

Pedestrian Mobility and Safety Audit Guide

Table of Contents

Acknowledgments	1
Introduction	5
Institutional/Governmental	9
Environment	13
Traffic/Drivers	19
Pedestrian	21
Pedestrian Shoulders	21
Pedestrian Sidewalks	21
Pedestrian Crossings	25
Pedestrian Behavior	35
Transit	37
Bicycles	39
Appendix A—Pedestrian References	41

Acknowledgments

Authors

Edward R. Stollof, Senior Director, Safety Programs, Institute of Transportation Engineers

Janet M. Barlow, Certified Orientation and Mobility Specialist, Access Design for the Blind

Project Team

Gary B. Thomas, Director of the Center for Professional Development at Texas Transportation Institute, Texas A&M University

Frank Carroll, Senior Project Manager, Mobility Options, AARP Driver Safety Program & Mobility Options

Elizabeth Bradley, Integrated Communications, AARP

Philip J. Caruso, Deputy Executive Director, Institute of Transportation Engineers

Marianne E. Saglam, Senior Communications Director, Institute of Transportation Engineers

Christina Garneski, Graphics and Layout Specialist, Institute of Transportation Engineers

Publications

A number of checklist items used in this guide were extracted from the following publications:

- Federal Highway Administration (FHWA) publication, *Pedestrian Road Safety Audit Guidelines and Prompt Lists*. Final Report. July 2007.
- *FHWA: A Resident's Guide for Creating Safe and Walkable Communities*.
- Easter Seals Project ACTION as part of the *Toolkit for the Assessment of Bus Stop Accessibility and Safety*.

Photos from the Audits



Photo credit: Ed Stollof



Photo credit: Ed Stollof



Photo credit: Ed Stollof



Photo credit: Ed Stollof



Photo credit: Ed Stollof



Photo credit: Ed Stollof



Photo credit: Ed Stollof

Introduction

The *Pedestrian Safety and Mobility Audit Guide* can be used as a tool before volunteer auditors go out into the community. The guide can be used to familiarize volunteers with the myriad technical, administrative, regulatory, social and behavioral issues related to pedestrian safety and mobility at intersections and road segments. Figure 1 illustrates the pedestrian safety and mobility audit process used by the AARP/ITE volunteer participants. The content of this guide is reflective of the elements contained within step 1 of the pedestrian safety and mobility audit process.

In the following section each of the major steps of the audit process are briefly reviewed to provide the reader with a comprehensive understanding of the process followed by the AARP/ITE pilot pedestrian safety and mobility audit program. Please keep in mind that any of these steps can be modified and tailored to the resources of each locality and that AARP and ITE are looking for continuous feedback on processes and materials so that refinements may be made in the future.

FIGURE 1. Pedestrian Safety and Mobility Audit Process



Step 1: The Audit Guide

This guide is not meant to be used as an exhaustive checklist. Other more extensive and/or subject-related checklists are available from the U.S. Department of Transportation, Federal Highway Administration¹, Easter Seals PROJECT ACTION², the University of California Berkeley and Institute of Transportation Studies Technology Transfer Program. A more comprehensive set of references for pedestrian audit guides, prompt lists, checklists and knowledge bases that can assist community volunteers can be found in Appendix A of this document. This audit guide provides the basis for orientation and discussion with audit participants during the audit day briefing (Step 2).

Feedback from the AARP pilot test volunteers and staff indicated that the audit guide needs to be as “non-technical” as possible and that the photographs are extremely helpful. AARP volunteers and staff like the fact that they were provided with the audit guide in advance of the audit because they had time to study the materials and to review the photographs. As part of the preparation for the pedestrian safety and mobility audits, advance information for the audit locations was provided in terms of maps, digital photographs, traffic counts and pedestrian crashes (if available). The audit participants used the materials in the guide, such as photographs of potentially good solutions and mobility and safety obstacles to clarify their thoughts on the issues presented for their own community on the day of their audit.

This guide is different from other guides developed for governmental or educational organizations in the following ways:

- The document is as non-technical as possible. A combination of brief questions and photographs are used to illustrate basic knowledge or content areas.
- The document is as short as possible. Many audit guides are more than 100 pages in length; this guide is just over 40 pages. The need for brevity is balanced with the requirement to provide the reader technical tools needed for the audit.
- The questions and tips associated with each photograph are designed as if the volunteer and audit participant is not “sitting in their living room” while reading this guide, but as if the volunteer/audit participant is walking along a sidewalk or through an intersection. A realistic picture has been painted so when participants go into the field they will have a comprehensive understanding of pedestrian safety and mobility issues.

The guide is divided into the following content areas:

- Institutional/Governmental
- Environment

1. *A Resident’s Guide for Creating Safe and Walkable Communities*: http://safety.fhwa.dot.gov/PED_BIKE/ped/ped_walkguide/residentsguide.pdf.

Pedestrian Road Safety Audit Guidelines and Prompt Lists. FHWA. Final Report. July 2007: <http://drusilla.hsrc.unc.edu/cms/downloads/PedRSA.reduced.pdf>.

