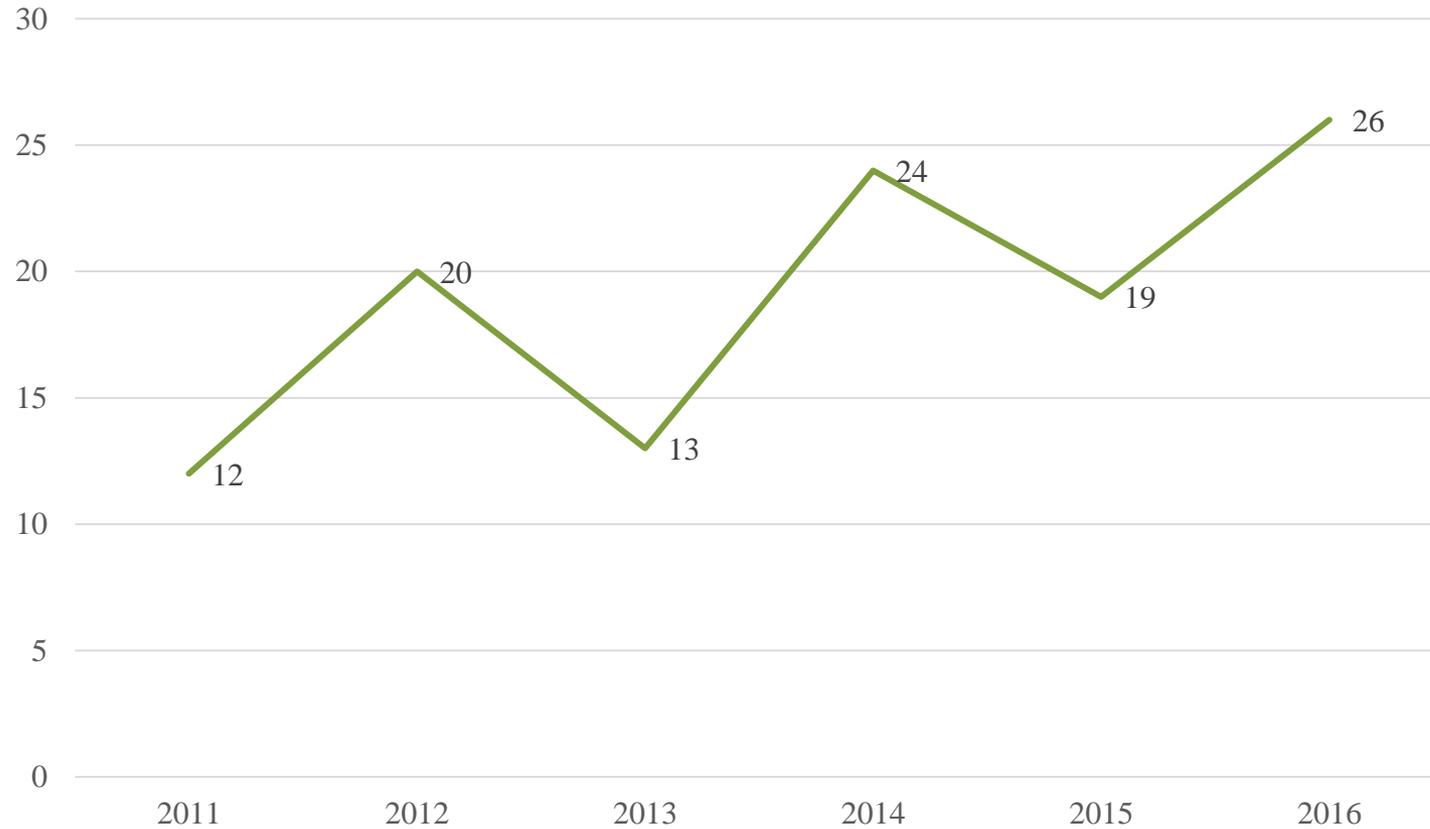


Safety Trends- Work Zone Crashes



Trends- Work Zone Fatalities

