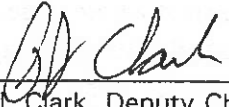


To: SUPERSEDED ^{BY} <i>EI 01-019</i> <i>EFFECTIVE 1/10/02</i>		New York State Department of Transportation ENGINEERING INSTRUCTION	EI 00-030
Title: Maintenance and Protection of Pedestrian and Bicycle Traffic			
Distribution: ☐ Manufacturers (18) ☐ Surveyors (33) ☒ Main Office (30) ☒ Consultants (34) ☒ Local Govt. (31) ☐ Contractors (39) ☒ Regions/Agencies (32) ☐ _____ ()		Approved:  P. J. Clark, Deputy Chief Engineer (Facilities Design) <i>08/31/00</i> Date	

ADMINISTRATIVE INFORMATION. The guidance in this EI supersedes the guidance in the Highway Design Manual (HDM) Chapter 18, Section 18.9. It is effective immediately.

PURPOSE. This EI updates guidance to meet requirements for maintenance and protection of bicycle and pedestrian traffic in maintenance and construction work zones, as well as work performed under highway work permits. It is intended to ensure that designers address pedestrian and bicycle access in the traffic control plan.

BACKGROUND. FHWA's regulations (23 CFR 652.5) require that provision for safe accommodation of bicyclists and pedestrians be given full consideration during construction. The Department's policy (Appendix A) extends the requirement to maintenance and other activities. Section 619 of the Standard Specifications provides for the safe passage of pedestrians and bicyclists over any portion of the highway under construction where traffic is to be maintained, with a minimum of discomfort and inconvenience. In addition, the regulations implementing the Americans with Disabilities Act (28 CFR Part 35) and the current Americans with Disabilities Act Accessibility Guidelines (ADAAG) require that both permanent and temporary pedestrian facilities, including those associated with construction and maintenance activities, must provide safe and convenient access for persons with disabilities.

As stated in FHWA's 2/24/99 Transmittal of Guidance on Bicycle and Pedestrian Provisions of the Federal-Aid Program, "Maintaining access to the transportation system for nonmotorized users is not an optional activity."

REQUIREMENTS AND GUIDELINES. Pedestrian and/or bicycle traffic must be safely and continuously maintained through, or around, a work zone on highways or streets where pedestrians and/or bicyclists are not prohibited. The maintenance and protection of pedestrian and bicycle traffic should be consistent with the type of work zone, the work location, the duration of work activity, anticipated bicycle and pedestrian traffic, motor vehicle traffic characteristics, and the degree of potential hazard to, or conflict between bicycle, pedestrian, and motor vehicle traffic. For example, where there is a low expectation of pedestrian and/or bicycle traffic, low motor vehicle volumes, and minimal disturbance is occurring in the work zone, nothing special needs to be done and pedestrians may use the shoulder. However, if existing pedestrian and bicycle traffic uses the shoulder on a roadway with moderate to high motor vehicle volumes, and the work zone will disrupt the shoulder, other arrangements should be made to allow pedestrian and/or bicycle traffic to safely travel through or around the work zone.

Designers should use the following requirements and supporting guidelines when developing traffic control plans for pedestrians and bicyclists:

Pedestrians

1. The level of accommodation necessary to provide access for pedestrians through or around work zones must be assessed for each project where pedestrians are not prohibited (not all projects require the same level of accommodation to safely allow passage). This assessment should take into account the amount of pedestrian activity occurring along the roadway, as well as motor vehicle and bicycle traffic volumes. It is important to remember that the observed absence of pedestrians does not preclude the need for their accommodation if other indicators are present. The following are indications that there is pedestrian activity at a site:
 - There is an existing sidewalk, trail, or pathway.
 - There is observed pedestrian activity.
 - Evidence of pedestrian activity exists, such as worn paths along the roadway.
 - There are generators of pedestrian activity such as commercial or institutional land uses in proximity to residential areas and bus stops.
2. If safe access and passage for pedestrians cannot be maintained continuously through the work site, a safe continuous detour must be furnished. Facilities constructed to specifically provide access for pedestrians in or around work zones must be designed to be consistent with the current Americans with Disabilities Act Accessibility Guidelines (ADAAG). A minimum 1.525 m wide walkway should be provided to accommodate continuous two-way pedestrian traffic and maintain convenient access. ADAAG states that where a 1.525 m width cannot be met, a narrower walkway may be provided to a minimum of 915 mm. However, when the walkway is narrower than 1.525 m, 1.525 m x 1.525 m passing spaces must be provided, at a minimum spacing of 61 m. Walkways narrower than 1.525 m will not accommodate continuous two-way pedestrian traffic or assisted travel by elderly and disabled persons and may be inconvenient, especially if they prevail for more than short distances. Use of a shuttle service may be considered on projects such as bridge replacements, where the construction of temporary, accessible walkways is infeasible or impracticable.
3. The needs and abilities of a diverse pedestrian population must be considered, evaluated, and adequately accommodated through, or around, work zones. That population includes people with disabilities, children, elderly persons, etc. For example, elderly persons and/or persons with disabilities may be more sensitive to abrupt changes in grade, surface irregularities, or walkways routed onto a roadway. Children will sometimes dart out into roadways, so where there are significant numbers of children present (such as near a school or playground), positive separation may be required for walkways routed onto roadways. Blind people cannot be safely guided by signs, traffic cones, delineators, or tape. In urban areas, commercial areas, residential areas, and other areas where use by blind pedestrians can be expected, any positive separation between a pedestrian walkway routed onto a roadway and motor vehicle traffic should utilize fencing, temporary curbing (plastic, timber, etc.), or other continuous barrier or material that is detectable by a blind person using a cane or guide dog.
4. Signs located over or where they will intrude into a walkway must have a 2.1 m minimum clearance height. Signs and other traffic control devices should not be a hazard to pedestrians.

5. When planned construction activities will close a sidewalk or existing detour for an extended period, or result in major disruption to the pedestrian facility, advance notice to pedestrians is desirable. Information signs, variable message signs, or other suitable means should be used to provide reasonable advance notice to pedestrians, including the expected nature and duration of construction activities.
6. On-site detour routes should be well marked, safe, efficient, continuous, and easy to traverse. They must be maintained free of obstructions and hazards, such as tripping hazards (i.e., lip heights at manholes, etc.) holes, debris, mud, construction equipment, stored materials, etc. Graded ramps may be used at surface discontinuities where there is a need. Detours should, at a minimum, be a stable, firm, and slip resistant all-weather compacted gravel surface (meeting ADAAG requirements) or other material capable of meeting these requirements.
7. Pedestrians will often use the most direct path to their destination that they can, regardless of hazards. Signs and fencing should be used to direct pedestrians away from unsafe areas. Avoid designing pedestrian detours that are inconvenient or that appear too circuitous. FHWA guidance, "Planning Design and Maintenance of Pedestrian Facilities" gives 183 m as the maximum distance many pedestrians will find reasonable to detour off of their path of travel.
8. In commercial and residential areas, adequate pedestrian access to properties abutting work zones should be provided. Efforts should be made to minimize adverse economic impacts to commercial establishments in the vicinity of the work zone.
9. Rural pedestrian needs should be carefully evaluated. Often these needs are not as obvious as those in more populated areas. While a rural road may not have large numbers of pedestrians, it may be the only road going to a particular destination. What pedestrians there are, will use this road. Some obvious rural sources of pedestrian activity include ski resorts, state parks, camp grounds, recreational areas, amusement parks, etc. On rural bridge projects where pedestrian needs cannot be met during construction, it is important to consider other arrangements such as temporary structures or shuttle services, as these bridges are often the only link between destinations for residents dependent on walking or bicycling for transportation.
10. Where there are sidewalks on both sides of a road, work should be staged so that one sidewalk remains open and accessible to pedestrians (especially those with disabilities) at all times. If one sidewalk is closed, pedestrians should be directed to the other sidewalk by crosswalks, appropriate signing (R8-3), and signals, if necessary. Pedestrians should be diverted from the closed sidewalk at the first intersection crossing upstream from the work zone and not at midblock unless provisions can be made to do so safely. At especially long blocks, it may be necessary to provide midblock crossings. Where they are provided, they should include safety features such as high visibility striping and warning signs and/or signals.
11. Where the work encroaches upon a sidewalk and where it is infeasible to route pedestrians across the road, one alternative is to maintain pedestrian traffic on the sidewalk, separated from the work by fencing or other means. Another alternative may be to designate a walkway in the roadway. Where a designated walkway must be provided in the roadway, positive separation should be used between vehicular and pedestrian traffic by means of channelization, temporary curb, fencing, temporary concrete barrier, or other positive means. In the selection of positive separation or positive barrier, the designer should consider the following:
 - Pedestrian needs.
 - Duration of the work.
 - Roadway alignment and lane widths.