2. A checklist was developed by Easter Seals PROJECT ACTION as part of the *Toolkit for the Assessment of Bus Stop Accessibility and Safety*. More information can be found at http://projectaction.easterseals.com/site/PageServer?pagename=ESPA_BusStopToolkit.

3. *A Technical Guide for Conducting Pedestrian Safety Assessments for California Cities*: http://www.techtransfer.berkeley.edu/tse/psa_handbook.pdf.

- Traffic/Drivers
- Pedestrian
- Transit
- Bicycles

Step 2: Conduct the Audit Briefing

The audit briefing is a classroom-style learning experience designed to provide the volunteer participants with a reinforcement of knowledge beyond what participants have learned from their preparation included in the audit guide. Another key element of the audit briefing is to have the volunteers and the professionals talk to one another in a discussion format. AARP volunteers are able to interact with ITE traffic engineers, local police, city council persons, directors of public works, transit and parking professionals, office of aging staff, metropolitan planning organization staff, state department of transportation planners, engineers and others. The volunteers (1) understand who to contact for help to solve a transportation-pedestrian problem and (2) can begin to grasp the complexity of the governmental decision-making structure.

The classroom time is approximately one to two hours, depending how the local community group desires to organize the day. The briefing can include a discussion of (1) logistics of the day; (2) audit goals (e.g. safety, mobility, accessibility, sustainability/quality-of-life); (3) problem identification; (4) development of solutions; and (5) implementation.

Step 3: Conduct the Field Audit

Depending upon local needs, the pedestrian audit may consider one or more blocks of sidewalk, one or more intersections or road sections within a community, or multiple areas within a community. In terms of lessons learned, regarding time requirements and physical demands, the experience of the pilot workshops indicated that to adequately address complex intersections that may be within different areas of a jurisdiction, participants may need to allow 30 to 45 minutes to evaluate each location. This will allow different teams to address each of the content areas included in the guide. In the pilot workshops AARP volunteers were paired with ITE transportation engineers or other traffic or transportation professionals during the field audit. During the field audit the goal was to identify the problem and potential solution development. In a given day the teams were able to accomplish a maximum of three to five intersection locations before departing back to the “classroom” for the debriefing session. Keep in mind, the entire audit team conducted a mini-debriefing at the conclusion of the field audit. The participants “huddled together” to discuss the location findings and conclusions prior to traveling to the next location.

Step 4: Audit Debriefing

The final step of the audit day is the audit debriefing. The amount of time allotted for this step is approximately 30 minutes. In this step, the organizers of the audit distributed and collected evaluation forms. In addition, there was a discussion between the volunteers and the transportation professionals regarding how improvements to future workshops could be made. The organizers of the workshop discussed the extent to which the volunteers gained an appreciation for what to look for in terms of existing conditions related to problem identification and development of solutions.

Step 5: Implementation

During the implementation phase, there are a number of activities that need to take place including:

- prepare audit report;
- meet with agency representatives;
- contact local transportation engineer with questions regarding potential improvements or issues as needed; and
- prioritize, program and implement improvements.

Understanding the requirements of the above activities, the ITE transportation professionals can meet with the AARP volunteer one-on-one to first identify a problem and discuss potential solutions. One very important finding from the pilot project is that many high-impact pedestrian improvements needed by seniors and all users to make a difference are low-cost and can be implemented quickly. Sometimes a traffic engineer can implement an improvement that may be as simple as painting stripes in a crosswalk to make it more noticeable. Getting to the right agency representative in a local bureaucracy can sometimes be difficult. ITE transportation professionals can give guidance in directing individuals to the correct person or can give guidance themselves.

Institutional/Governmental

This section of the guide is a place to note the various people who may be involved in roadway, sidewalk and intersection planning and operations. Every city or jurisdiction has slightly different titles for these individuals; some may serve in two capacities in smaller areas. This section will provide you with a list of possible contacts, many of whom you may meet during the audit.

List the key contacts you already know and the ones you meet during the pedestrian safety and mobility audit. Also note the key contacts that you do not meet during the audit, but whose contact information may be useful in the future.

Key Contacts

Engineering/Public Works:

Traffic Engineer:

Planning Staff: Long-Range/Short-Range/Development Review:

Transportation Planner:

Metropolitan Planning Organization (MPO) Transportation Contact:

Local or State Safe Routes to School (SRTS) Coordinator:

Local or State Pedestrian Coordinator:

Local or State Bicycle Coordinator:

Local or State Safety Organization:

Parking Management/Parking Enforcement:

Transit Administration/Transit Services:

Americans with Disabilities Act (ADA) Coordinator:

Disability Rights/Advocacy Organization:

Department of Aging:

State Department of Transportation (Pedestrian Safety):

City/County Councilperson Interested in Pedestrian Safety:

Others:

Key Pedestrian-related Laws and Penalties

Determine the pedestrian-related laws in your state. If you do not know them, this is something that will be discussed on the day of the audit (please ask the police officer).