Work Zone Fatalities



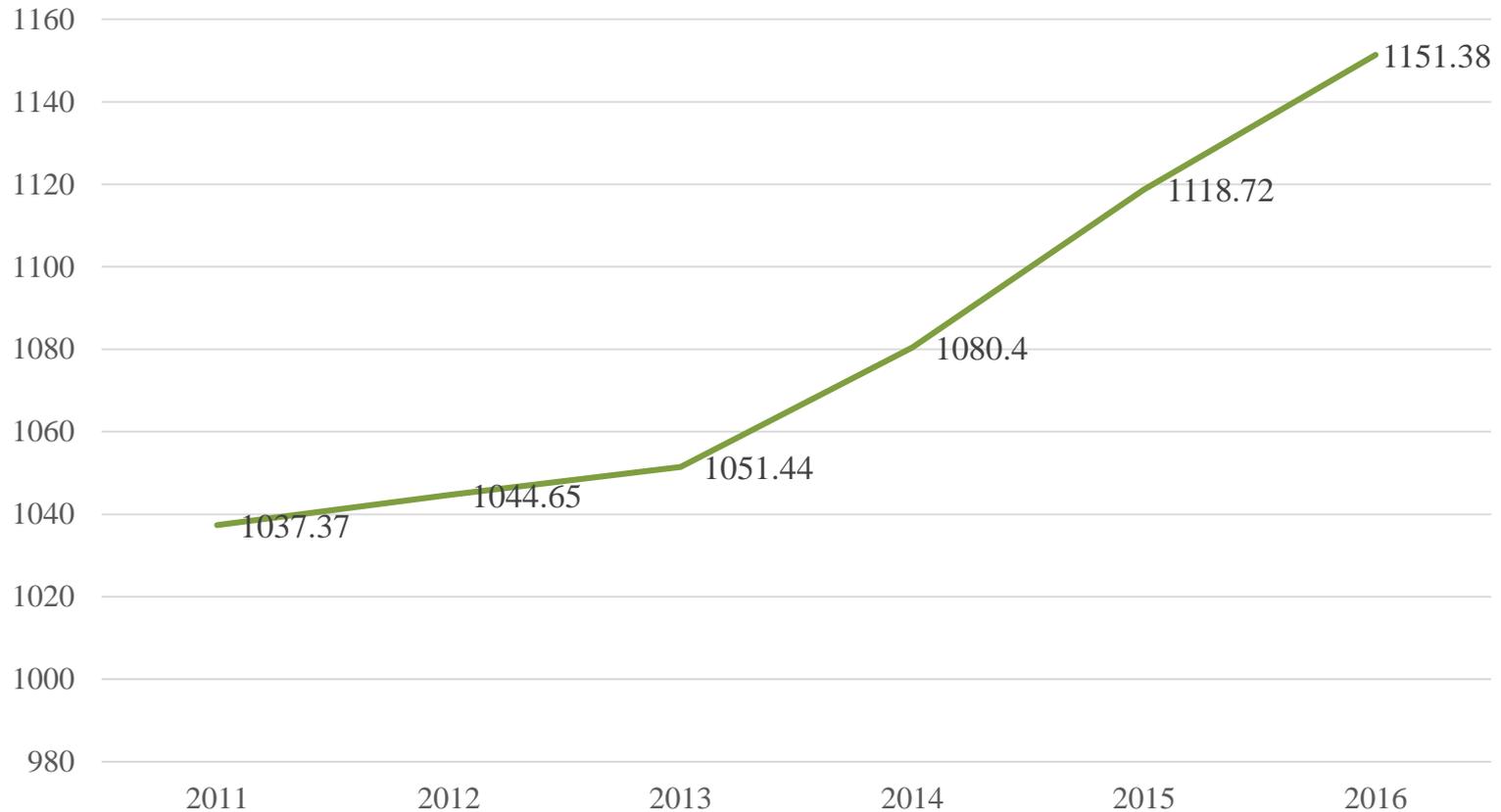
Why are crashes and fatalities trending upward

