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# TEMPORARY PEDESTRIAN ACCESS ROUTE WORK PROCEDURE

## Work Procedure (WP)

| MBTA "Driven by Customer Service" | | PROJECT MBTA Technical Document Development | | MBTA System-Wide Accessibility | |
|---|---|---|---|---|---|
| **APPROVALS** | DATE | TITLE **MBTA Temporary Pedestrian Access Route Work Procedure** | | | |
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# MBTA Temporary Pedestrian Access Route Procedure

## Table of Contents

## MBTA Temporary Pedestrian Access Route Procedure

**Overview**

The MBTA must accommodate the needs of all pedestrians at work sites that encroach upon any existing pedestrian access route found on, in or near MBTA property such as; sidewalk, walkway, crosswalk, platform, station, etc. Pedestrian safety considerations, including consideration of equipment necessary to create a safe walkway around the job site for all pedestrians, must be included during job planning assessments and approval. The range of pedestrians varies greatly and includes parents with children, adults, seniors, and people with hearing, vision, mobility and cognitive disabilities; their needs are as diverse as the population they represent.

All pedestrians need protection from potential injury and must have a smooth, clearly delineated through or around a work area until the project is concluded. This work procedure ensures that employees create a temporary, alternate circulation path/pedestrian access route or accessible path of travel around job sites for all disrupted surfaces within the project scope.

This work procedure applies to any situation where MBTA work or free standing objects infringe or encroach upon the established pedestrian access route. Work sites where the work area encroaches upon a public right-of-way (sidewalk, walkway, or crosswalk area) and all work performed at, near or in MBTA facilities shall comply with these work rules. All altered portions of existing facilities located in the public right-of-way shall comply with these requirements to the maximum extent feasible.

If MBTA employees and contractors on a work site are unable to provide a 48-inch wide pedestrian access route through the worksite when conducting short-term work, they must ensure a safe, accessible route for pedestrians around the worksite, or close the sidewalk/platform/pedestrian access route to all traffic and direct pedestrians to an alternate pedestrian access route that maintains the 48-inch wide clear space requirement.

**Governing Documents**

MBTA Pedestrian Access Route Standard
Document # S2008-0002, rev. 0, 7-2-08

**Safety**

To ensure safety, MBTA employees, contractors, suppliers and all others performing work on behalf of the MBTA must follow all applicable precautions and requirements in setting up temporary work area protection when encroaching on to the existing pedestrian access route, as described in the following documents:

Occupational Safety and Health Administration (OSHA)
Occupational Safety and Health Standards for the Construction Industry ( 29 CFR Part 1926 )
Federal Highway Administration (FHWA)
Manual of Uniform Traffic Control Devices (MUTCD)
Massachusetts Highway Department
Work Zone Safety Guidelines

## Definition of Terms

**Accessible.** General term used to describe the degree to which a product (e.g., device, service, environment) is accessible by as many people as possible. Accessibility can be viewed as the "ability to access" the functionality, and possible benefit, of some system or entity.

**Crosswalk.** (Shall have the meaning in MUTCD Section 1A13.18).

**Cross Slope.** The grade that is perpendicular to the direction of accessible pedestrian travel. On a sidewalk, shoulder, or blended transition, it is measured perpendicular to the curb line or edge of the street or highway; on a curb ramp, it is measured perpendicular to the running grade or to flared sides of curb ramp on narrow sidewalks.

**Curb Line.** A line at the face of the curb that marks the transition between the curb and the gutter, street, or highway.

**Curb Ramp.** A perpendicular or parallel ramp and its landing that cuts through or is built up to the curb.

**Danger Zone.** An area where a dangerous condition exists in an established accessible pedestrian route that presents a danger to the public. Examples of these conditions include a missing or loose material in the floor surface or ceiling, work on escalators or where the accessible pedestrian route terminates where the danger exists. A danger zone is considered a work zone.

