

Work Zone ITS- “North Carolina’s Experience”



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Work Zone ITS

Fundamental question is....what types of traffic related issues will we encounter in the work zone...can Work Zone ITS mitigate them?



Work Zone ITS-Selection Process

- North Carolina currently doesn't have a formal process, but uses a few general guidelines and targets the projects that give us the most trouble
- For the most part, we look at using WZ ITS to perform the following tasks
 - Speed Management
 - Queue Management
 - Crash Mitigation
 - Mobility Performance Measures (Still in Progress!)





Work Zone ITS-Selection Process

- We target the types of projects that give us the most difficulty in maintaining work zone capacity.
- Our biggest challenges are **Interstate Resurfacing/Rehabilitation projects**.

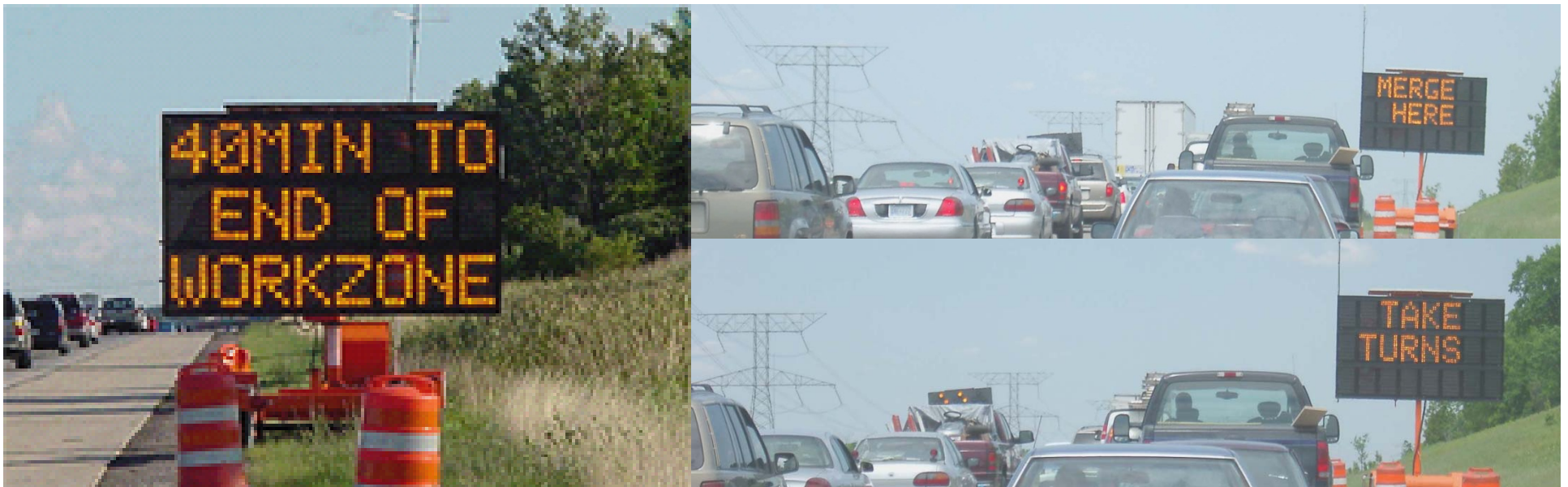
I. WZ ITS Selection- “Speed Management” Systems

- 1) Short-term WZ Speed Limits
- 2) Automated Speed Enforcement
- 3) Excessive Speed Warnings



II. WZ ITS Selection- “Queue Management”

- 1) **Alternate Routing-** Use whenever a reasonable alternate is available, usually in rural to suburban areas
- 2) **Dynamic Early Lane Merge-** Use normally in rural freeway conditions when volumes don't exceed capacity and where lane closures are long-term
- 3) **Dynamic Late Lane Merge-** Use normally in urban settings where volumes exceed capacity, high percentage of commuter traffic and lane closures are long-term



III. WZ ITS Selection- “Crash Management”

- 1) Detour Routing- When a reasonable alternate is available
- 2) EMS/Law Enforcement Coordination



5 Steps to Successful WZ ITS Deployments

- 1) Identify Your Problem (s)
- 2) Determine the Proper Type of WZ ITS Strategy to Solve it
- 3) Use Specifications and Drawings already Established Or Develop Specifications and Drawings
- 4) Use Prequalified Contractors/Firms
- 5) Establish the Contract
 - Pay Item for Prime
 - Separate Vendor Contract



WORKZONE
SPEED
60 MPH

IV. WZ ITS Selection- Work Zone “Performance Metrics”

NC’s Work Zone Performance Criteria on the Statewide Network (Interstates and Freeways))

North Carolina’s performance criteria will be a combination of acceptable queue lengths and queue duration.

A queue is present and defined as the point at which traffic is either stopped or slowed more than 25 mph below the posted speed limit to the point where traffic has resumed an average speed of 45mph or greater.



IV. WZ ITS Selection- Work Zone “Performance Metrics”

The following shall be used to establish the Work Zone Mobility Performance Index on the Statewide tier for interstates and freeways.

Criteria 1. All queues less than .75 miles are acceptable for any duration of time.



NC's Work Zone Performance Criteria on the Statewide Network (Interstates and Freeways)

Criteria 2. Queues reaching .75 miles and extending to maximum length of 2 miles, are considered acceptable for a duration of up to 2 hours for any given day's work operation.

If conditions exist longer than 2 hours, then the work zone impacts are unacceptable. Alternative strategies shall be considered per the provision of this policy.

Criteria 3. Queues that exceeds 2 miles in length for any period of time are unacceptable.



NC's Work Zone Mobility Performance Index

“Exceptional” Performance = Compliance with Performance Criteria 1 and 2 above 90% of the measurable days between the months of April and October and can not violate Criteria 3 on more than 2 occurrences during the measureable days.



Work Zone Performance Measurement

“Acceptable” Performance = Compliance with Performance Criteria 1 and 2 between 70% and 90% of the measurable days between the months of April and October and can not violate Criteria 3 on more than 7 occurrences during the measureable days.

“Unacceptable” Performance = Less than 70% of compliance with Performance Criteria 1 and 2 during the measurable days between the months of April and October or more than 7 violations of Criteria 3 during the measureable days.





Work Zone Performance Measurements

SAMPLING PERCENTAGES

Since it's impractical to sample every project on our state's interstate and freeway network, some reasonable amount of sampling has to be established in order to manage measurement efforts. It's our goal to **measure 20% of the Statewide projects let annually** through the Transportation Improvement Program. These projects will include the pavement preservation/resurfacing program as well as traditional interstate/freeway reconstruction projects. Project selection will be made through a coordinated effort between the FHWA, State Traffic Engineer, State Traffic Management Engineer, the Division and the Construction Unit. **These measurements will be taken annually during peak construction season between the months of April and October until each candidate project is completed.**

Data is to be collected using portable intelligent transportation collection devices that will be either included in the prime contract or let as a separate contract through the State Traffic Management Engineer. These devices will be provided and maintained by an unbiased, non-stakeholder in order to ensure the integrity of the data collection process.

Questions?

For More Information, use the following

- FHWA Website
- Work Zone Clearinghouse
- ATSSA WZ ITS Council

Contact Information

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