NC's Average Price of Gasoline



Vehicle Miles Driven

NC's Vehicle Miles Driven (Per 100 Million)



North Carolina's Move Over Law

NC's Move Over Law requires motorists to change lanes or slow down significantly if Law Enforcement and Highway Maintenance/Construction Vehicles are adjacent to traffic AND...have their lights flashing

Hopefully, this law will also help in reducing speeds where equipment and workers are operating



Interstate Resurfacing Provision- “WORK ZONE TRAFFIC CONTROL FOR INTERSTATE/FREEWAY RESURFACING PROJECTS”

Purpose

Provision that specifically addresses the needs and requirements for resurfacing Interstates and Freeways

Provide consistency for traffic control *Requirements* and *Bidding*

Provide Pay Items and Quantities

MAJOR TOPIC AREAS OF INTEREST

1. 5 Mile Lane Closure Length
2. Law Enforcement Pay Item
3. New Devices- “Presence” Lighting, Sequential Flashing Lights, and Digital Speed Limit Signs
4. Work Zone Speed Limit Reductions
5. Pay Items



Interstate Resurfacing- 5 Mile Lane Closure Length

5 Mile Lane Closure Length- Found under the Project Requirements

1B. The maximum “Active Work Area” is a distance of 5 miles. It’s defined as the maximum allowable distance for Resurfacing Operations taking place in a single work period.

Therefore, the maximum length of lane closure is 5 miles.

However, approval by the Engineer is required before closing more than 2 miles of Interstate to ensure the Contractor has the equipment and labor force to actively pursue the work.



Interstate Resurfacing- Law Enforcement Pay Item

Law Enforcement- Found in Traffic Operations Section

4. Law Enforcement

Off Duty Law Enforcement officers will be required as part of the Traffic Control for Interstate resurfacing operations.

There is a pay item for their use on it's based on using 2 officers per direction plus any officers needed at interchanges

The hours of Law Enforcement are calculated as follows:

Mainline =

$(\text{Project Length} / \text{Production Rate of 2.5 miles/lane/night}) \times (\text{Total \# of Lanes}) \times (10 \text{ hours/night} \times 2 \text{ Officers/Night})$

Interchanges = 32 hours per interchange x Total Number of Interchanges



Interstate Resurfacing- Law Enforcement Location

Where is the Proper Location for Law Enforcement during Lane Closures?

- On the Paved Shoulder
- Facing Traffic with Blue Lights Flashing and Headlights OFF
- Between the Middle (Lane Closed Symbol) and Last Sign (RT LANE CLOSED) before entering the lane closure



Interstate Resurfacing- Law Enforcement Facing Traffic

Why Facing Traffic?

- Officer has a Larger Field of View of oncoming traffic
- A Frontal crash allows Engine and Airbags to protect the officer
- A Rear Impact could ignite gas tank



Work Zone Speed Limits

Work Zone Speed Limits and Digital Speed Limit Signs -found in Traffic Operations Section

2. Work Zone Speed Limits and Digital Speed Limit Signs (DSLSS)
 - All Speed Limit reductions have to be ordinances by the State Traffic Engineer (*Send me and the Regional Traffic Engineer an email requesting this and we'll take care of the rest*)
 - NCDOT has sole authority of All Work Zone Speed Limits.
 - The Work Zone Speed Limits will be displayed on Digital Speed Limit Signs.
 - The Work Zone Speed Limits will change from 55 MPH during work activity involving lane closures to the existing speed limit (60/65/70 MPH) when the lane closures are removed.
 - The Contractor, Traffic Control Sub and the Resident Engineer will coordinate and determine who is responsible for changing the Digital Speed Limit Signs.