**Detectable Warning.** A surface feature of truncated dome material built in or applied to the walking surface to advise of an upcoming change from pedestrian to vehicular way.

**Facility.** All or any portion of buildings, structures, improvements, elements, and pedestrian or vehicular routes located in a public right-of-way.

**Free Standing Object.** Objects mounted on ground surface or free-standing posts or pylons. Includes floor mounted devices such as; fans, dehumidifiers, post mounted fans, heaters or other devices

**MBTA Representative.** The highest-ranking person assigned to represent the MBTA and monitor the progress of the work. This individual may be a Project Manager, Resident Engineer, Inspector, Facility Superintendent/Supervisor and Facility Foreman or other person as designated by the appropriate Assistant General Manager or Chief Operating Officer.

**Path of travel**. A continuous, unobstructed pedestrian access route.

**Pedestrian. (**Shall have the meaning in MUTCD Section 1A13.55).

**Pedestrian Access Route.** A continuous and unobstructed walkway within a pedestrian circulation path that provides accessibility.

**Pedestrian Circulation Path.** A prepared exterior or interior way of passage provided for pedestrian travel.

**Public Right-of-Way.** Public land or property, usually in interconnected corridors, that is acquired for or devoted to transportation purposes.

**Running Slope.** The grade that is parallel to the direction of travel, expressed as a ratio of rise to run or as a percent.

**Sidewalk**. The portion of a street between the curb line, or the lateral line of a roadway, and the adjacent property line or on private property easements that is intended for use by pedestrians.

**Sign.** Any device that communicates information to road users or pedestrians using a word or symbol legend. Traffic control signals, pavement markings, delineators, or channelization devices are not signs.

**Walkway.** The continuous portion of the pedestrian access route that is connected to street crossings by curb ramps or flushed transitions.

**Work Zone.** Any location where work is performed such as construction sites, repair sites, revenue service diversions, Right of Way (ROW) work, etc.

## 1.0 Detailed Procedure

### 1.1 Internal Communication and Training

Conduct the MBTA Temporary Pedestrian Access Route Work Procedure training as a supplement to the Right of Way Training conducted bi-annually on heavy/light rail and annually on commuter rail.

### 1.2 Pedestrian Considerations

MBTA employees and contractors who have obstructed an existing pedestrian access route must immediately create and maintain a continuous, unobstructed 48-inch wide Temporary Pedestrian Access Route adjacent to the work site, preferably parallel to the sidewalk or original pedestrian access route that has been obstructed.

#### 1.2.1 Same-side travel is preferred over street crossings.

Close sidewalks to all pedestrian traffic only when a safe passage around the work site cannot be established.

**a.** To the extent possible, MBTA employees, supervisors and contractors should work with businesses affected by sidewalk and pedestrian access route closures to accommodate schedules and/or provide access.

**b.** When overhead work is conducted or if there is danger of objects falling into the temporary pedestrian access route, suitable overhead protection shall be provided to prevent injury. Covered pathways shall be designed by a professional engineer licensed in the State of Massachusetts. Overhead clearance must be a minimum of 80 inches high when measured vertically from the ground surface.

### 1.3 Temporary pedestrian access routes (General)

When planning for pedestrians in temporary traffic control zones, Temporary Pedestrian Access Route in stations, on platforms, streets, etc. include the following:

**1.3.1** Pedestrians are not allowed into conflicts with work site vehicles, equipment, or operations.

**1.3.2** Do not lead pedestrians into conflicts with vehicle traffic or work site vehicles or equipment.

**1.3.3** When establishing a Temporary Pedestrian Access Route next to vehicular traffic, it is recommended that pre-cast concrete barriers be used along the vehicular side of the accessible path of travel.

**1.3.4** Provide pedestrians with a convenient, safe, and accessible temporary pedestrian access route that replicates, as nearly as possible, the most desirable characteristics of the existing pedestrian access route or a fully accessible pedestrian access route.

