

**North Carolina Department of Transportation
Division of Highways
Transportation Mobility and Safety Division**

**Standard Practice
For
Work Zone Speed Limit Guidelines for NC Highway Construction and
Maintenance Activities on High-Speed Facilities**

PURPOSE: This guideline provides guidance and uniformity on the establishment of work zone speed limits for highway work zones.

OBJECTIVE: The objective of this guideline is to identify conditions where it's appropriate to reduce the speed limit on freeways with existing speed limits of 65 MPH and above for work being performed in construction and maintenance work zones.

GUIDELINE: The Work Zone Traffic Control Section in consultation with the Regional Traffic Engineering staff has developed these guidelines to provide guidance and uniformity in the implementation of reducing the speed limit in work zones. The intent is to coordinate and implement "best strategies" to address work zone speed limits for construction and maintenance activities. In accordance with the provisions described in Part 6 of the MUTCD, this guideline has been crafted to ensure thorough engineering study prior to implementation of interim speed limit reductions.

Speed limit reductions are made in the interest of safety for the motoring public due to active project conditions, or they can be made if the reduction is intended for the safety of the construction worker. Before a speed limit reduction is implemented, an analysis is to be made by the engineer to determine if a speed limit reduction strategy is the best solution.

This guideline has been developed to address the need and application for "Work Zone" speed limit reductions, which focus on the 'static' type of construction zones. These projects generally contain restrictive features throughout their entire length, which may require added decision making, increased reaction times, and other driver focused actions where slower speeds can allow for better driver recognition and reaction.

However, this guideline cannot cover every situation that may be encountered in construction and maintenance work zones. There are many factors that can come into play that are not covered in this guideline which may justify the use of a Work Zone speed limit reduction. Therefore exceptions can be made on a case-by-case basis which may justify the use of a "Work Zone" speed limit reduction. Appropriate judgment must be used in applying the guidelines. Exceptions to the required criteria below will be considered on a case-by-case basis. Whenever these arise, the Work Zone Traffic Control Section will coordinate with the Regional Traffic Engineers to evaluate the conditions and associated operations to recommend the most appropriate course of action.

The State Traffic Engineer will have the final decision making authority as to whether the “Work Zone” speed limit is implemented. Below are the definition, criteria and application for work zone speed limits.

A **“Work Zone” Speed Limit** is one that reduces the existing speed limit with standard stationary mounted speed limit signing and enacted ordinances for freeways with speed limits of 65 MPH and above. These speed limits are intended for continuous posting with regulatory signs on projects with long duration work (greater than 30 days).

Also, these speed limits should be used where it is imperative for the motorists to reduce speeds in order to safely navigate through lane restrictions and other potential obstacles encountered in the construction zone. These speed limits should only be posted when and where the roadway construction environment continuously dictates the need for a reduced speed. The factors that led to the need to establish a lower speed limit should also be present 24 hours a day. Only the specific portion of the work zone where conditions warrant or restrictive features are present shall receive consideration for the speed reduction. In addition, only certain phases of construction may warrant this reduction.

After the State Traffic Engineer signs the ordinance, the “Work Zone” speed limit signs can be installed on the project according to the drawings. In addition, if a project warrants a “Work Zone” Speed Limit reduction, it automatically qualifies for the \$250 speeding penalty. This additional speed fine is also to be ordained by the State Traffic Engineer.

After the restrictive feature or features necessitating the “Work Zone” speed limit are mitigated, the State Traffic Engineer is to be notified to rescind the ordinance, the work zone speed limit signs are to be removed, and the existing speed limit restored. In addition, the State Traffic Engineer will also rescind the \$250 speeding penalty ordinance and the \$250 speeding penalty signing will be simultaneously removed.

The Work Zone Speed Limit criteria is defined below. In order for a project to “qualify” for this treatment, it must meet all of the warrants in Section I and at least 1 warrant in Section II. If Section II warrants aren’t met, the project must meet at least 2 warrants in Section III to qualify.

ORDINANCE CRITERIA

SECTION I

The work zone must meet **ALL** of the following warrants to be considered for the **“Work Zone Speed Limit”** Reduction ordinance. If Section I warrants aren’t met, the project doesn’t qualify for a **“Work Zone Speed Limit”** reduction ordinance.

1. Existing Speed Limit is 65 MPH or greater
2. Speed reduction applies to an area 1 mile in length or greater.

3. Work zone is of longer duration (Greater than 30 days) where there are continuous obstacles which may create difficult navigation for the motorists. Some of these include long-term median cross-overs, continuous lane closures, on-site detours, narrowed lanes, non-usable shoulders, sharp roadway curvature, etc.