Laws regarding pedestrian behavior and right of way as well as driver behavior and right of way may be different at crosswalks with pedestrian signals compared to crosswalks without signals. When signals are present, pedestrians are required to obey the signals and must begin crossing during the WALK signal. When no signals are present, vehicles may be required to stop or yield for pedestrians only when pedestrians are within the lane of the roadway.



Photo credit: Ed Stollof

Who has the right of way at signals, pedestrians or drivers? Under what conditions?

Who has the right of way at unsignalized crosswalks, pedestrians or drivers? Under what conditions?

When should vehicles (drivers) yield for pedestrians?

Are there penalties for jaywalking?

Speeding laws

Other laws

LAW ENFORCEMENT

What do police and law enforcement in your community do to help protect pedestrians? What laws are in place? What else is needed?

CONTACTS

Chief of Police

Head of Traffic Section

Police Traffic Safety Enforcement Officer

Who are the contacts in the department who are interested in pedestrian safety or are working on pedestrian issues?

What are the police department policies and training processes related to enforcement of pedestrian laws?

What are some ways in which pedestrian concerns can be better addressed?

Environment

Identify locations, intersections and road segments you will be auditing:

What are the adjacent land uses?

Who are the primary users of the intersection/street segment?

- | | |
|--|--|
| <input type="checkbox"/> Cars/drivers (teens) | <input type="checkbox"/> Pedestrians (older persons) |
| <input type="checkbox"/> Cars/drivers (middle-aged adults) | <input type="checkbox"/> Transit/buses |
| <input type="checkbox"/> Cars/drivers (older persons) | <input type="checkbox"/> Light rail/trolley |
| <input type="checkbox"/> Pedestrians (children) | <input type="checkbox"/> Taxis/limousines |
| <input type="checkbox"/> Pedestrians (teens) | <input type="checkbox"/> Bicycles |
| <input type="checkbox"/> Pedestrians (middle-aged adults) | <input type="checkbox"/> Large trucks |
| <input type="checkbox"/> Pedestrians (women with strollers/babies) | |

What do you like about the photograph below from an “all user” perspective?



Photo credit: Ed Stollof

The environment here serves all users well:

- Bicycles (separate on-street bicycle lane)
- Pedestrians (wide sidewalks, shade trees, high emphasis crosswalk marking, curb ramp with truncated dome detectable warnings)
- Transit users (bus stop, shelter)
- Vehicles (parking, travel lanes)

Pleasantness of Walk

- Is the area pleasant for walking with nice buffers from the street and manicured lawns?
- Are the sidewalks shaded by trees?
- Are landscaping and street furniture (trees, benches, planters, bicycle racks, phone booths and hydrants) placed in a utility/planting strip along the curb outside the line of travel?
- Are there resting places for pedestrians, such as benches or low walls, along the sidewalks?
- Are resting places shaded adequately from the sun?



Photo credit: Michael Ronkin



Photo credit: Ed Stollof

Personal Security

Do you see any issues related to personal security?

- Run-down/vacant buildings
- Pollution/automobile exhaust
- Graffiti/trash
- Loiterers or suspicious/criminal activity
- Unleashed dogs
- Poor lighting

Maintenance and Obstructions

- Is the sidewalk generally clear of obstructions (no protruding trees, overhanging foliage)?
- Are there movable or temporary obstructions that can be addressed through maintenance, policy and enforcement (such as newspaper stands, parked cars, landscaping, portable signs and trash cans)?
- Is the sidewalk smooth or are there cracks or uneven surfaces that would present dangers to pedestrians?



Photo credit: Ed Stollof

Wayfinding

- Are there enough signs to help pedestrians find important destinations?
- Are street names clearly visible?
- Are walking routes clearly signed for pedestrians?
- Do signs convey a simple, clear meaning?

Some locations have maps that are specifically designed for pedestrian wayfinding, such as this example from Philadelphia (near right.)

A combination of readable maps and directional signage helps pedestrians locate destinations. The sign on the far right could be improved by the addition of information about the distance to destinations.



Photo credit: Michael Farrell



Photo credit: Michael Farrell

Construction Areas

- Are sidewalks continued through construction areas?
- Are the walkways smooth and easy to negotiate?
- Are signs clear and easy to read? People who are blind may need tactile or audible cues to warn them of obstructions. Are these cues provided at appropriate locations?
- Do you feel safe walking near construction?



Photo credit: Meg Robertson



Photo credit: Barbara McMillen

Here are some examples of pedestrian crosswalk signs. Which signs do you like? Which signs have you seen in your own communities?



Photo credit: Ed Stollof



Photo credit: Ed Stollof



Photo credit: Ed Stollof



Photo credit: Michael Ronkin

Crossing Distance

- Street crossings should be direct, intuitive and as straight as possible.
- Are there ways to minimize crossing distances with narrower lanes and curb extensions?

As shown here, and in the picture on the following page, curb extensions, also called buld-outs, can be used where on-street parking is provided. This narrows the crossing and makes pedestrians more visible to drivers.



