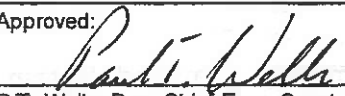
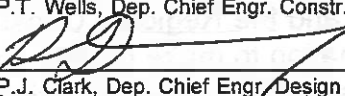
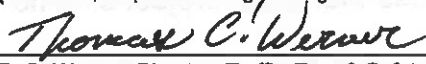


To: SUPERSEDED BY <u>EB 06-004</u> EFFECTIVE 9/7/06		ENGINEERING INSTRUCTION New York State Department of Transportation	95-032 Supersedes: EB 90-22
Title: CONSTRUCTION WORK ZONE SPEED LIMITS - GUIDELINES AND DOCUMENTATION			
Distribution: ☒ Main Office(30) ☐ Local Gov.(31) ☒ Regions(32) ☒ Contractors/AGC(39) ☒ Consultants(34) ☐ _____ ()		Approved:  P.T. Wells, Dep. Chief Engr. Constr. Div. 7/25/95 Date  P.J. Clark, Dep. Chief Engr. Design Div. 7/24/95 Date  T. C. Werner, Director, Traffic Eng. & Safety Div. 7.29.95 Date	

This Engineering Instruction is an update of Engineering Bulletin 90-22. It provides guidelines for designers and construction personnel on establishing work zone speed limits, and is effective on August 2, 1995.

This EI will be incorporated into Chapter 16 of the Highway Design Manual, and into Section 619 of the forthcoming Construction Safety Manual.

Questions regarding this EI should be directed to the Construction Division at (518) 457-6472.

I. INTRODUCTION AND SUMMARY

Traffic speed in highway work zones is an important factor affecting the safety of a construction project, both for the traveling public and for the construction workers and Department personnel. Slowing motorists down as they enter a work zone is very difficult, and a basic design principle is that, to the maximum extent possible, work zone traffic controls should be designed to permit safe traffic flow at speeds as close to the approach speeds as possible.

One of the few effective methods available to control traffic speeds in highway work zones is strict enforcement of posted speed limits by police agencies. To permit enforcement, it is necessary to ensure that speed limits are legally established and posted. The decision to include a reduced speed limit is normally made during design, and included in the traffic control plan. However, at times it may not become apparent until construction is underway that a speed limit reduction is needed.

This Engineering Instruction is intended to provide guidance to designers and construction personnel to establish appropriate work zone speed limits as follows:

1. It reviews the principal sources of information available on the subject.

2. It discusses the Department's philosophy on work zone speed control.
3. It lists the three methods available for establishing speed limits, and the signing requirements for each.
4. It provides suggested guidelines for establishing and documenting work zone speed limits.

The information provided herein is not intended to dictate rigid policy. Instead, designers and the Regional Construction Groups should use these general guidelines and information to make project-specific decisions, because the information needed to address individual project situations is available only on a project-specific basis.

II. METHODS FOR ESTABLISHING WORK ZONE SPEED LIMITS

Several situations may contribute to speed-related problems in the work zone, including the following:

1. Motorists are exceeding the posted speed limit on the work zone approach, and fail to slow sufficiently upon entering the work zone.
2. The posted speed limit on the approach is higher than the normally posted speed limit in the work area, such as the approach to a residential area, and traffic fails to slow sufficiently.
3. Physical and operational restrictions in the work zone require travel speeds slower than those in effect prior to the start of construction.

In the first two situations, the problem is lack of compliance with existing limits. In the third situation, the existing speed limits in the work zone are too high, and may need to be reduced.

Designers and construction personnel must determine which, if any, of these situations applies on a particular project. The Design Approval Document for the project may contain speed studies and/or estimates of the normal operating speed (as determined by the 85th percentile speed) on the approaches and in the work zone. If not, operating speeds must be established based on field observations and with the assistance of Regional Traffic personnel.