AND

SECTION II

The work zone shall meet **at least one** of the following warrants to be further considered for the “**Work Zone Speed Limit**” Reduction ordinance:

1. **The work zone is adjacent to other project/s where the “Work Zone” speed limit reduction is ordinated.**
2. Long-term median cross-overs (In continuous use for a period longer than 30 days) where the design speed is lower than the existing posted speed limit
3. Long-term Stationary Lane Closures (In continuous use for a period longer than 30 days) where traffic queuing is expected to be at least ½ mile or more
4. On-site detours (continuously in use longer than 30 days) where the design speed is lower than the existing posted speed limit.
5. The work zone utilizes traffic shifts of more than 6 feet while using a **Minimum** shifting taper and/or the alignment design speed is less than the posted speed limit
6. The work zone eliminates a usable outside shoulder (less than 8’) **AND** either permanent barrier/guardrail/guiderail or temporary barrier/guardrail/guiderail prevents vehicle pull-off into the median for a distance greater than ½ mile.
7. The work zone creates travel lane widths less than 11’ for a distance that exceeds ½ mile.
8. Work zone includes a minimum of one interchange per mile of length.

OR

SECTION III

The work zone shall meet **at least two** of the following warrants in Section III to be further considered for the Work Zone Speed Limit reduction ordinance.

1. Site conditions are such that safe navigation requires consideration of a speed limit reduction, examples may include an old concrete pavement experiencing structural failure with construction joints and pavement marking alignment conflicts. Another may be adverse roadway geometry (below current standards) or sight distance due to grade or alignment changes, tunnels, etc.

2. The accident rate and/or severity crash rate for the facility (prior to construction) is higher than the statewide rates as compared to other similar facilities.
3. The work zone crash rate and/or work zone severity crash rate for the corridor (prior to construction) is higher than the 5 year average as compared to similar facilities.
4. Current Truck Traffic levels greater than 15% of the AADT in the work zone

SECTION IV-IMPLEMENTATION PROCESS

1. Process initiated by contact from the Work Zone Traffic Control Section of the Transportation Mobility and Safety Division to the Regional Traffic Engineer's office requesting an engineering investigation. The initiation may come from the Division office or others.
2. Engineering Investigation will include a review of the existing posted speed limit and the 85th percentile speeds.
3. In addition, the Work Zone Speed Limit Reduction Criteria will be reviewed by the Work Zone Traffic Control Section to determine if the project meets the above criteria.
4. The Work Zone Traffic Control Section and the Regional Traffic Engineer will discuss and collaborate on the results of the review and determine whether to implement the Work Zone Speed Limit Reduction.
5. If it is determined the existing speed limit should be lowered, then the \$250 fine for speeding should also be used.
6. If the ordinances are approved, the Regional Traffic Engineer will notify the Resident Engineer and the Work Zone Traffic Control Section.
7. Also, if implemented, it may only be for a specific segment of the work zone, or it may only be for a specific phase for the work zone.
8. In order for the Work Zone Speed Limit to be a valid and enforceable speed limit, the ordinance has to be approved and signed by the State Traffic Engineer. No work zone speed limit signs are to be installed before the ordinance is in effect.
9. Notify the Regional Traffic Engineer to rescind the ordinance once the Work Zone Speed Limit is no longer warranted.
10. Once the ordinance is rescinded the existing posted speed limit shall be returned.
11. See attached drawings for the correct signs and sign locations for this application.

SECTION V- SIGNING APPLICATION

Whenever a project warrants a “Work Zone” speed limit reduction, the existing speed limit signs are to be removed and the work zone speed limit displayed with appropriate supplemental signing attached, to include the \$250 fine signs. Typical speed limit reductions are 10 MPH below the existing posted speed limit. In 70 MPH speed zones, a maximum 15 MPH speed reduction may be used. It is strongly recommended that no speed limits below 55 MPH be posted on fully controlled access facilities. The Regional Traffic Engineer, after consulting with the Division, will determine the speed limit with the final approval being made by the State Traffic Engineer.

The advance warning for the upcoming “work zone” speed limit will be the speed reduction warning signs W3-5 and W3-5A. The “begin” location for the \$250 fine is the place where the “BEGIN ROAD WORK” sign is located and the associated “BEGIN \$250 FINE” sign is mounted below it. The beginning location for the “work zone” speed limit will typically be at the project limits and most often will be signed as 55 MPH. The “work zone” speed limit signs will have a black on orange “WORK ZONE” panel above the speed limit sign (R2-1) and a black on white “250 FINE” sign mounted below. However, this location does not always have to begin at the project limit. It may initiate inside the project if the conditions warranting the reduction are located well inside the project. Also, the project may warrant the “work zone” speed limit for a certain phase of work instead of the entire project duration. When this occurs, the speed limit shall be returned and the \$250 fine signs removed when the conditions warranting the “work zone” speed limit are mitigated. The termination point for the “Work Zone” speed limit will typically be at the ending project limit and will be indicated with a regulatory, speed limit sign with the in-place speed limit for the roadway ahead. This is to inform the drivers that the “Work Zone” speed limit has ended. However, it’s possible the “work zone” speed limit may end before the end of the project limit. When this occurs, the “in place” speed limit for the roadway ahead shall be displayed at the location where the conditions warranting the “work zone” speed limit are mitigated. The end location for the \$250 fine is the place where the “END ROAD WORK” sign is located and the associated “END \$250 FINE” sign mounted below it. The required signing is shown on a separate drawing.