

SAFETY IN WORK ZONES

This Toolkit Section Addresses:

- *Protective Barriers*
- *Covered Walkways*
- *Sidewalk Closure During Construction*
- *Intersections and Crossings Near Work Zones*
- *Accessibility in the Work Zone*
- *Maintenance*
- *Other Sources of Information*



Fencing used to secure a work area supported by blocks needs to be positioned to avoid creating obstacles or tripping hazards for pedestrians.

Pedestrian safety is an important issue in and around work zones. Pedestrians travel at slower speeds than other modes of transportation and are more susceptible to the impacts of access, dirt, noise, and fumes from construction areas. Work zones should be monitored at all times for pedestrian safety needs. Temporary access and detours should be provided to ensure safe, convenient, and accessible unimpeded pedestrian travel in and around work zones. Access to pedestrian facilities such as bus stops, crosswalks, and links between origins and destinations should be provided. Extra travel distance to these locations should be minimized or avoided. Traffic control by police or construction workers through flagging and signs may be needed in certain areas when work vehicles and equipment are traveling across pedestrian paths or when pedestrian traffic is heavy. At a minimum, the pedestrian travelway should be clearly marked and signed through the construction zone. When possible, the travelway should parallel the disrupted right-of-way, on the same side of the street. Construction sites should keep all objects out of the pedestrian path including equipment, vehicles, construction signs, and cones. Pedestrians should feel safe and secure when traveling near work zones.

Urban and suburban settings have the highest volume of pedestrian traffic, and construction projects are most likely to impact pedestrians in these areas. Safe and convenient passage through or around a work zone should be provided. Pedestrians may ignore a detour that is out of the direction of their travel.

Local jurisdictions responsible for traffic safety in work areas should train construction inspection staff to recognize improper and unsafe pedestrian facilities during construction.

Protective Barriers

Near work zones where higher volumes of pedestrian traffic or school children exist,

Considerations for Pedestrian Safety in Work Zones

- Separate pedestrians from conflicts with construction vehicles, equipment, and operations.
- Separate pedestrians from conflicts with traffic traveling around or through the construction area.
- Provide a safe, convenient, and accessible route that maintains the direction and character of the original route.
- In urban areas, avoid work vehicle traffic during high pedestrian travel times which include mornings between 8:00am-9:00am, lunch times between 11:30am-1:30pm, and in the evenings between 4:30pm-5:30pm.
- Provide police patrol or guards for pedestrian safety when needed, especially during times of high construction and/or high pedestrian traffic.
- Communicate construction activity and pedestrian impacts through local media and pedestrian interest groups. Contact community and school officials in the area.
- Avoid using delineating materials that are difficult to recognize by people with impaired sight.
- Walkways through construction zones should be a minimum width of 5 feet.

Source: Based on ITE' Design and Safety of Pedestrian Facilities; and MUTCD 2000

Table 60

pedestrian fences or other protective barriers may be needed to prevent pedestrian access into a construction area. Barriers should be made of sturdy, non-bendable material such as wood. Pedestrian fences should be at least 8 feet high to discourage pedestrians from climbing over the fence. Any devices that are placed in the "clear zone" should be designed to be crashworthy. Table 60 lists other considerations for encouraging safety in work zones.

Covered Walkways

For construction of structures adjacent to sidewalks, a covered walkway may be required to protect pedestrians from falling debris. Covered walkways should be designed to provide:

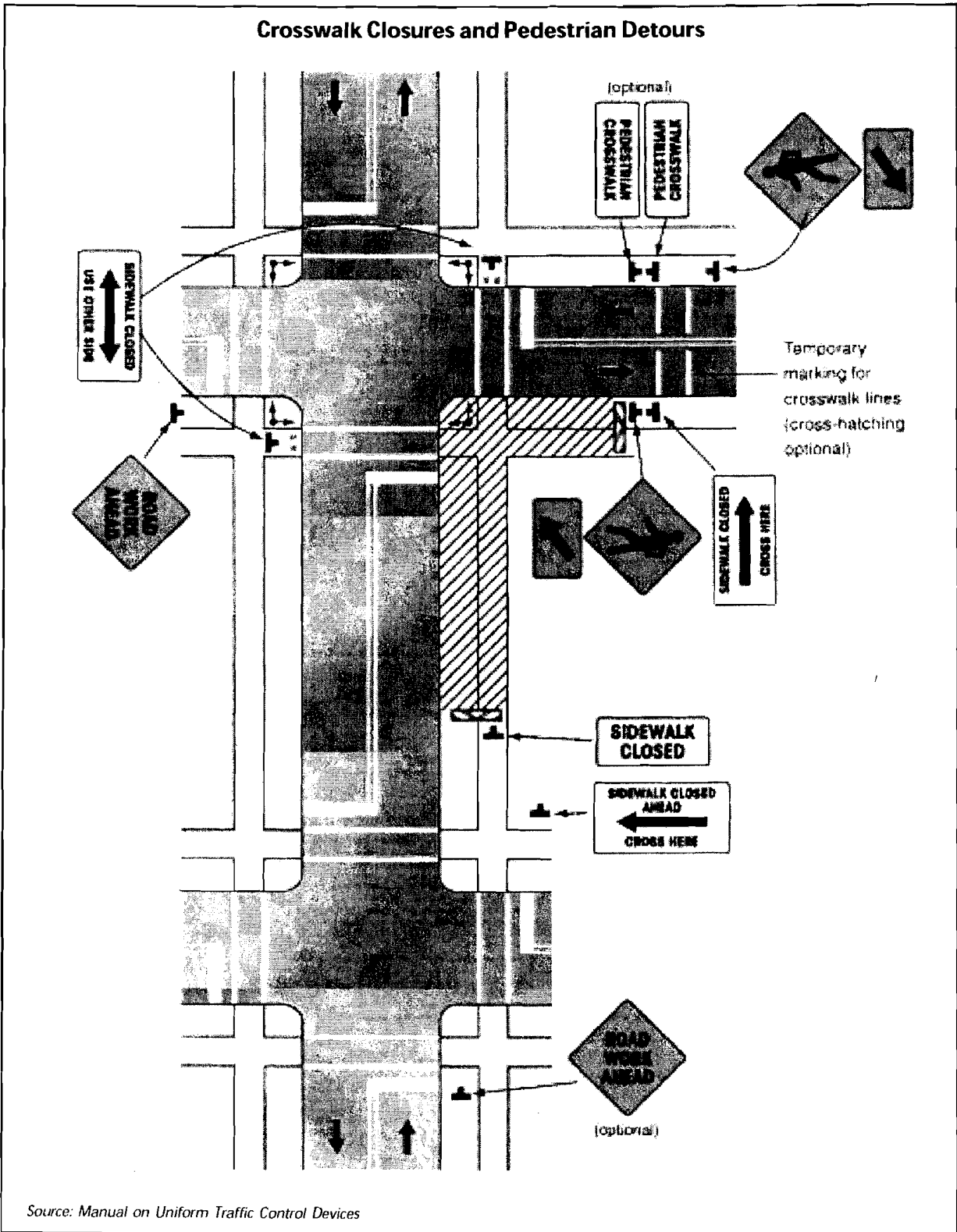
- sturdiness
- adequate light and visibility for nighttime use and safety
- proper sight distance at intersections and crosswalks
- adequate and impact-resistant longitudinal separation from vehicles on higher speed streets; for work zones adjacent to high speed traffic, wooden railings, chain link fencing, and other similar systems are not acceptable

Sidewalk Closure During Construction

It is undesirable to close sidewalks or pathways during construction. This should be the last option. If sidewalks have to be closed, construction sites should provide alternative pedestrian routes, safe crossings to the other side of the street, and easy-to-read and distinguishable signs and placement markings. Temporary walkways must also be safe and clear of obstructions such as debris, potholes, grade changes, and mud.