**1.3.5** Inform pedestrians about changes in the existing circulation path or pedestrian access route in a way that is readily understandable by all, including pedestrians with disabilities and those pedestrians who are blind or have low vision.

**1.3.6** Avoid moving vehicles and equipment across the designated Temporary Pedestrian Access Route wherever possible. If vehicles and equipment must travel through the pedestrian access route, MBTA employees and contractors shall use flaggers to direct vehicle traffic.

**Note:** Determine pedestrian needs at each work site by obtaining approval for the MBTA Temporary Pedestrian Access Route Plan from the responsible MBTA executive such as: AGM, Chief Operating Officer or their designee before starting any work. Temporary traffic control zones must provide security and safety for pedestrians navigating past work sites, as well as provide consistent, unambiguous channels that maintain the desired temporary pedestrian access route.

**1.3.7 Abrupt Changes:** The Temporary Pedestrian Access Route shall not have abrupt changes of more than ¼ inch in any direction in grade, elevation, or terrain. The cross slope of the temporary pedestrian access route shall not exceed 2%.

**1.3.8 Width:** The width of the Temporary Pedestrian Access Route shall be 48 inches (4 foot) wide minimum with a clearance of 36 inches (3 foot) minimum with any obstacle such as free standing objects, light poles, trees, fans, etc. along the path of travel. Every effort should be made to have a Temporary Pedestrian Access Route width of 60 inches (5 foot) to better accommodate two wheelchairs traveling in opposite directions.

**1.3.9 Passing Spaces:** For longer Temporary Pedestrian Access Route runs with less than 60 inches (5 foot) of width clearance, provide a passing space of 60 inches (5 foot) wide for a distance of 60 inches (5 foot). This additional passing space will provide space for 2 pedestrians in wheelchairs to pass without leaving the path of travel. Passing space shall be located in a level section of the temporary pedestrian access route.

**1.3.10 Obstacles:** Obstacles protruding into the Temporary pedestrian access route should be avoided. When obstacles protrude into the path of travel pedestrians who are blind or have low vision may not see the obstacles and collide with them. Care must be taken to prevent the possibility of a collision with an obstacle that protrudes into the path of travel. When objects project from walls (for example, telephones) with their leading edges between 27” and 80” above the finished floor, they shall protrude no more than 4 “ into the path of travel. Free-standing objects mounted on posts or pylons may overhang a maximum of 12” from 27” to 80” above the ground or finished floor. Free standing objects include items such as fans, poles,

signage etc. All free standing objects that are placed in the pedestrian access route shall have the appropriate barrier placed around the entire base so the object is detectable by pedestrians who are blind or have low vision.

**1.3.11 Danger Zones:** Particular care shall be used in cases where a dangerous condition exists in the Temporary Pedestrian Access Route or when the path of travel terminates at the work zone. These conditions require sturdy barriers that are detectable by persons who are blind or have low vision and may be using a cane. The barriers shall have a high contrast color to alert the public of the danger zone.

**1.3.12 Surface:** The surface of the Temporary Pedestrian Access Route shall be firm, stable and slip resistant.

**1.3.13 Detectable Edging:** A continuously detectable edge shall be provided throughout the length of the temporary pedestrian access route such that it can be followed by pedestrians using canes for guidance. The detectable edge shall protrude 6 inches minimum above the surface of the sidewalk or path of travel. For outdoor applications, the detectable edge should consist of a prefabricated or formed-in-place curbing or other continuous product that is placed along the surface of the sidewalk or path of travel. Detectable edge should be firmly attached to the ground or to the barrier. Adjacent sections of the detectable edge should be interconnected such that the edge is not displaced by pedestrian or vehicular traffic or work operations, to eliminate a potential trip hazard to pedestrians, workers, or other users.

**1.3.14 Lighting:** Temporary pedestrian access routes shall be well lit with 5-foot candles (54 lux) and comply with MBTA lighting criteria; electrical criteria to be provided by the Authority.