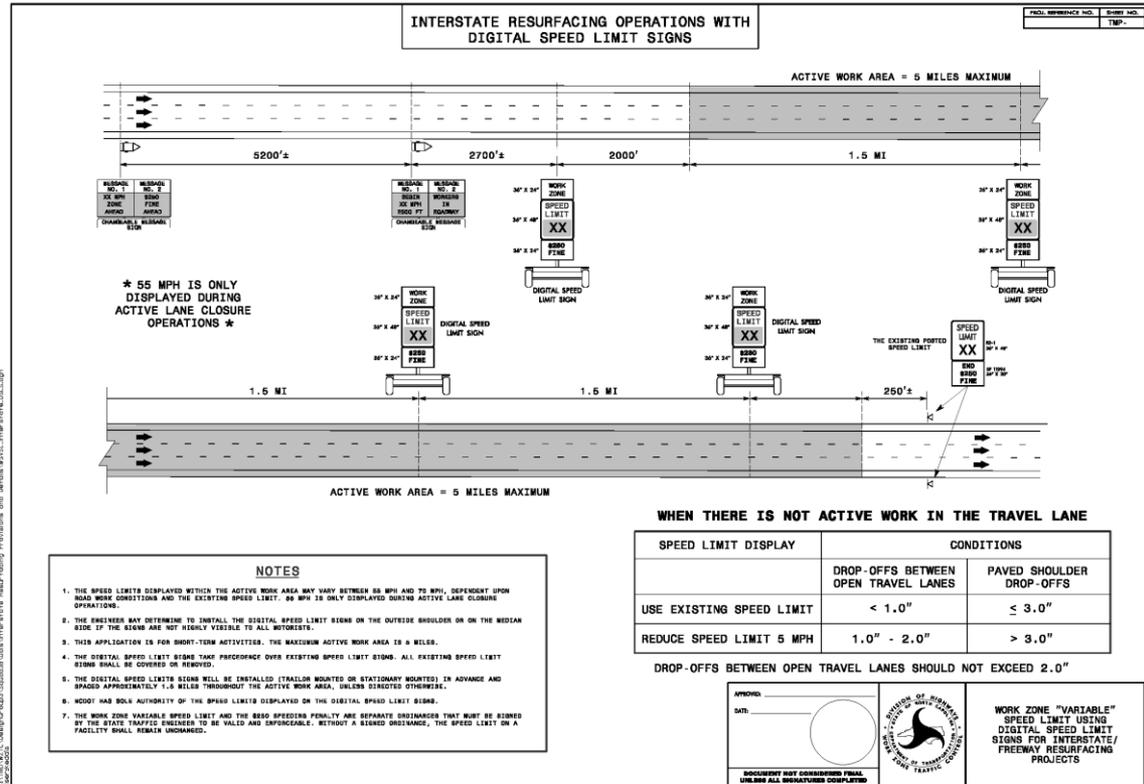
Interstate/Freeway Resurfacing- New Devices

- Digital Speed Limit Signs
- Sequential Flashing Lights
- Work Zone Presence Lighting



Digital Speed Limit Sign- Special Provision and Drawing

- These will be covered in separate Special Provisions with pay items included in the Contract

