



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JOSH STEIN
GOVERNOR

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SECRETARY

DATE: December 30, 2025

TO: Team Leads, Project Management Unit
Division Project Development Engineers
State Structures Engineer

FROM: Kenneth C. Thornewell
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SUBJECT: Design Bulletin Guidelines on the Use of Positive Protection Devices in Work Zones

Guidelines on the Use of Positive Protection & Mitigation Measures in Work Zones is available on the Work Zone Traffic Control (WZTC) Standards, Guidelines and Application website at: <https://connect.ncdot.gov/projects/WZTC/Pages/Design-Resources.aspx> and is effective as described in the *Implementation* section of this memorandum. The intent is to use approved positive protection devices or mitigation measures in public works projects on the State Maintained Network to reduce preventable injuries and deaths to workers and the public. Projects, where project development efforts have started and have a letting date on or after January 1, 2027, shall coordinate with the WZTC Section to determine positive protection documentation needs on a project-by-project basis.

BACKGROUND

This bulletin provides guidance to apply positive protection and mitigation measures on all Federal-aid projects on the State Maintained Network as required by the Federal Highway Administration (FHWA) Subpart K of the Title 23 Code of Federal Regulations.

To meet the regulations, the NCDOT “must use positive protection devices in work zones with high anticipated operating speeds that provide workers no means of escape from motorized traffic intruding into the workspace unless an engineering study determines otherwise.”

Positive work zone protection has been defined by the FHWA as “devices that contain or redirect vehicles and met applicable industry crashworthiness evaluation criteria. Industry crashworthiness evaluation criteria are not regulatory, and use of them is voluntary and not required by law.”

RESPONSIBILITY

The project manager is responsible for documenting the selected positive protection, mitigation measures, and exceptions as appropriate, on the *Positive Work Zone Protection Determination* form for each applicable work zone location within the project limits as well as filing the approved copy in the project history file. The Resident Engineer is responsible for documenting revisions, additions, or exceptions for positive protection or mitigation measures that occur during construction on Form *Positive Work Zone Protection Supplement* form.

KEY CONCEPTS

- Positive protection evaluation steps, mitigation measures and considerations of other road users are provided.
- Positive protection engineering analysis and documentation process is included with detailed explanation of each analysis step and corresponding risk factor.
- Reference to the Transportation Management Plans Design Manual website is provided for further information on the positive protection devices and mitigation measures:
<https://connect.ncdot.gov/projects/WZTC/Pages/Manuals-Guidelines.aspx>

IMPLEMENTATION

For any Federal-aid project letting on January 1, 2027 or later, an engineering risk analysis is required when seeking an exception for providing positive protection in work zones with high anticipated operating speeds that provide workers no means of escape from motorized traffic intruding into the workspace. Use of the analysis methodology in the guidelines is encouraged on all NCDOT projects, especially where the need for positive protection is not clear.

Applicable projects are required to include a completed *Positive Work Zone Protection Determination* form. Any modification post-let must be justified and approved on the *Positive Work Zone Protection Supplement* form, and filed in the project file. Both forms are available in the Appendices of the guidelines until the electronic forms are posted on the WZTC webpage.

Please contact Kenneth Thornewell, Work Zone Traffic Control Section at (919) 814-5037 or Zachary Clark, Work Zone Traffic Control Section at (919) 814-4937 for design guidance questions. Project-specific applicability and questions should be referred to the Work Zone Traffic Control Section, Senior Project Design Engineers.

Attachment Guidelines on the Use of Positive Protection Devices & Mitigation Measures

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