It is clearly recognized that slowing motorists down as they enter a work zone is very difficult. One of the few effective methods available is strict enforcement of posted speed limits by police agencies. A joint initiative between this Department and the Division of State Police has engaged a mechanism to ensure that enforcement of work zone speed limits will be treated as a priority by the State Police. There is also a

procedure for arranging dedicated police services on an individual project, although this level of cooperation will only rarely be necessary. Engineering Instruction 93-30 "Dedicated Police Services on Department Construction Projects" provides guidelines on the use of this procedure.

To permit enforcement of speed limits in construction work zones, it is necessary to ensure that speed limits are legally established and posted. Currently, three methods are available to establish reduced speed limits for construction work zones. Those methods, and the posting requirements for each, are presented in the following paragraphs:

1. Normal official filing of speed limit change - by filing the necessary forms with the N.Y.S. Department of State, the speed limit on a section of highway can be changed. Although this procedure is routinely used for other speed limit changes, it is rarely applied to construction work zones because it does not permit flexibility in varying the speed limit to meet changing project conditions, and it remains in effect until rescinded by a subsequent filing. Requirements for posting speed limits established using this procedure are detailed in Part 212 of the New York State Manual of Uniform Traffic Control Devices (NYS MUTCD).
2. Section 104-05 of the Construction Supervision Manual establishes the procedure for designating construction work zones as restricted highways. By filing Form C230 with the N.Y.S. Department of State, the Department is authorized to post whatever traffic regulations are necessary for the completion of the work, including speed limits and other regulations. This permits the Engineer-in-Charge to order the posting of speed limits as necessary to fit changing conditions on the project. Individual filing is not necessary for these changes once the Form C230 is filed. This procedure provides maximum flexibility in establishing traffic regulations for construction work zones, and a Designation of Restricted Highway should routinely be filed for all projects with clearly defined work zones. As stated in Engineering Instruction 85-41 "Restricted Highway Designation", designers should identify in the contract documents only those highways which will not be designated as restricted. Requirements for posting speed limits established under the restricted highway designation are detailed in Part 212 of the NYS MUTCD.
3. Section 1180(f) of the New York State Vehicle and Traffic Law provides the agency having jurisdiction over an affected street or highway with the authority to establish a reduced speed limit in construction or maintenance work areas. For the reduced speed limit to be in effect, workers must be present in the work zone, work must be actively underway, and the work area speed limit must be posted. Work area speed limits established under this procedure can be no lower than 20 mph below the normally posted speed limits, and can in no case be lower than 25 mph.

Specific instructions on how to implement and post speed limits using this procedure are provided in Supplement No. 1 to the Traffic Control Program Directives (A09-245-1), distributed by the Traffic Engineering and Safety Division on September 23, 1993. This procedure is intended primarily for maintenance operations. It is less suitable for construction work zones because it can be enforced only when work is actively underway. It cannot remain in effect after work hours even when a reduced speed limit is warranted by physical site conditions. It is applicable to construction work zones on projects not filed as restricted highways (e.g., guiderail replacement or shoulder chipping operations) where it is desirable to reduce the speed limit during the work day when operations are actually underway.

In addition to the posting requirements specific to each of these methods, Authorization 89-1 of Appendix A-19 of Title 17, NYCRR provides for the use of supplemental Work Zone warning signs on speed limit signs and speed zone ahead signs used for work zone traffic control. Section 619-3.02 of the Standard Specifications requires the use of these supplemental Work Zone warning panels whenever a reduced speed limit for a highway work zone has been legally established by any means.

Existing regulatory or advisory speed limit signs that conflict with a reduced work zone speed limit must be completely covered or removed during periods when the reduced speed limit is in effect.

III. GUIDELINES FOR SELECTING THE APPROPRIATE SPEED LIMIT

The need to establish a reduced speed limit should be considered during design and included in the project traffic control plan, including provision of adequate areas for police officers to stop motorists for enforcement operations. However, at times it may not become apparent until after the work has started that a reduction in speed limit is desirable to enhance safety and permit enforcement of reasonable speed throughout the project. In such cases, Regional Construction personnel are responsible both for selecting an appropriate speed limit and for ensuring there are adequate areas for police enforcement operations. The following general guidelines apply to both the design and construction phases of a project.