## 1.4 Pedestrian Ramps

Use approved ramp systems for jobs estimated to last more than 2 hours in areas where pedestrians cannot be diverted safely around a worksite using driveways or curb ramps.

**1.4.1** Use approved curb ramps when pedestrians are diverted off the walkway and into the street parallel to the work site. Ramps must provide pedestrians with visual and mobility disabilities adequate transition from the sidewalk into the street. Ramps must be a minimum of 48 inches wide at tight turns or a minimum of 36 inches wide in straight path.

**1.4.2** The running slope ratio must be a maximum of 1:12 with no construction tolerance (one inch rise/one foot run). Curb ramp or ramp system running slopes should be minimized wherever possible to improve accessibility (1:12 maximum, 1:13, 1:14 or better). When a ramp slope of 1:20 can be achieved no handrails are required.

**1.4.3** Curb ramp and ramp system cross slope shall not exceed 2% when measured perpendicular to the direction of travel.

**1.4.4** The rise for any ramp run shall be (30 in) maximum. Ramps shall have landings at the top and the bottom of each ramp run. Landings shall be the width of the ramp (minimum) and a length of 60 inches (5 foot) minimum.

**1.4.5** Ramp runs with a rise greater than (6 in) shall have handrails. Handrails shall be provided on both sides of ramps. Top of gripping surfaces of handrails shall be (34 in) minimum and (38 in) maximum vertically above ramp surface. Handrails shall be continuous within the full length of each ramp run. Handrail gripping surfaces shall have an outside diameter of (1.25 inches) minimum and (2 in) maximum. Curb ramps are not required to have handrails.

**1.4.6** All ramps must have smooth on and off transitions. Beveled edges or feathered/compacted asphalt or concrete prevent tripping and wheeled mobility device tipping accidents. No lip edges may exceed ¼ inch.

**1.4.7** Locate ramps so that they do not project into vehicular traffic lanes.

**1.4.8** To prevent against hazards, landings and ramps must have wheel guides or “curbing” around the sides 2 inches high (minimum).

**1.4.9** Use barriers along temporary ramps. Top of barrier should not be at a level where they are confused with handrails.

**Note:** For a description of a typical ramp setup, refer to Attachment XX

## 1.5 Signage

All signs proposed for an MBTA work site must be submitted as part of the plan submittal and approved by the MBTA Representative prior to placement or installation. Place approved signs at intersections so pedestrians are not confronted with mid-block work sites that could cause pedestrians to skirt the temporary traffic control zone or make a mid-block crossing. Pedestrians infrequently retrace their steps to make a crossing. Consequently, ample advance sidewalk closure notice is important.

**1.5.1** Use detour signs to direct all pedestrians to use the alternate pedestrian access route (see Attachment 2).

**1.5.2** Communication and signage shall enable all pedestrians, including those with vision impairments, to be aware of the work site and intended repairs as soon as identification of the problem has been recognized by the MBTA; before the repair or construction work begins.

**1.5.3** Braille, raised characters or audible information should be provided whenever text signs are used to communicate with pedestrians.

**1.5.4** Technology that provides audible information to pedestrians who are blind or have low vision shall be used at work sites. A small broadcasting device that gives recorded instructions when activated by a motion sensor is one method of providing effective audible information to pedestrians who are blind or have low vision (see Attachment 3).

**Note:** Refer to the MBTA Pedestrian Access Route Requirements; rev 0, 7-1-08 for more details and techniques for moving pedestrians through work zones.

### 1.6 Barricades

Use barricades, also known as K-rails (pre-cast concrete barricades), in areas where the volume and speed of vehicular traffic is high. Barricades must have sufficient strength and low deflection characteristics to keep vehicles from intruding into the Temporary Pedestrian Access Route or work sites.

