

Think he's close enough to the work area?



Transportation



Flagging Operations w/ "Technology"

Automated Flagger Assistance Devices (AFAD's)

- Removes human flagger from roadway
- Does require human to operate from safe location such as work vehicle





Interstate Resurfacing/Reconstruction - Digital Speed Limit Signs



• NCDOT is utilizing Digital Speed Limit Signs in addition to the Work Zone "Presence" Lights.

• We are reducing the speeds during lane closures and returning at the end of each night's operation to the existing Speed Limit

Transportation

Digital Speed Limit Signs

• The Key to Speed Compliance is to return speeds to existing levels and turn off beacons when lane closures are removed

• A key important feature is these devices allow "segments" of roadway to be reduced while others remain at current speed limits





Interstate/Freeway Resurfacing Projects-Drums w/ "Sequential Lights"

• Recommend use of Drums with "Sequential Flashing Lights" in Tapers for Night Work.



Transportation

"CONNECTED" Flashing Arrow Boards Goals and Objectives

- Identify all "active" lane closures on Interstates and Freeways
- Quickly in "real time as possible" provide the location information to our State Transportation Operations Center (STOC)
- Quickly in "real time as possible send this information about closures to Navigational App Companies/3rd party data and autonomous/connected vehicles







Interstate/Freeway Resurfacing-"Presence Lighting"



- Utilizes

 Utilizes
 "balloon/anti-glare"
 lighting systems that
 supplement
 task/tower
 lighting...<u>not</u>
 replacements
- Installed in advance of the lane closure

"Presence Lighting" - Primarily Used for Interstate/Freeway Resurfacing Projects



- Improves "visual footprint" of the work zone
- Reduces excessive speeding
- Improves Worker Visibility
- Gives drivers the idea of an "active" work zone to generate more "awareness"





Speed Results on Previous Projects

• There is an average speed reduction of approximately 6 MPH with the presence lights



Human Behavior/Distracted Driving-How do we combat this in our work zones?



Drowsy Driving



Distracted Driving- Email/Texting



Distracted-"Multi-tasking"



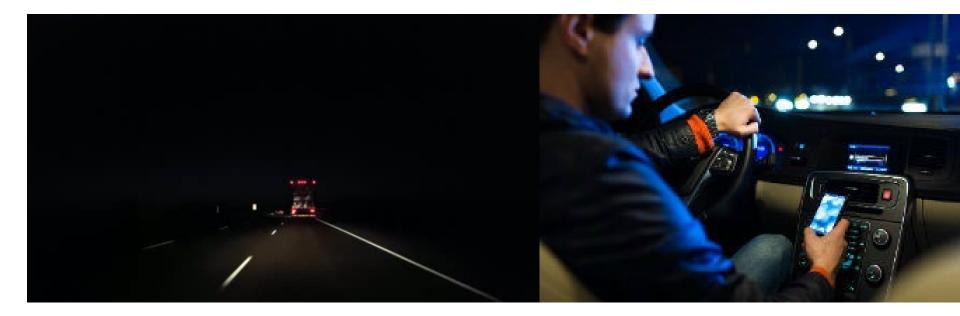
Distracted Driving-"Selfies"

"Night Driving Behaviors"

- Night hours also have a larger number of drivers driving "zoned out" in rural areas
- Larger number of Interstate drivers driving "<u>distracted</u>" by Out of State Drivers

Dark, Rural "DARK" Interstate Travel

Out of State Drivers



Interstate traffic control

The high speed environment of an Interstate or Freeway coupled with <u>mostly night work</u> make this role the most dangerous for the traffic control installer

There are many factors that make night work *more dangerous* for the installer.

- Night hours also have a larger number of drivers driving <u>drowsy</u>
- Larger number of drivers driving "<u>distracted</u>" by electronics





Struggles we see in Traffic Control Operations

Blue lights
 Median signs & equipment
 Access (barrier wall / Guardrail)
 Presence light placement
 Exposure
 Communication
 Labor force