Advisory speed signs as described in Section 239.1 of the NYS MUTCD are intended to alert motorists to the recommended maximum speed considered appropriate for a particular location, considering factors such as sight distance, alignment, and physical features not readily apparent to approaching motorists. These advisory signs are typically employed with curve warnings and other warning signs in a work zone. However, they are not enforceable as a speed limit.

Regulatory speed limits, on the other hand, provide a sound enforcement basis for citing those who drive at imprudent speed. The NYS MUTCD recommends establishing

speed limits only where engineering studies indicate they are justified and reasonable. Unrealistic regulations are ineffective and should be avoided. Motorists generally select the speed that they consider appropriate in work zones. Unless they perceive a specific need to slow down, speed signing by itself -- either advisory or regulatory -- has little effect in reducing speeds. Therefore, warning signs, path guidance, and other visual clues needed by motorists to select the appropriate speed are an important part of work zone traffic control.

To the maximum extent possible, work zone traffic controls should be designed to permit safe traffic flow at speeds as close to the approach speeds as practicable. Every effort should be made to provide site conditions consistent with the prevailing operating speeds and driver expectations. Situations requiring reduced speeds should not be deliberately created or built into a project solely for the purpose of reducing the speed of motorists. The need for reduced speed limits in work zones should be based on traffic engineering considerations and actual work zone parameters. As a general rule, reduced speed limits established by any of the three methods described in Section II above should be utilized only when essential to ensure the safety of motorists traveling through the work area and of contractor and Department employees.

In very rare cases, it may be necessary to establish multiple speed zones on an individual project. In these cases, it is essential to ensure that the speed zones reflect consistently different conditions, and that no zone is less than 1/4 mile in length.

Actual project conditions that would justify implementation of a reduced speed limit are highly variable, and specific criteria defining when a reduced speed limit should be imposed cannot be listed comprehensively. However, it is possible to describe a number of conditions which, depending on traffic volumes and other actual project conditions, may indicate the need for a reduced speed limit. These conditions include the following:

1. Workers or equipment in open travel lanes; or in closed lanes, shoulders, or median immediately adjacent to the open travel lanes, and unprotected by positive barrier.
2. Construction vehicles or equipment entering or crossing the travel lanes on a frequent basis in a manner that may interrupt traffic flow and require stopping and slowing.
3. Alternate one-way traffic controlled by flaggers or signal.
4. Closure of one or more travel lanes resulting in restricted flow in the lanes remaining open.
5. Narrowed lanes or diversion of travel lanes to a new path requiring a speed

reduction for safe traversal of the lanes or diversion.

6. Sight distance restrictions such that adequate stopping sight distance is not available for travel at the normally posted speed limit because of physical restrictions or unexpected interruptions caused by the construction activity.
7. Any situation where restrictions imposed by the construction activity make it impossible for a normally alert and prudent driver to safely traverse the work area at the normally posted speed limit, but where advisory speeds alone are not able to achieve reasonable compliance.

Reduced speed limits may be appropriate in the above situations, and other situations where drivers are exceeding the posted advisory speed. However, sound engineering judgment must be applied in examining alternate solutions such as improved warning signs and positive guidance, as well as determining that the advisory speeds are actually correct for the situation. It is important to understand that overuse of speed limits, especially speed limits that are unrealistically low, will have little effect in reducing speed at that site. Worse, it will create driver disrespect for work zone speed limits in general, and will thus adversely affect speeds at other sites where speed limits are posted realistically.

It is also important to understand that reducing work zone speed limits is not a viable solution for motorists who are exceeding approach speed limits, and fail to slow to the speed limit when entering the work area. Enforcement of the approach speed limit should be utilized to resolve such problems, rather than creating additional disrespect for speed limits by posting unrealistically low speed limits in the work area.