**1.6.1** Avoid short, non-continuous segments because they increase the potential for serious injury to both vehicle occupants and pedestrians. Encourage the presence of blunt, leading ends (connector points at either end of a longitudinal barrier system).

**1.6.2** Use appropriate flares on all upstream leading ends or protect them with properly installed and maintained impact attenuators.

**1.6.3** When using barricades, ensure that adjacent segments are continuous and properly joined.

**Note:** If the alternate circulation path or Temporary Pedestrian Access Route is diverted into the street, use a typical barricade application such as jersey barriers between the alternate circulation path and the vehicular way.

### 1.7 Barriers

When worksites occupy or conflict with existing pedestrian access routes, separate and protect all pedestrian traffic using approved longitudinal barrier systems. Temporary barriers, when set up properly, provide pedestrians safe access around worksites. For a description of approved typical barriers, refer to Attachment 1

**1.7.1** Install barriers in the following locations:

**1.7.1.1** Between the pedestrians access route and any adjacent construction site.

**1.7.1.2** If the alternate circulation path is diverted into the street, install barriers such as jersey barriers between the alternate circulation path and the vehicular way.

**1.7.1.3** Between the alternate circulation path and any protruding objects, including swing areas (compressors, back-hoes, excavators, materials, etc), drop-offs, or other hazards to pedestrians.

**1.7.1.4** Around any free standing object (fans, etc.) that is placed in the Pedestrian Access Route or in the Temporary Pedestrian Access Route.

**1.7.2** Barrier Specifications

**1.7.2.1** Construction barriers shall be continuous, stable, and non-flexible. The barrier shall have a solid toe board, with its top edge 6 inches in height from the ground or walkway surface. The barrier shall have a height of 36 inches (3 foot) minimum from the ground or path of travel surface.

**1.7.2.2** To provide proper support and stability, use bases at either end of each barrier and tie them at the top. In addition, when using a lightweight barrier, units that can be filled with sand/water for stability should be used whenever possible. Caution tape alone does not provide an adequate barrier and cannot be used to delineate the alternate circulation path or temporary pedestrian access route.

**1.7.2.3** Create barriers from chain-link fences, plywood, or any other material that protects pedestrians without disrupting the pedestrian network. Do not use cones, unconnected "A-Frame" barriers, or connected A-Frame barriers that project into the path of travel. Do not use toe rails to direct pedestrian traffic. When using a continuous material such as plywood as the barrier there is no need to provide an additional detectable edge at the bottom of the barrier.

**1.7.2.4** To protect pedestrians who are visually-impaired or blind and use a cane, barriers must have brightly contrasting colors marking each end as well as decision and turning zones along the Temporary pedestrian access route. In addition, a continuous detectable edge shall be provided along the bottom of the barriers 6-inch minimum above the ground or walkway surface running the entire length of each side of the barrier that.

**1.7.2.5** Barrier support member must not protrude into the alternate circulation path or Temporary Pedestrian Access Route.

**1.7.2.6** Use approved manhole barriers to warn pedestrians of an open vault.

## 1.8 Pedestrian Traffic Plates

Use trench plates with an appropriate amount of cold mix pack or similar to provide a smooth transition from the sidewalk or from the street to the plate. Use enough

cold mix pack or similar to prevent plate movement. If plates have the potential to move and cause a hazard, MBTA employees and contractors may also recess the plates into the Temporary pedestrian access route.

**Note:** Trench plates often have “lift holes” that enable a chain with a hook that is attached to a back-hoe to move the plates from a storage location to cover an excavation when work takes place during non-work hours. The “lift holes” pose a hazard to wheelchair users and ambulatory pedestrians. To avoid creating a tripping hazard while the plates are in the Temporary Pedestrian Access Route, plug lift holes with a suitable material, such as wood or plastic plugs.

**1.8.1** Sturdy plywood or metal plates are acceptable for use when bridging construction sites only if the surface is continuous, stable, and has no gaps or inconsistent levels, including no lip edge facing the direction of travel that is greater than ¼-inch. Beveled edges or feathered/compacted asphalt or concrete prevent tripping and wheelchair tipping accidents.