Photo credit: Michael Ronkin



Photo credit: Michael Ronkin

Sight Distance

- Are there objects at the side of the road or in the median that may obstruct sight-lines between approaching drivers and pedestrians beginning to cross the roadway? Objects may include trees and other landscaping, street furniture such as signal cabinets, transit shelters, utility poles and snow banks.
- Are there obstructions that would prevent a driver from seeing a child or a person in a wheelchair who are approaching intersections and driveways?
- Are pedestrian crossings located in an area where sight distance may be a problem?
- Can pedestrians see vehicles at all legs of the intersection/crossing and vice versa?

Lighting

- Does the sidewalk have adequate lighting? Adequate lighting is especially important on narrow pedestrian paths, underpasses and bridges where nighttime security is an issue. Additional lighting on the sidewalk is particularly important where trees obscure light from street lights. Commercial sidewalks should be more brightly lit than streets.
- Are intersections and crosswalks well-lit? Intersections (including mid-block crosswalks) should be twice as bright as the adjacent roadway.
- Are there illuminated signs at night? Do these signs assist pedestrians using the crosswalks?



Photo credit: Michael Ronkin



Photo credit: Ed Stollof

Traffic/Drivers

Speed and Other Driver Behavior

- Is vehicle travel speed a problem for pedestrians? How?
- Are there any traffic devices in the study area to slow down traffic?
- Are any vehicles running red lights?
- Do you observe illegal passing?
- Is there evidence of drunk driving?
- Is there evidence of aggressive driving?
- Is there evidence of distracted driving or cell phone use?
- Is traffic congestion so severe that backed-up traffic is blocking the crosswalks at signalized/unsignalized crossings or at mid-block crossings?
- Do vehicles that are turning right on green yield to pedestrians in the crosswalk?
- Are drivers who are trying to turn right on red pulling into and blocking the crosswalk?



Photo credit: Janet Barlow



Photo credit: Janet Barlow

Pedestrian

PEDESTRIAN SHOULDERS

Use of Shoulders as Pedestrian Facilities

- Is there a walkable shoulder along the road? Is it wide enough to accommodate cyclists and pedestrians?
- Is the walkable shoulder continuous and on both sides of the streets?
- If a walkable shoulder is present, consider the following:
 - Is the shoulder wide enough to accommodate pedestrian and bicycle volumes?
 - Is the shoulder continuous and on both sides of the street?
 - Does it provide a link to other pedestrian facilities?
 - Is the shoulder adequately maintained (free of mud, severe pavement deterioration and plowed snow)?
 - Is the shoulder clearly delineated by clear and well-maintained pavement markings?



Photo credit: Michael Ronkin

PEDESTRIAN SIDEWALKS

Sidewalks

- Are sidewalks provided beside the road?
- Are sidewalks continuous and on both sides of the streets?



Photo credit: Michael Ronkin



Photo credit: Ed Stollof

Lack of sidewalk prevents passage by pedestrians with mobility impairments and may be muddy and unpleasant for any pedestrian on a rainy day.



Photo credit: Janet Barlow



Photo credit: Michael Ronkin

Remember the sidewalk shown on the right (larger photo on p. 8)? Would you prefer a sidewalk that looks like this or the one on the left?

- Is the sidewalk width adequate for pedestrian volumes?
- Is the sidewalk pleasant, with a landscape strip between the sidewalk and the roadway, or is there a narrow sidewalk right beside the road?
- Does the sidewalk end abruptly? Is there a break or missing section in the sidewalk?
- Do the sidewalks provide at least a 48-inch minimum accessible width (level, smooth, without poles in the middle)?



Photo credit: Doug Barlow

- Are the walking surfaces adequate? For example, do unsafe conditions exist such as uneven surfaces, tripping hazards, minor uplifts, or lips in the pavement surface? Are the surfaces poorly maintained, with loose debris, snow, or ice?
- Are sidewalks smooth and slip resistant? Does the area use brick and bumpy textures? These are not good walking surfaces. Textures should only be used for edging and trim.
- Steep walking surfaces (both running slopes and cross slopes) can affect pedestrian stability and control, especially for persons with disabilities. Are sidewalks designed to minimize slopes? Do they provide intermittent level landings (places to stop and rest)?



Photo credit: Janet Barlow

This narrow sidewalk on steep uphill slope would be difficult for pedestrians with disabilities. It is also on a school walking route.

Driveways

- Does the number of driveways make the route undesirable for pedestrian travel?
- Driveways and smaller cross streets should raise to sidewalk level, not vice-versa – think of wheelchair access and going up and down at every driveway.
- Are drivers at driveways endangering pedestrians on the sidewalk?



Photo credit: Ed Stollof

This photo shows arterial with commercial driveway entrances and exits onto sidewalks every few feet. Is this the type of environment that would be a comfortable walk from an environmental and utilitarian standpoint? Would you feel safe walking here?