- Offset from the traveled way.
 - Vehicle operating speeds.
 - Truck traffic.
 - Volumes of pedestrians and vehicles.
12. Walkways under, or adjacent to, elevated work activities such as bridges or retaining walls may require a protective roof, protective shielding, etc.
13. Where there is a likelihood of pedestrians using a walkway at night, sufficient illumination should be provided based on the level of illumination that existed prior to construction, and the level of illumination on adjacent sections. Consideration should also be given to the type and severity of hazards to pedestrians and other site specific factors that may affect the safety or convenience of the walkway to determine whether they warrant nighttime illumination. Temporary lighting should be considered where adjacent street lighting will not illuminate pathways provided around work zones. Lights should be provided to delineate the pathway and to mark hazards. This lighting can be especially beneficial for vision impaired persons where existing lighting levels are not optimal.

Bicyclists

1. Bicyclists of various skill levels use most roadways to various extent where bicycling is not prohibited. Therefore, the level of accommodation necessary to provide access for bicyclists through or around work zones must be carefully assessed for each project where bicyclists are not prohibited. This assessment should take into account the amount and types of bicycle activity occurring along the roadway, as well as motor vehicle and pedestrian traffic characteristics. Many projects will require one or more different methods to provide accommodation based on these assessments. The following are indication that there is bicycle activity at a site:
- The road is a designated bicycle route.
 - Bicyclists have been observed on site visits.
 - Bicycle traffic generators, such as residential, commercial, recreational, and/or institutional land uses, are located adjacent to or near the work zone.
2. Bicyclists can often be accommodated in the same vehicle lane as motorists when:
- The work zone lane width will be at least 3.6 m.
 - Motor vehicle speeds and volumes will be low (this decision will require professional judgement as there are no nationally adopted guidelines for these situations).
 - The roadway will be paved.
 - The grades in the work zone are not steep. Where this is the case, consideration may be given to providing a shoulder on the uphill section while accommodating bicyclists going downhill in the opposing travel lane.
3. Where it is not desirable to combine bicycle and motor vehicle traffic due to higher motor vehicle speeds and volumes, bicyclists can be accommodated on shoulder space. In this situation, a shoulder of reasonable width (min. 1.2 m) should be provided.
4. Appropriate signs should be used to warn bicyclists and motorists. The bicycle warning sign with "Shared Roadway" panel (W5-6) may be used either where bicycle and motor vehicle traffic are intended to share a reduced roadway width (due to shoulder closure and/or lane width reduction (less

than 3.6 m in width)) or where bicyclists are diverted into the roadway from a pathway off the road. The sign assembly can be used when changes in routing bicycle or motor vehicle traffic through or around the work zone affects the proximity of bicyclists to motor vehicle traffic. These signs should not be used routinely where the above conditions do not exist since unnecessary use can reduce their effectiveness.

5. Bicyclists may be advised to dismount and use pedestrian routes only where sufficient roadway widths cannot be provided or where roadway construction conditions may make bicycling hazardous and an off-road alternative for bicyclists cannot be provided. This alternative should only be used in extreme circumstances and should not be used for long distances, as it may be viewed as unreasonable and ignored.
6. An alternative to accommodate bicycles where there is insufficient roadway width may be to provide a separate bicycle detour around the construction site. The detour should be convenient and have appropriate warning signs and traffic control devices, especially when routing an off-road bicycle detour back into the main roadway.
7. Off-road bicycle detours should be paved continuously and free of surface irregularities such as potholes, cracks, ponding water, etc. On-road accommodations should be paved whenever feasible (especially on bike routes). Where this cannot be accomplished, and there is considerable risk of injury, bicyclists may be advised through the use of signing to dismount and use pedestrian facilities. As previously stated, this should not be used where bicyclists would spend considerable time on foot because it may be viewed as unreasonable and ignored.
8. Accommodations for bicyclists in, or around, rural work zones should be considered, even when there is not an obvious need. While there may not be large numbers of bicyclists, the road may be the only route to a particular destination in the area.
9. The skill level of the bicyclists using the roadway should be considered. If the work zone is near a school, playground, or other area where the predominance of riders is likely to be children, extra precaution should be taken to accommodate them safely.
10. On repaving contracts where the binder course is to be left exposed on roads where bicycling is not legally prohibited, short-term pavement markings should be provided that adequately delineate the edge of the travel lane, as well as the center line or lane line. This should be done when other short-term markings are placed. This will help prevent motor vehicle encroachment into bicyclists' path of travel, or vice versa. A special note should be placed on the plans that states that the edge line markings must be placed the same day the new pavement is opened for traffic, i.e., the same as for other short-term pavement markings.