**Note:** For trench plate specifications, refer to Attachment XX

## 1.9 Potential Hazards

**1.9.1** During job site maintenance, do not store tools, equipment, or materials within the temporary pedestrian access route. Heavy equipment with protruding parts, including swing areas, must not be in the path of travel.

**1.9.2** Remove snow or debris, and properly drain temporary pedestrian access routes.

**1.9.3** During both working and non-working hours, clear sidewalks and pathways of debris, and provide pedestrians with a safe temporary pedestrian access route.

## 2.0 Work Plan Submittals

Submit a copy of the plan describing the means to establish, maintain and remove the Temporary Pedestrian Access Route at least 30 days prior to implementation of the work. Indicate the following:

1. Construction work zones
2. Pedestrian access routes and detours through and around each construction zone.
3. Directional signage and signage schedules showing graphics layout for primary and secondary exterior sign band, messages, interior secondary sign messages, and sign band directional arrows.
4. The planned use of dual mode signage (audible and visual) for effective communication.
5. Proposed and existing utilities within the temporary pedestrian access routes.

6. Materials used to construct or establish the temporary pedestrian access route.

**2.1** Structural Information: Submit calculations for all loading conditions including impact load resistance for Pedestrian Covered Walkways, prepared, signed and stamped by a structural engineer registered in the Commonwealth of Massachusetts.

**2.1.1** Qualifications of Professional Engineer.
**2.1.2** Plan approved by MBTA Representative prior to start of work.

## 3.0 Work Plan Approval and Monitoring

Assistant General Manager (AGM) or Chief Operating Officer shall assign an MBTA Representative to approve the submitted plan and monitor the progress of work performed by an owner, contractor or other person(s) or entity. MBTA Representative is responsible for monitoring the progress of the work and assuring they following:

**3.1** Owners, Contractors, or those establishing temporary accessible path of travel adhere to the requirements as defined in this document.

**3.2** Approval of the Temporary Pedestrian Access Route plan prior to use.

**3.3** Complete and submit the MBTA Temporary Pedestrian Access Route Checklist C2008-001.

## 4.0 Program Review

MBTA System-Wide Accessibility will perform an annual review with all MBTA departments that utilize this work procedure and update as needed the Temporary Pedestrian Access Route Work Procedure in conformance with the MBTA Technical Document Development Procedure. As part of this review, MBTA employees and contractors will be consulted as to work practice controls and the review will include an assessment of currently available engineering controls to ensure that the MBTA practices are consistent with current industry standards and best practice.

# Attachment 1 – Barrier Examples

**New Sentry 36" x 48" Barricade**

**Our New Sentry barricade is the most versatile barricade on the market and is approved by the Highway Administration with an NCHRP-350 rating as a TL-1 Longitudinal channelizer (WZ-188)**

- 36" tall x 48" long makes quick work of any work zone or security perimeter.
- Low center of gravity and large capacity for ballast (100 gallons equals 884 lbs. of water) resists tipping vehicles.
- Threaded inserts molded into the barricade allow reflective 'rails', signs, sign or fence posts, or eye-bolts separately) to be attached directly to the walls of the barricade.
- Patented vandal proof U-connectors in the bottom of the barricade create a continous line of protection.
- Compatible with 24" tall Minuteman barricades to create walls of varying height.
- Barricades nest and stack for shipping and storage.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| NS 36x48 Org | New Sentry 36" x 48" Barricade | http://www.trafficsafetystore.com/ProductOptionDetails.aspx?ID=248 | Orange | $199.00 | $179.00 | $169.00 | 1 |
| NS 36x48 Wht | New Sentry 36" x 48" Barricade | http://www.trafficsafetystore.com/ProductOptionDetails.aspx?ID=249 | White | $199.00 | $179.00 | $169.00 | 1 |