Signs and Other Features

- Are signs worn, missing, or damaged?
- Is the visibility of signs adequate during the day and night? If there is poor visibility, what is the issue? Poor sign visibility may result from damage, vandalism, poor maintenance, or obstruction by vegetation or other structures.



Photo credit: Janet Barlow



Photo credit: Janet Barlow



Photo credit: Janet Barlow

Are there other maintenance issues, such as the exposed wires shown in the photo on the left?

Corners

- Is the waiting area sufficient to accommodate pedestrians, including those in wheelchairs or those with strollers, during peak pedestrian times?

Besides the limited waiting space at the corner shown in this photo, the curb ramps are too steep and drainage is poor (notice the puddles at the base of the curb ramps.)



Photo credit: Michael Ronkin

- When pedestrian crossing is prohibited, are pedestrians directed to better crossings with physical barriers, such as fencing, barriers, bollards, shrubs and signs?



Photo credit: Ed Stollof



Photo credit: Doug Barlow

Narrow clearance, a slippery manhole cover and elevation changes of the sidewalk pictured on the right could cause tripping. Buses extending into sidewalk could also impede movement of people walking, using wheelchairs, or crutches. The changing slopes could cause balance difficulties.

PEDESTRIAN CROSSINGS

- Do steep grades (either perpendicular or parallel to crossings) cause problems for pedestrians, especially those in wheelchairs?
- Do curb ramps on islands or other refuge areas line up with each other?
- If a raised median or island is present, is it accessible for all pedestrians? Does it have curb ramps or cut-throughs of an appropriate width for wheelchair users, with enough room to wait? Does it have detectable warnings so blind users can detect the median? Are there pushbuttons on the median to call the WALK signal?



Photo credit: Janet Barlow



Photo credit: Ed Stollof

Crosswalk Markings

- Is paint on stop bars and crosswalks worn?
- Is the visibility of pavement markings adequate during the day and night?
- Are marked crosswalks wide enough?
- Are the walking surfaces in the crosswalks smooth and slip resistant? Does the area use brick and bumpy textures? Are the crosswalk markings slippery?
- Are crossings free from puddles, holes, cracks and other discontinuities in the pavement that could trip pedestrians or snag wheelchairs?
- Are the crosswalk markings of the high-visibility type, either ladder or continental style? (Ladder type markings are shown in the photo above and can be easier for people with low vision to see and use).



Photo credit: Ed Stollof



Photo credit: Ed Stollof

In the photo on the right, does the crosswalk location and direction appear to be the desired line connecting the adjacent land uses?

Look at the photos of crosswalks.

Do you see obstacles that might present themselves for wheelchair users, two persons walking side-by-side, or a person who is blind or visually impaired?



Photo credit: Ed Stollof



Photo credit: Janet Barlow

- How would the median island affect a person using a wheelchair, or someone who has difficulty with stepping up on a curb?
- Are there pedestrian signals here?
- Is there a curb ramp on the other side of the street?
- Is the sidewalk wide enough? Does the sidewalk seating block the passageway?
- Does the crossing on the right look easy to use?
- Is the pavement smooth?
- Are the markings clear?
- Is there a curb ramp?
- Are there pedestrian signals?
- Can you see and use the signal for vehicles?

Look at the photographs below. Would you feel safe walking from one side of the street to the other? Why or why not?



Photo credit: Lukas Franck



Photo credit: Ed Stollof



Photo credit: Janet Barlow

Curb Ramps

- Do all crosswalks have curb ramps to provide a transition from the sidewalk to the roadway?
- Look at the curb ramps at the intersection. Are there separate curb ramps for each crossing? There should not be a single diagonal ramp unless intersection angle is very acute.
- Are the curb ramps aligned with the crosswalk? Why do you think this would be a good idea?
- Is there a flush transition at the gutter so pedestrians who are walking or using wheelchairs are not tripped or stopped by a lip or curb?
- Is there adequate drainage at the gutter of each curb ramp so water, dirt and gravel do not accumulate at the base of the ramp?
- Does each curb ramp have a level landing at the top?
- Are truncated dome detectable warning surfaces provided on curb ramps? Detectable warnings should be installed wherever there is a flush transition between street and sidewalk, such as at base of curb ramps, the cut-through on a median or island, raised crosswalks, or raised intersections. The strips should be 24-inches wide and extend the width of the flush area.

Look at the photographs below and on the next page. What is wrong with these pictures?



Photo credit: Michael Ronkin

Vertical curb prevents passage on opposite side of the street.

New curb ramp on one side of the street.

What might be some other concerns or issues here?

- No crosswalk markings
- No detectable warnings



Photo credit: PEDS

The brand new ramp in this photo is not usable by a person in a wheelchair due to the lip.



Photo credit: U.S. Access Board

Note the photo of curb ramps aligned with the crossing direction, with a shared level landing at top of the ramps.

There may be more of a lip on this ramp than is desirable.



Photo credit: Ed Stollof

This photo shows a built-up curb ramp and is a design that is not usually recommended.

What are some of the possible problems with this design?

- Obstacle for vehicles
- People tripping on edges
- Potential drainage problems

Is the drain at the base of the ramp a problem?