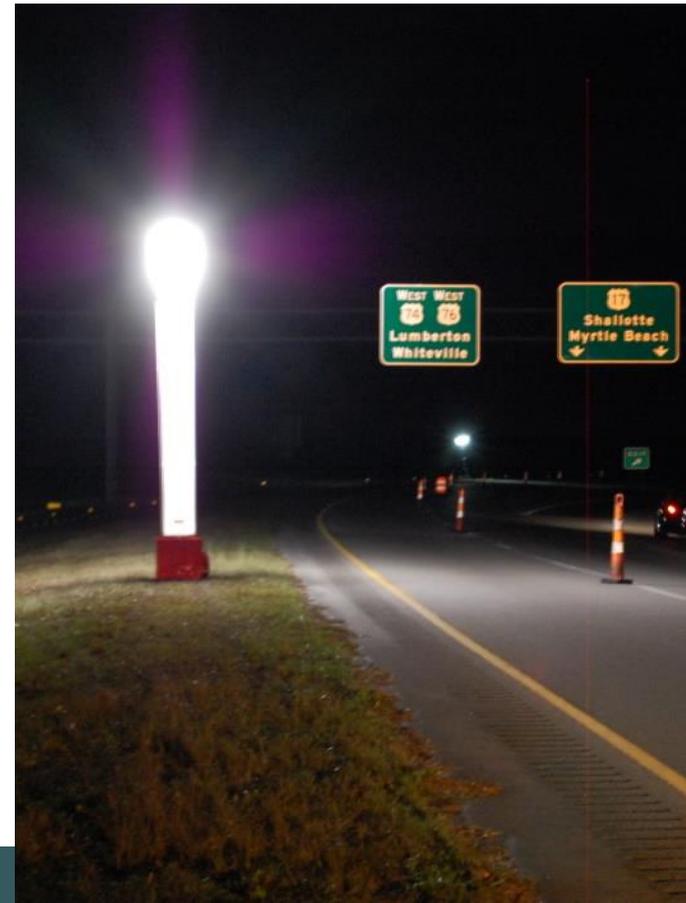


Work Zone Presence Lighting

Work Zone Presence Lighting -found in Traffic Operations Section

3. Work Zone Presence and Sequential Flashing Lighting

- Furnish and install WZ “Presence” Lighting to supplement the Contractor’s portable construction and equipment lighting for the purpose of alerting the motorist of an active work zone and to encourage compliance with the reduced work zone speed limit
- Improve Worker Visibility



Sequential Flashing Lighting

Sequential Flashing Lights -found in Traffic Operations Section

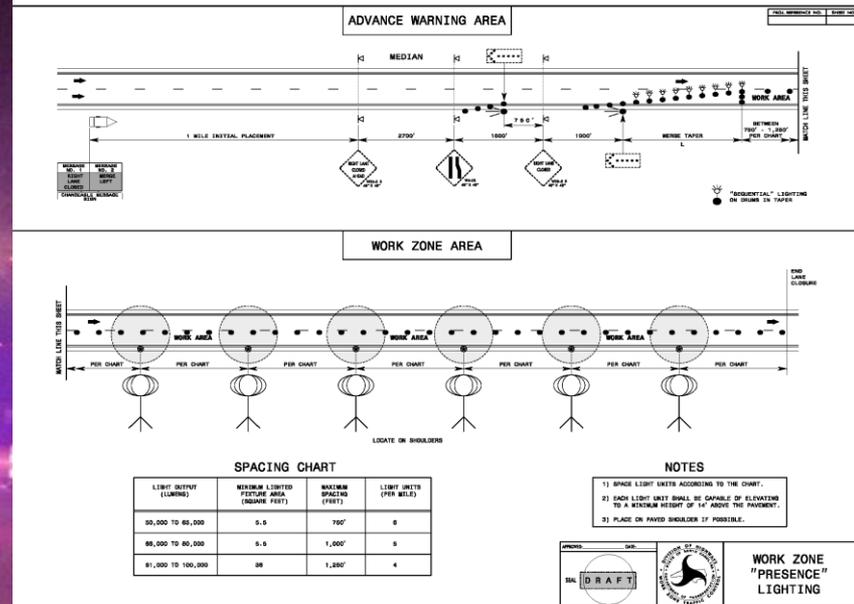
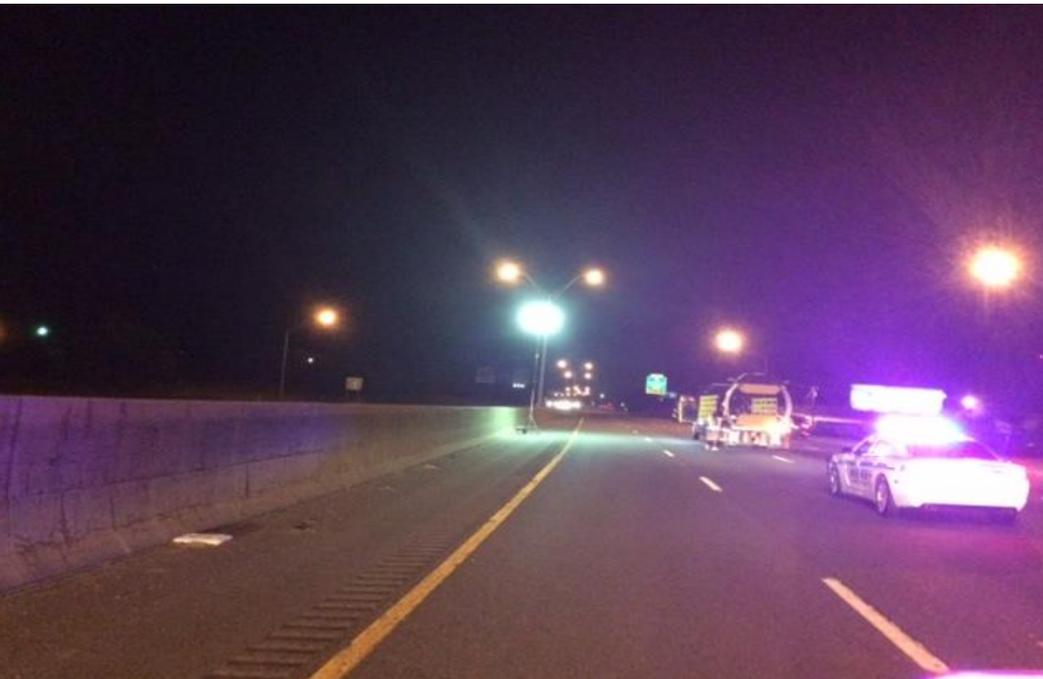
3. Furnish and install Sequential Flashing Lights on drums used for merging tapers to assist motorists in determining which direction to merge and to decrease late lane merging.