*Mailing Address:*
The Traffic Safety Store
PO Box 1449
West Chester, PA 19380

**http://www.trafficsafetystore.com/SubCatMProdDetails.aspx?CID=10&SCID=38**

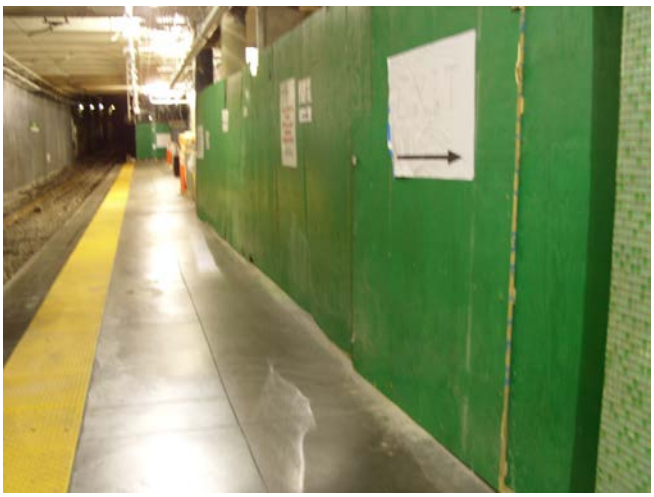
# Attachment 1 – Barrier Examples Continued


Entrances: Plywood doors

Path of travel: Plastic barricades

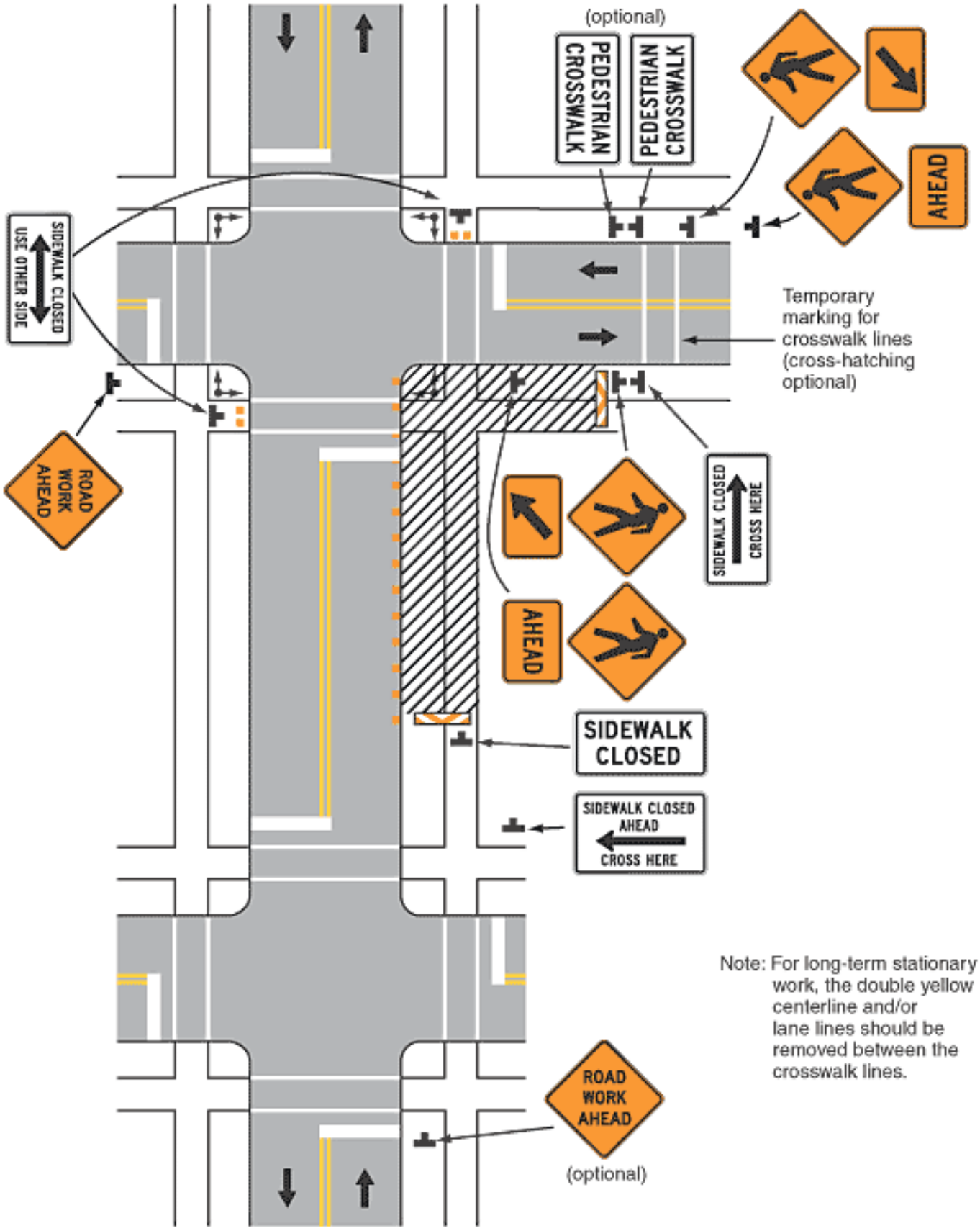
Portable ramp for curb transition
into the temporary pedestrian access route