Photo credit: Janet Barlow

The lack of level landing at the top of the curb ramp in the photo results in unevenness and an unacceptable cross slope on the sidewalk. This could cause a loss of traction and tripping for wheelchair users.



Photo credit: Janet Barlow

The detectable warning surface is installed along the area level with the street.

Detectable warnings at curb ramps help blind pedestrians and those with limited vision find the edge of the street, signaling them to stop. The required surface is the bumpy domed surface shown in this photo; other textures are not detectable. The color of the detectable warning should contrast with the sidewalk, either light on dark or dark on light.

What are some other concerns or issues in this photo?

- Uneven surface of the street
- People tripping on edges

Pedestrian Signals

- Are there pedestrian signals at the intersection?
- Do pedestrian signals provide adequate time for slower pedestrians to cross the street without feeling rushed?
- Are the pedestrian signals easy to see? Are they within the crosswalk area?
- Do signals count down the flashing DON'T WALK time? Do you think that is helpful?
- If there are no pedestrian signals, can pedestrians see the vehicle signal? Does it provide adequate time for a pedestrian to cross the street?
- Are the pedestrian signals audible?
- Is there a sign posted explaining the pedestrian signals and pushbuttons?



Photo credit: Todd Brooks



Photo credit: Todd Brooks



Photo credit: Ed Stollof

The photo on the left shows an older type of audible signal (cuckoo/cheep) mounted on pedestrian signal head. Newer signal types provide sound from pushbutton.

Here are some examples of signs used with pedestrian signals. Do you think one is any better than the other? Are they understandable? Why or Why not?



Photo credit: Ed Stollof



Photo credit: Janet Barlow



Photo credit: Janet Barlow



Photo credit: Ed Stollof

Pedestrian Pushbuttons

- Do pedestrian signals have pushbuttons?
- Can you tell which crosswalk the pushbutton is for?
- Are the pushbuttons close to the crosswalk?
- Is there a level maneuvering space beside each pushbutton? A level area is needed to allow wheelchair users to let go of the wheels in order to push the button and maintain their balance.
- Are accessible pedestrian signals (APS) provided? New types of signals, called pushbutton-integrated APS, have new features and are helpful to all pedestrians.
- Are APS pushbuttons provided in a location that is easy to reach from the crosswalk and in line with the crosswalk that the pushbutton controls?



Photo credit: Janet Barlow

These two pushbuttons have signs that tell you the name of the street they control, but there are no street signs.

Pushbuttons and their signs should be aligned with the crosswalk they serve.



Photo credit: Doug Barlow

These pushbuttons are on a pole in the grass more than 15 ft. from the corner and cannot be reached by individuals with mobility impairments.

They are also impossible to find for blind pedestrians and those with limited vision.



Photo credit: Janet Barlow

In the photo on the left, a curb ramp was provided at the pushbutton, but without a level maneuvering and turning space, the pushbutton is not usable by a person in a wheelchair or with a balance problem.



Photo credit: Janet Barlow

In the photo on the right, not the pushbutton-integrated APS on pole. The speaker is a part of the pushbutton unit, which has a large tactile arrow with good visual contrast. The arrow should be aligned with the crosswalk lines.

The audible walk indication comes from speakers at the pushbutton and may be a rapid ticking sound or a speech message saying the street name and "walk sign is on."

There is a pushbutton locator tone, a beep or a click that comes from the pushbutton once per second, to help blind pedestrians find the pushbutton.

Pedestrian Crossing Time

- When you take time measurements at various crosswalks, how long did it take pedestrians to cross the street (indicate name of street being crossed)?

Street _____ No. of Seconds _____

Street _____ No. of Seconds _____

Street _____ No. of Seconds _____

Street _____ No. of Seconds _____

- How long was the flashing DON'T WALK(the flashing orange hand) signal?

Street _____ No. of Seconds _____

Street _____ No. of Seconds _____

Street _____ No. of Seconds _____

Street _____ No. of Seconds _____

- If there is a pedestrian signal, what is the signal usually when pedestrians finish crossing the street?

- Flashing DON'T WALK
- Steady DON'T WALK
- Other

- If there is a median present, are pedestrian pushbuttons located on the median?
- Are APS available on the median (see photos of accessible pedestrian signals on page 27)?