Interstate/Freeway Resurfacing- New Devices

Main features of the Provision and Drawings

- Only install in areas of the lane closure where there is no lighting- (ie the “dark” areas)
- Device spacing depends on Lumens and Surface Area of the “balloon” light
- No light meters required
- Sequential Flashing Lights are placed on drums used for merge tapers



3 Separate Pay Items for the Lights and the Digital Speed Limit Signs

1. Work Zone Presence Lighting- Quantity will normally be 15 units
 - Based on using 6 units per mile over 2.5 miles
2. Sequential Flashing Lights- Quantity will normally be 16 units.
 - Based on using 70 MPH taper length with drums spaced at 55' which is the Work Zone Speed Limit.
3. Digital Speed Limit Signs- Quantity will normally be 4 Units.
 - Based on having 1 in advance of taper and one every 1.5 miles of the 5 mile lane closure



Interstate Resurfacing Provision- Pay Items

1. Work Zone Signs (Stationary)
2. Work Zone Signs (Portable)
3. Flashing Arrow Board
4. Portable Changeable Message Signs
5. Portable Changeable Message Signs (Short-term)
6. Drums
7. Paint Pavement Marking-4”
8. Paint Pavement Marking-8”
9. Paint Pavement Marking-24”
10. Paint Pavement Marking Symbols
11. Removal of Pavement Marking Lines-4”
12. Law Enforcement



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RWZ and Suggested Stationary Work Zone Sign Removal Changes

- This has been an on-going issue with Rural Resurfacing Projects not as much with Interstate Resurfacing Projects.
 - We are recommending a revision in the RWZ language to assist in getting these signs removed as quickly as possible
- 1) The Rural Resurfacing Provision (RWZ) would allow for sign removal once Maps are substantially complete.
 - 2) Substantially complete is when paving is completed and shoulders are brought up to proposed pavement elevation AND when temporary pavement markings are installed on both centerline and edgelines. Final Marking (Thermoplastic/Polyurea) can be later installed without Stationary Signs



Stationary Work Zone Signs-AST Treatments

- The drawing has been revised to allow for fewer Stationary Signs and the use of more portable signs since this work moves much quicker than standard resurfacing operations.
- The “Begin Road Work” Signs are Stationary and the “Loose Gravel” and “Unmarked Pavement” signs are portable. The “Low/Soft Shoulder” and “Road Under Construction” signs have been removed.



Questions/Comments?

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