REQUIRED ACTIONS. Field Staff: Section 619 of the Standard Specifications requires the contractor to provide safe, convenient passage for pedestrians and bicyclists, along with other roadway users. Field staff should also be familiar with these guidelines to ensure that the contractor provides adequate pedestrian and bicycle accommodations whether or not specific details are provided in the traffic control plan. When changes in contract staging and schedules, and additional work not included in the contract necessitates field changes to the traffic control plan, these guidelines should be followed. This EI should be filed in the Construction Inspection Manual Section 619.

Designers: The information provided in this EI is intended as guidance and should be utilized in the preparation of Maintenance and Protection of Traffic Plans. Written justification shall be placed in the project files when pedestrian and bicyclist accommodations are not included in Maintenance and Protection of Traffic Plans.

COST. Compliance with these guidelines is already required by existing Department and Federal policy. This EI does not introduce any new requirements; it provides guidelines on how to comply with existing policy. Implementation of these guidelines may entail some costs in Department projects where pedestrians and bicyclists are permitted. However it will result in better service to the public including improved safety, convenience, and mobility for pedestrians (including persons with disabilities) and bicyclists.

REFERENCES.

1. Department of Justice Regulations - Nondiscrimination on the Basis of Disability in State and Local Government Services, 28 CFR Part 35.
2. Americans With Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG), U.S. Architectural and Transportation Barriers Compliance Board, www.access-board.gov/bfdg/bfdg.htm.
3. Bicycle and Pedestrian Policy, Passenger Transportation Division, New York State Department of Transportation, State Campus, Albany, NY 12232.
4. New York State Manual of Uniform Traffic Control Devices, July, 1983, Traffic Engineering and Safety Division, New York State Department of Transportation, State Campus, Albany, NY 12232.
5. Scoping Procedures Manual, Appendix I (Pedestrian and Bicycle Facility Scoping Guide), March 1995, Mobility Management Bureau, New York State Department of Transportation, State Campus, Albany, NY 12232.
6. Transmittal of Guidance on Bicycle and Pedestrian Provisions of the Federal-Aid Program, USDOT/FHWA Memorandum signed by Kenneth Wykle, Federal Highway Administrator, 2/24/99 Federal Highway Administration, 400 Seventh Street, SW, Washington, DC 20590.
7. Planning, Design and Maintenance of Pedestrian Facilities USDOT & FHWA, (FHWA-IP-88-019), March 1989.

CONTACT PERSON. Contact the Landscape Architecture Bureau at (518) 457-4460.

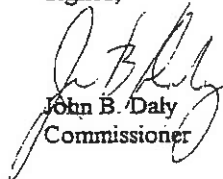
APPENDIX A

NYSDOT BICYCLE AND PEDESTRIAN POLICY

October, 1996

As part of our mission as an intermodal transportation agency, NYSDOT must make bicyclists and pedestrians an integrated element of our intermodal transportation system. Bicyclists and pedestrians are significant partners in NYSDOT's efforts, providing cost-effective solutions to our State's mobility, safety and environmental goals. The 1990 Census shows that more than 7% of New York State commuters bicycle or walk to work, so it is important for us to take the lead in making these modes safer and more "user friendly." As we move forward into the 21st Century, we have the ability to make our State's highways, structures and public transportation systems into one of the most efficient, intermodal transportation systems in the nation. To accomplish this, facilities for pedestrians and bicyclists must be considered for incorporation into highway, bridge and transit projects and integrated throughout NYSDOT's policy, planning, implementation and operations efforts.

Signed,


John B. Daly
Commissioner