If a temporary route is created in the roadway adjacent to the closed sidewalk, the parking lane or one travel lane in a multi-lane street may be

Crosswalk Closures and Pedestrian Detours



Source: Manual on Uniform Traffic Control Devices

Figure 128

used for pedestrian travel, with appropriate barricades, cones, and signing, as illustrated in Figures 128 and 129. When using a barricade, good practice would provide a continuous route, detectable by a cane. When a parking lane or travel lane is not available for closure, pedestrians must be detoured with advance signing in accordance with the *Manual on Uniform Traffic Control Devices*. For mid-block construction, signs should be placed at the nearest intersection

to forewarn pedestrians of a sidewalk closure. Signs should also be placed to avoid blocking the path of pedestrians.

Intersections and Crossings Near Work Zones

- At intersections, avoid closing crosswalks.
- At signalized intersections, mark temporary crosswalks if they are relocated from their

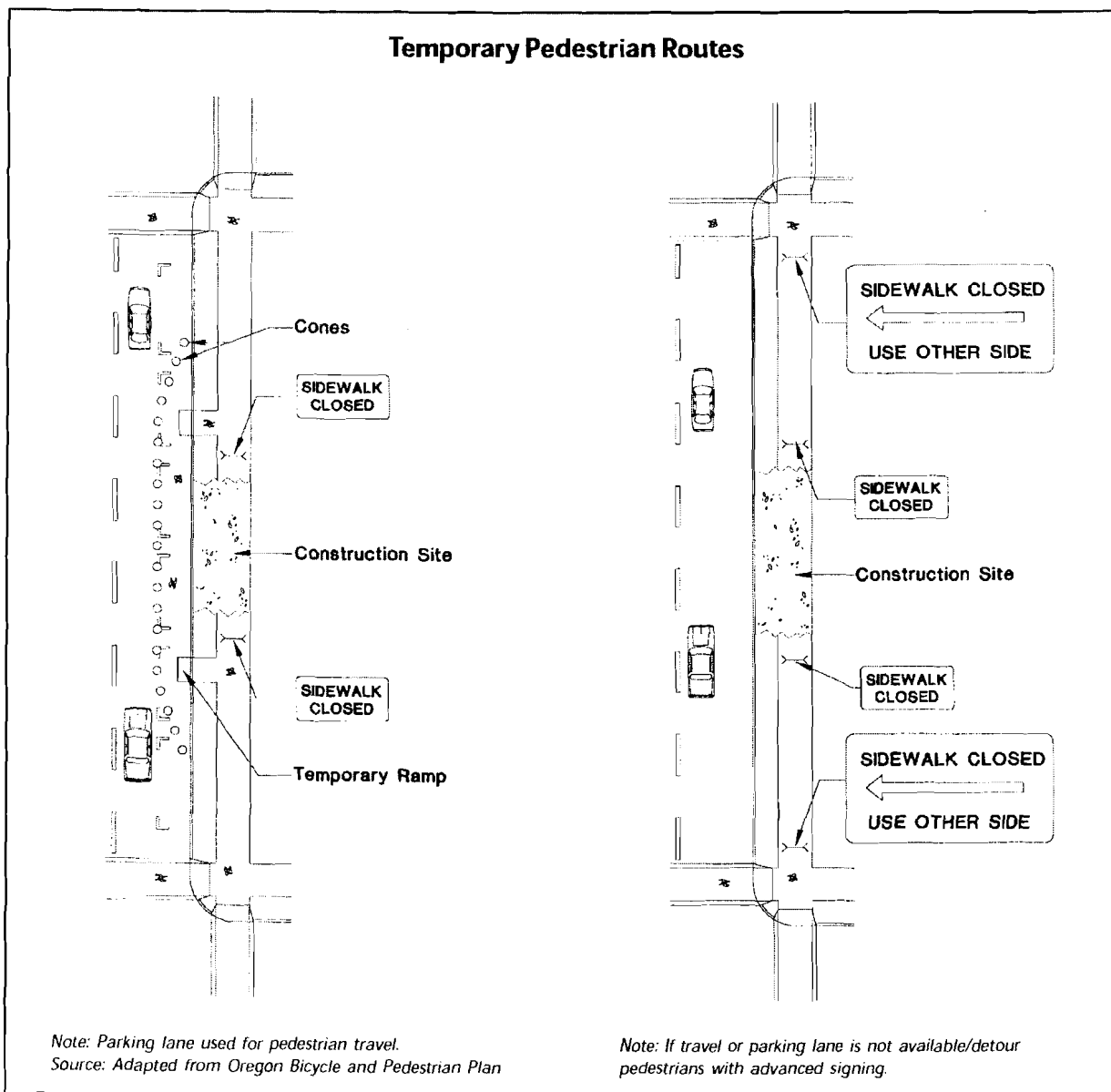


Figure 129

previous location. Maintain access to pedestrian push buttons.

- Include pedestrian phases in temporary signals.
- Place advanced signing at intersections to alert pedestrians of mid-block work sites and direct them to alternate routes.

Accessibility in the Work Zone

The removal of a pedestrian travel way in the right-of-way may severely limit or preclude a person with a disability from navigating. The temporary travel way should be convenient and accessible for all users and should minimize or avoid extra travel distance. The temporary travel way should have no vertical protrusions up to 80 inches. The travelway should be well protected with a barricade. Barricades should be continuous, stable, and non-flexible. It should be constructed with a toe rail no higher than 1-1/2 inches above the adjacent surface and a continuous railing mounted on top. The barricade height should not exceed 42 inches and

