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		SUBJECT: CONSTRUCTION WORK ZONE SPEED LIMITS - GUIDELINES AND DOCUMENTATION Subject Code 7.30	
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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 Bulletin is intended to provide guidance to construction personnel to establish appropriate work zone speed limits as follows:

1. It reviews the principle sources of information available on the subject.
2. It discusses the Department's philosophy on work zone speed control.
3. It lists the three procedures 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, the Regional Construction Groups should use these general guidelines and information to make project-specific decisions, because the

Subject: CONSTRUCTION WORK ZONE SPEED LIMITS - GUIDELINES AND DOCUMENTATION

information needed to address individual project situations is available only in the Regions.

II. PROCEDURES TO ESTABLISH 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. Posted speed limit on the approach is higher than the existing 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 posted on the approach and throughout the project.
4. 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, existing speed limits are appropriate, but the problem is lack of compliance. In the second two, the work zone speed limits are too high, and may need to be reduced.

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. However, 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 procedures are available to establish reduced speed limits for construction work zones. Those procedures, 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 MUTCD.

Subject: CONSTRUCTION WORK ZONE SPEED LIMITS - GUIDELINES AND DOCUMENTATION

2. Section 104-05 of the Construction Supervision Manual, as updated by Engineering Bulletin 85-21 (6/4/85) establishes the procedure for designating construction work zones as restricted highways. By filing form C230g (6/77) 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 C230g (6/77) 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. Requirements for posting speed limits established using this procedure are also detailed in Part 212 of the MUTCD.
3. Section 1180 (f) of the New York State Vehicle and Traffic law establishes a statutory 35 mph speed limit for use in construction and maintenance work areas. For the statutory limit to be in effect, the law requires that signs be in place advising of the 35 mph speed limit, that work be actively underway, and that workers be present. 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 and Safety Division on February 20, 1990. This procedure is intended primarily for maintenance operations, but is less suitable for construction work zones because it permits the use of only one speed limit -- 35 mph -- and it can be enforced only when workers are present. It cannot remain in effect after work hours even though a reduced speed limit is warranted by physical site conditions. It is applicable to construction work zones on projects not filed as restricted highways, such as guiderail replacement and shoulder chipping, where it is desirable to reduce the speed limit to 35 mph during the work day when operations are actually underway.
4. 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. An Engineering Instruction is currently being prepared by the Traffic and Safety Division requiring their use on all work zone speed limit signs on Department projects.

III. GUIDELINES FOR SELECTING THE APPROPRIATE SPEED LIMIT

The need to include 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 the work has started that a reduction in speed limit is desirable to enhance safety and to permit enforcement of reasonable speed throughout the project. Advisory speed signs as described in Section 239.1 of the MUTCD are intended to alert motorists to the recommended maximum speed considered

Subject: CONSTRUCTION WORK ZONE SPEED LIMITS - GUIDELINES AND DOCUMENTATION

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 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 affect 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. The need for reduced speed limits in work zones should be based on traffic engineering considerations and actual work zone parameters. In general, reduced speed limits established by any of the three methods described in Section II above should be utilized only when essential to ensure safety of motorists traveling through the work area as well as that of contractor and Department employees.

Actual project conditions that 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 with reasonable certainty. 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.
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 some 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 restriction such that adequate stopping sight distance is not available for travel at the normally posted speed limit because

Subject: CONSTRUCTION WORK ZONE SPEED LIMITS - GUIDELINES AND DOCUMENTATION

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 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 judgement 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. It is important to understand that overuse of speed limits, especially speed limits that are unrealistically low, will have little affect 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.

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 credibility and 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 35 mph statutory limit is imposed, and is essential to maintain the 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

Subject: CONSTRUCTION WORK ZONE SPEED LIMITS - GUIDELINES AND DOCUMENTATION

completed or the physical restrictions are removed. In some cases, this may mean restoring the normal speed limit at night or over weekends.

3. When conditions are present which indicate the need for a reduced speed limit, they 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 this magnitude, 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.
4. 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 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 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, simply 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

Manual	ENGINEERING BULLETIN	Code	EB-90-22	Date	6/28/90	Page	7 of 8
Subject:	CONSTRUCTION WORK ZONE SPEED LIMITS - GUIDELINES AND DOCUMENTATION						

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.

VI. APPROVING AND DOCUMENTING REDUCED SPEED LIMITS

A decision 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 Division 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.

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 Bulletin 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 recommended before the reduced speed limit is put into effect.

Documentation should provide a specific description of the locations, operations, and dates 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.

VII. REFERENCES AND SUPPLEMENTAL INFORMATION

This Bulletin 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), "Statutory 35 MPH Speed Limit in Maintenance and Construction Work Zones." Distributed by the New York State Department of Transportation Traffic and Safety Division on February 20, 1990.
2. "Guidelines for Application of the 35 MPH Speed Limit in Maintenance Work zones." Transmitted by March 9, 1990 memorandum from D. W. Mencucci to Regional Directors.

Subject: CONSTRUCTION WORK ZONE SPEED LIMITS - GUIDELINES AND DOCUMENTATION

3. New York State Department of Transportation Manual of Uniform Traffic Control Devices, Part 212, "Speed Limit Signs."
4. New York State Department of Transportation Manual of Uniform Traffic Control Devices, Section 239.1, "Advisory Speed Sign."
5. New York State Department of Transportation Construction Division Construction Supervision Manual, Section 104-05, "Restricted Use of Highway."
6. New York State Department of Transportation Engineering Bulletin 85-21, "Restricted Use of Highway."
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 Traffic and Safety Division Engineering Instruction 90-__ (release pending), "Supplemental Work Zone Warning Sign." Transmits Authorization 89-2 of Appendix A-19 of Title 17 of New York Codes Rules and Regulations authorizing 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 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.