Unsignalized Crosswalks

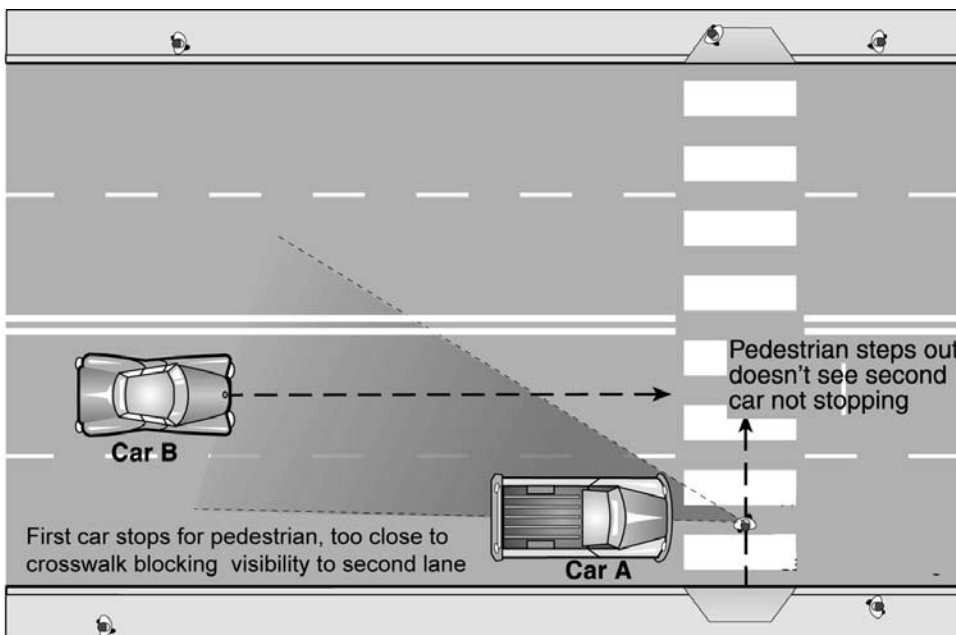
Unsignalized crosswalks may be located mid-block or at an intersection. They may or may not be marked with crosswalk lines. In most states, a legal crosswalk exists between two corners of an intersection even when it is not marked.

- Is it necessary to cross more than two lanes of traffic without a refuge (an island or safe place to wait)?
- Are there sufficient gaps in the traffic for a pedestrian to cross all the way to the other side or to the refuge?



Photo credit: Janet Barlow

- Is the distance from the stop line (or yield line) to a crosswalk sufficient for drivers to see pedestrians?
- At mid-block crossings, are driveways placed between the stop bar and pedestrian crossing?



Vehicles in adjacent lanes may obstruct drivers' view of pedestrians in the crosswalk.

A yield or stop line that is set back from the crosswalk can encourage drivers to stop further back where both drivers can see pedestrians crossing.

PEDESTRIAN BEHAVIOR

Crossing Roads

- Do pedestrians cross the road without looking?
- Do pedestrians cross the road at unsafe locations?
- Generally, do pedestrians walk or run across the road?
- Do any of the pedestrians appear intoxicated or under the influence of a substance? If yes, please explain.
- Do entertainment items such as cell phones and iPods distract pedestrians? Are pedestrians wearing headphones crossing intersections?
- Do pedestrians regularly misuse or ignore pedestrian facilities?
- Do the pedestrians generally hesitate or abort the crossings?
- Do you observe the pedestrians or vehicle collide? Do they have to stop or maneuver to avoid a collision?



Photo credit: Ed Stollof

What solution might you propose to mitigate the pedestrian crossing issues shown in the photographs below?

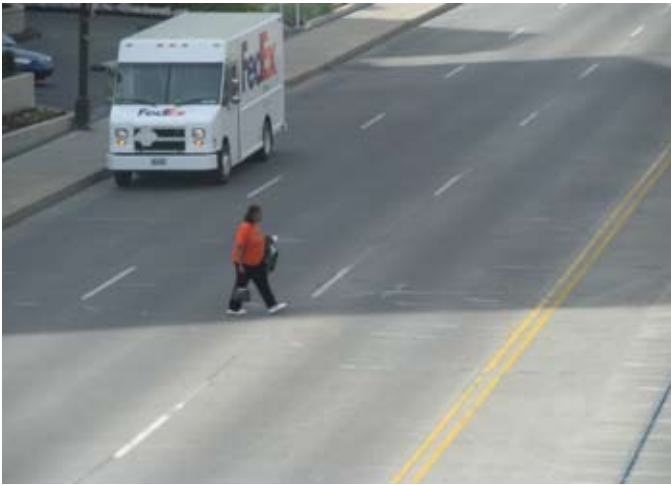


Photo credit: Ed Stollof

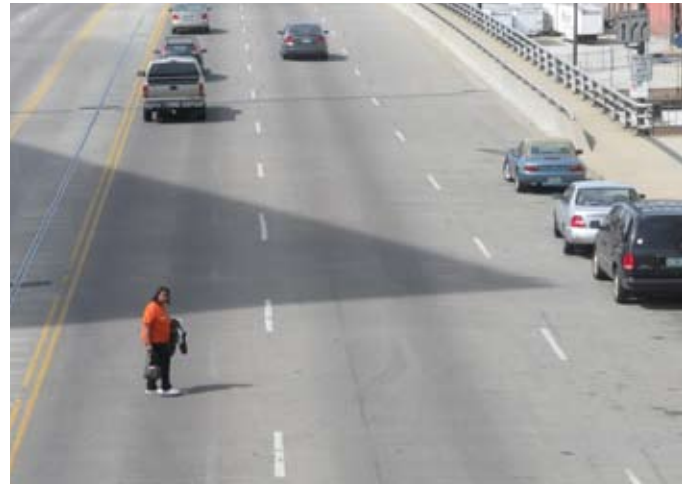


Photo credit: Ed Stollof

What are the issues?