the top rail shall be situated to allow pedestrians to use the rail as a guide for their hands. The top railing of the barricade should have diagonal stripes with 70 percent contrast. This will assure the barricade is highly visible to pedestrians.

Warnings should be provided at both the near side and the far side of the intersection preceding the disrupted right-of-way. Warning signage should be accessible to pedestrians who are visually impaired. Broadcast signage and flashing beacons with an audible tone are examples of signage that could be used.

Maintenance

Pedestrian facilities in and adjacent to work zones should be maintained to provide safety and functionality. Proper maintenance will maximize the effectiveness and life of work zone pedestrian facilities. Poor maintenance can result in increased work zone accidents. Table 61 summarizes recommended maintenance activity for pedestrian facilities in and adjacent to work zones.

Work Zone Maintenance	
<i>Issue</i>	<i>Recommended Maintenance</i>
Temporary pathways constructed of inexpensive, short-life materials	Pathway surfaces should be inspected regularly. Surface materials should be treated with nonslip materials. Surface materials with holes, cracks, or vertical separation should be replaced.
Detour pedestrian paths increase volumes on detour roadway	Detour pathway should be inspected regularly for adequacy of signal timing, signing, and pedestrian traffic hazards.
Construction material debris on pathway	Require contractor to maintain clear pathways.
Changing pedestrian route during construction	Inspect pedestrian signing regularly to ensure a clearly understood pathway.
Damaged traffic barriers	Replace and reevaluate adequacy for pedestrian safety.

Source: Adapted from Bicycle and Pedestrian Facilities Planning and Design Guidelines, North Central Texas Council of Governments

Table 61

Other Sources of Information

- *Bicycle and Pedestrian Facilities Planning and Design Guidelines*, North Central Texas Council of Governments
- *Florida Pedestrian Planning and Design Guidelines*
- Oregon Bicycle and Pedestrian Plan
- *ITE Design and Safety of Pedestrian Facilities*
- *Building a True Community*
- *MUTCD*