When conditions are present which indicate the need for a reduced speed limit, it must not be set unrealistically low. Speed reductions of more than 10 mph for freeways, 20 mph for urban arterials, and 15 mph for most rural highways are likely to be viewed as unrealistic by motorists, resulting in poor compliance. These are the maximum reductions that should ordinarily be considered, and these guidelines are not intended to suggest that speed limit reductions of this magnitude should be routinely included in Department projects. Rather, the first goal in designing a work zone is to include physical features and traffic controls that will permit safe traffic flow as close to the normal approach speed as possible. Where it is necessary to include reductions of the above magnitudes, it is important that they are based on adequate engineering study and approval at the appropriate level. If it is not possible to design the work zone to permit safe operating speeds without reductions greater than these values, other measures in addition to posting the reduced speed limit will normally be required to achieve safe traffic flow through the work zone. It is recommended that the Regional Traffic Group be consulted for assistance in these situations.

One case deserving special attention is rural freeways with an existing speed limit of

65 mph. Normally, when one or more of the seven conditions listed above are present, the speed limit should be reduced to 55 mph. However, this reduced speed limit should be in effect only when the condition(s) is (are) actually present, and restored to 65 mph at other times. Reductions greater than 10 mph may be necessary for some particularly difficult situations. In these extreme cases, it is recommended that the speed limit be reduced to 55 mph at the beginning of the work zone, with a further reduction to 50 or 45 mph only at the point(s) where the most difficult conditions are present. For circumstances involving median crossovers or other diversions of traffic that are of limited length, appropriate warning signs with advisory speed signs should be provided, rather than posting lower regulatory speed limits for the short distance where they would be appropriate.

IV. MAINTAINING SPEED LIMIT CREDIBILITY

Effective law enforcement is recognized as one of the few tools available to gain motorist compliance with speed limits. Considering the limited law enforcement resources available for our projects, it is completely unrealistic to assume that it will be possible to force compliance with speed limits that are perceived as unreasonable or unnecessary. Instead, primary reliance for speed control through Department projects must rely on establishing and maintaining motorist respect for speed limits in general, and especially for speed limits posted in our work zones. Specifically, the following guidelines should be adhered to at all times:

1. Reduced speed limits must be established and posted in full adherence to the engineering principles discussed in the preceding sections.
2. Reduced speed limits must be posted only when the conditions necessitating the reduced speed are actually present. This is mandated in the law if the speed is reduced under Section 1180(f) of the New York State Vehicle and Traffic Law, and is essential to maintain credibility if speed is reduced using one of the other procedures. This means it is essential to cover or remove reduced speed limit signs if work is not actually underway and site conditions do not physically require a reduced speed. In addition, reduced speed limit signs must be removed as soon as the work is completed or the physical restrictions are removed. In some cases, this may mean restoring the normal speed limit at night or over weekends.
3. Adequate warning signs, path delineation, and other driver guidance must be provided so drivers can perceive the need for the advisory or posted speed.

V. ENFORCEMENT OF SPEED LIMITS BY LAW ENFORCEMENT AGENCIES

In 1988, this Department and the Division of State Police initiated a joint effort to involve State Police in the enforcement of traffic laws in our work zones. A December

19, 1988 letter from the Director of the Traffic Engineering and Safety Division to the Division of State Police Field Commander was widely disseminated throughout the Regions to remind Department personnel to establish good working relationships at the local level. It also transmitted project selection criteria for work zone traffic control enforcement efforts. This concept has been extended to local police agencies by some Regions.

A close working relationship between Regional Construction personnel and local police agencies, including the Division of State Police, is essential to focus enforcement efforts where they are most needed. Cooperation on our part by realistically establishing and legally posting work zone speed limits is essential. While police agencies must continue to address their other duties in addition to our work zone needs, making them aware of concerns on our projects permits them additional flexibility in managing their enforcement efforts. For example, a routine speed enforcement activity located upstream from our projects may meet police criteria for routine enforcement, and provide the added benefit of slowing traffic as it approaches our work zone. In other cases, it may become possible to reroute routine patrols to include active work sites. However, both of these steps require that the police agency is made aware of our needs.