- Wide street
- Long way between crossings (intersections)
- Destinations on opposite sides of the street

What are some possible solutions?

- Medians
- Less lanes
- Pedestrian crossing signal/HAWK

Transit

Bus Stops

- Are bus stops clearly marked? Do signs provide any route or schedule information?
- Are there sidewalks or pathways to easily access the bus stop?
- Are there safe crossings to access the bus stop?
- Do pedestrians near the bus stop take risks such as crossing the street in front of the bus or running across the street to catch a bus?



Photo credit: Janet Barlow

Bus Shelters

- Is there adequate seating?
- Are sidewalks blocked near bus shelters?
- Is the bus shelter waiting area and seating area at a safe and comfortable distance from vehicle and bicycle lanes?
- Can you easily get to the shelter from the sidewalk (or to the sidewalk from the shelter or the bus stop)? Is the path cluttered and narrow or blocked by signs, trees, or trash cans?



Photo credit: Ed Stollof

Bus Stops and Shelters

A landing area is the area for wheelchair lift to deploy or “land” and for people to get on and off the bus.

- Is there a landing area of at least 5-feet wide and 8-feet deep?
- Is the landing area paved and free of problems such as uneven surfaces, standing water and steep slopes?
- Are there any obstacles that would limit the mobility of a wheelchair (trash receptacle, newspaper boxes, landscaping, etc.) on the landing area?

Location

- Where is the bus stop in relation to the nearest intersection?
- Is there a companion bus stop across the street?
- Does the bus stop and the surrounding area have sufficient lighting?



Photo credit: Ed Stollof



Photo credit: Ed Stollof

Traffic Issues

- What is the posted speed limit of the roadway in miles per hour?
- Where does the bus stop or pull off to stop? Is it stopping in the travel lane or is there a parking lane or separate bus pull off area?
- What are the traffic controls at the nearest intersection to the bus stop?
- Is there on-street parking permitted just before or after the bus stop zone?
- What are potential traffic hazards in the vicinity of the bus stop or pull off area?



Photo credit: Ed Stollof

The photo on the left shows an older type of audible signal (cuckoo/cheep) mounted on pedestrian signal head. Newer signal types provide sound from pushbutton.

Bicycles

- Do you observe people riding bicycles on roadways?
- Do you observe people riding bicycles on sidewalks?
- Are there on-road bicycle lanes?
- Are shoulders marked for bicycle use?
- Are there separate bicycle signals?



Photo credit: Ed Stollof



Photo credit: Ed Stollof



Photo credit: Ed Stollof



Photo credit: Ed Stollof

Appendix A—Pedestrian References

“3.11: Pedestrian Safety and Accessibility Audit Tools,” Traffic and Road Use Management Manual, Volume 3, Queensland Government, Department of Main Roads, March 24, 2005, available online at <http://www.mainroads.qld.gov.au/MRWEB/Prod/Content.nsf>

AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities
https://bookstore.transportation.org/item_details.aspx?id=119

ADA Accessibility Guidelines (ADAAG)
<http://www.access-board.gov/adaag/html/adaag.htm>

A Guide for Reducing Collisions Involving Pedestrians (NCHRP Report 500)
http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_500v10.pdf

How to Develop a Pedestrian Safety Action Plan (FHWA-SA-05-12)
<http://www.walkinginfo.org/pp/howtoguide2006.pdf>

Improving Pedestrian Safety at Unsignalized Crossings (NCHRP Report 562)
http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_562.pdf

National Center for Safe Routes to School
<http://www.saferoutesinfo.org/>

Pedestrian and Bicycle Crash Analysis Tool (PBCAT)
<http://www.bicyclinginfo.org/bc/pbcats.cfm>

Pedestrian and Bicycle Information Center
<http://www.walkinginfo.org/>

Pedestrian Road Safety Audit Guidelines and Prompt Lists
<http://drusilla.hsra.unc.edu/cms/downloads/PedRSA.reduced.pdf>

PEDSAFE: The Pedestrian Safety Guide and Countermeasure Selection System (FHWA-SA-04-003)
<http://www.walkinginfo.org/pedsafe/>

Public Rights of Way Design Guide. Checklist for Accessible Sidewalks and Street Crossings Purpose: Provide standards for accessible rights of way. U.S. Access Board and Federal Highway Administration.
<http://www.access-board.gov/prowac/guide/PROWGuide.htm>

Road Safety Audits: Case Studies (FHWA-SA-06-17)
http://safety.fhwa.dot.gov/rsa/rsa_cstudies.htm

Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations (HRT-04-100)
<http://www.thrc.gov/safety/pubs/04100/index.htm>

A Technical Guide for Conducting Pedestrian Safety Assessments for California Cities
http://www.techtransfer.berkeley.edu/tse/psa_handbook.pdf



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