Safety barriers along both sides of
temporary pedestrian access route



Plywood safety barrier protection along platform

## Attachment 2 Signage



# Attachment 3 Audible Signage

Empco-Late Profile

CHIRP 350

Traffic Safety Products
- Barricade
  - Tubular
  - 3V LED
  - ADA Light
- B-Late Warning
- Work Zone Light
- Revolving
- Strobes
- Sequential
- Battery Holders
- Brackets

Safe Routes To School

Marine Safety Products
- Barge Lights
- Dredge Lights

Airport Lights

Emergency Flares
- Police Flare
- Fire Flare
- School Zone Flare

Golf Lights
Railroad Lights

Customer Service Reps

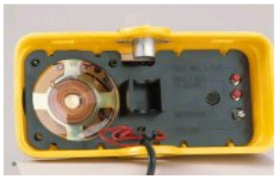
Empco-Lite®

## Type A.D.A.* I & II Lights

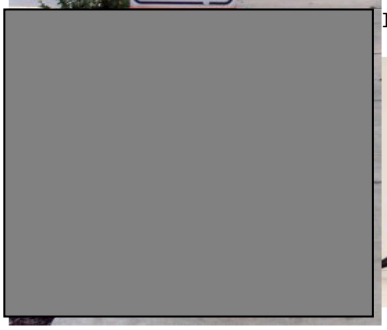
**Meet requirements of Part 6D MUTCD**

**Model 400ML**
**An Audible Information Device**

Easily programmed for your message. Simply remove bottom to expose microphone, press record button and speak into microphone. Record up to a 20 second message.

Message may be customized for each location as needed.



**Model 400ML**
**Type A.D.A. I**
**Announces a clear audible message: "sidewalk closed, bus stop moved, and/or etc."**

Motion detector picks up walking pedestrian from fifteen feet away.

When crosswalks or other pedestrian facilities are relocated, these units provide positive guidance for the visually impaired and disabled through temporary sidewalks.

Type "D"
Flashing Light with 360 degree Warning Device and Beeper sound

**Model 400AB**
Type A.D.A. II
Give positive guidance to visually impaired through temporary pathways with a unique "double" beeping sound.

### Recommended Battery Cases

**Model 400ML2C**
Holds two lantern batteries

**Model 400ML4C**
Holds up to four lantern batteries

*A.D.A. Americans Disabilities Act of 1990, Title II, Par. 35.130