Engineering Instruction 93-30, issued on October 7, 1993, established a procedure for the use of dedicated police service provided by the Division of State Police on individual Department construction projects. Dedicated police services can be arranged during either the design or construction phases of a project. The precise scope, cost and duration of services must be negotiated by the Regions on a project-specific basis, but it is likely to be expensive. The use of dedicated police services should be restricted to difficult projects with unique situations and/or special operations which require extraordinary amounts or duration of police assistance. For all other projects, the Regions should continue to rely on cooperative enforcement as described above.

VI. APPROVING AND DOCUMENTING REDUCED SPEED LIMITS

A recommendation to impose a reduced work zone speed limit may be made by the designer during the development of the project Traffic Control Plan (TCP) or by Regional Construction Group staff during construction. Consistent treatment of work zone speed limits among projects and among Regions is essential to maintain motorist credibility and compliance. It is therefore important that decisions to impose reduced speed limits follow established guidelines and standards, that they are reviewed and approved at the appropriate level, and that they are documented in the project records. Adequate justification must be provided based on the guidelines suggested in this Instruction or on other factors that clearly establish the need for a reduced speed limit. Review and approval by the Regional Design Engineer and the Regional Traffic Engineer is required.

For speed limit reductions implemented during construction, action may be initiated upon recommendation of the Engineer-in-Charge, the Regional Construction Group, or the Regional Traffic and Safety Group. Adequate justification must be provided based on the guidelines suggested in this Instruction or on other factors that clearly establish the need for a reduced speed limit. Review and approval by the Regional Construction Engineer and the Regional Traffic Engineer is required before the reduced speed limit is put into effect. Consultation with the project designer is also recommended.

Documentation should provide a specific description of the locations, dates, and types of operations where the reduced speed limits will be imposed, as well as the justification for the reduction. However, for recurring situations, the descriptions need not be completely explicit in terms of dates and locations. The recommendation and approval will be recorded in the project records and actual implementation of the speed limits will be documented in the project records along with other records on Maintenance and Protection of Traffic.

A copy of the same documentation should be sent to the State Police, to the local sheriff, and to the town clerk of the municipality that will have judicial jurisdiction. These officials must also be notified when the reduced speed limit is terminated.

VII. REFERENCES AND SUPPLEMENTAL INFORMATION

This Engineering Instruction summarizes information on reduced work zone speed limits from a number of sources. The following references are listed to provide additional information in the event it is needed to address specific situations:

1. Supplement No. 1 to the Traffic Control Program Directives (A09-245-1), "Speed Limits in Maintenance and Construction Work Zones". Distributed by the New York State Department of Transportation Traffic Engineering and Safety Division on September 23, 1993.
2. New York State Department of Transportation Manual of Uniform Traffic Control Devices, Part 212, "Speed Limit Signs".
3. New York State Department of Transportation Manual of Uniform Traffic Control Devices, Section 239.1, "Advisory Speed Sign".
4. New York State Department of Transportation Construction Division Construction Supervision Manual, Section 104-05, "Restricted Use of Highway".
5. New York State Department of Transportation Engineering Bulletin 85-21, "Restricted Use of Highway".
6. New York State Department of Transportation Engineering Instruction 85-41,

"Restricted Highway Designation".

7. New York State Department of Transportation Engineering Research and Development Bureau Client Report 23, "Speed Limit Reduction in Work Zones".
8. New York State Department of Transportation Engineering Instruction 91-02, "'Work Zone' Construction Sign". Transmits revision to Section 619 of the Standard Specifications requiring work zone warning signs for use as supplements to maximum speed limit signs and speed zone ahead signs that are employed for highway work zone traffic control.
9. Letter dated December 19, 1988 from R. M. Gardeski, Director, Traffic Engineering and Safety Division to Col. J. J. Strojnowski, Field Commander, Division of State Police, with copies to Main Office and Regional Program Managers. Outlines enforcement priorities for work zone traffic control.
10. New York State Department of Transportation Engineering Instruction 93-30, "Dedicated Police Services on Department Construction Projects".

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