

Section C • Guidelines for Crosswalks

Guidelines for Crosswalks

C1 INTRODUCTION

Crosswalks are a critical element of the pedestrian network. It is of little use to have a complete sidewalk system if pedestrians cannot safely and conveniently cross-intervening streets. Safe crosswalks support other transportation modes as well. Transit riders, motorists, and bicyclists all may need to cross the street as pedestrians at some point in their trip.

C1.1 Attributes of Good Crosswalks

There are several attributes of good crosswalks. These can be realized through a variety of tools and designs. Some of these tools are described in the guidelines that follow.

Clarity — *It is obvious where to cross and easy to understand possible conflict points with traffic.*

Visibility — *The location and illumination of the crosswalk allows pedestrians to see and be seen by approaching traffic while crossing.*

Appropriate Intervals — *There is a reasonable match between the frequency of good crossing opportunities along a street and the potential demand for crossing.*

Short wait — *The pedestrian does not have to wait unreasonably long for an opportunity to cross.*

Adequate crossing time — *The time available for crossing accommodates users of all abilities.*

Limited exposure — *Conflict points with traffic are few and the distance to cross is short or is divided into shorter segments with refuges.*

Continuous path — *The crosswalk is a direct continuation of the pedestrian's travel path.*

Clear crossing -- *The crosswalk is free of barriers, obstacles and hazards. Almost every pedestrian trip includes crossing the street.*

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Almost every pedestrian trip includes crossing the street.

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C1.2 Crosswalks and Pedestrian Safety

Statistics for pedestrian injuries and fatalities for Portland, Oregon, between 1991 and 1995 are shown in Figure C-1. Clearly, crossing the street is the most dangerous element of a walk. While in the crosswalk area, a pedestrian is most vulnerable. Adding to the danger are today's many distractions, for example, the use of car phones.

C1.3 Legal Aspects of Crosswalks

Crosswalk may be defined as any portion of a roadway at an intersection or elsewhere that is distinctly indicated for pedestrian crossing. Where there are no pavement markings, there is a crosswalk at each leg of every intersection, defined by law as the prolongation or connection of the lateral lines of the sidewalks.

Missouri Revised Statutes give cities the power to provide for and regulate crosswalks (See RSMO 71.365 and RSMO 8.620).

Section 22A-25.7 of the Creve Coeur Zoning Ordinance states:

Where in the opinion of the Planning and Zoning Commission sufficient foot traffic will be realized across proposed streets to merit a crosswalk and/or pedestrian signal, the Planning and Zoning Commission may require the installation of such signals or striping of the street to provide for the safety of pedestrians.

C2 DESIGNING AND IMPLEMENTING CROSSWALK IMPROVEMENTS

C2.1 Crossing Treatments

In these guidelines, the term "crossing treatment" refers to physical treatment of a crosswalk to make it safer and more convenient for pedestrian travel. A crossing treatment may include the use of such tools as median refuges, curb extensions, or pavement markings at crosswalks. Many of these tools are presented in detail in the Crosswalk Toolbox, beginning on p. C-10.

Designers should examine the need for crossing treatments in all new projects or retrofits to existing streets.

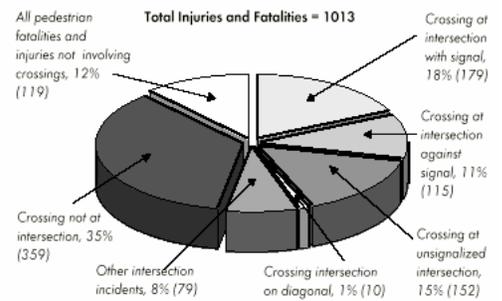
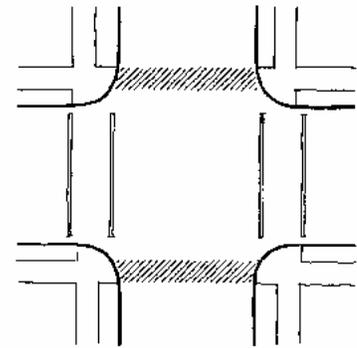


Figure C-1
Pedestrian Injuries and Fatalities in Portland,
1991-1995



If not marked, the legal crosswalk is the extension of the sidewalk on each side, as shown by the crosshatched area.

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C2.2 Frequency of Crossing Opportunities

In general, whatever their mode, people will not travel out of direction unless it is necessary. This behavior is observed in pedestrians, who will cross the street wherever they feel it is convenient.

The distance between comfortable opportunities to cross a street should be related to the frequency of uses along the street that generate crossings (shops, bus shelters and stops, etc.). In areas with many generators, such as future Pedestrian Districts, opportunities to cross should be very frequent. In areas where generators are less frequent, good crossing opportunities may also be provided with less frequency.

C2.3 Locating Midblock Crosswalks

Midblock crosswalks are installed where there is a significant demand for crossing and no nearby existing crosswalks.

Where midblock crossing treatments are employed, they should be aligned where possible with logical pedestrian travel patterns. For example, it makes sense to locate a midblock crossing where a public walkway easement or pedestrian connector meets a street.

See the Crosswalk Toolbox (page C-12), for guidelines on *midblock crosswalks*.

C2.4 Pedestrian Delay at Unsignalized Crosswalks

Pedestrian delay occurs when a pedestrian must wait at the curb for an interval before it is safe to cross the street. At unsignalized crosswalks, pedestrian delay occurs when pedestrians feel they must wait for a safe gap in the traffic before crossing. Although pedestrians have the right-of-way, many people feel safer waiting for a gap than asserting their right to cross.

Average pedestrian waiting time should generally be no more than sixty seconds at an unsignalized crossing.

Ideally, safe gaps should occur frequently enough that pedestrians will not be tempted to cross in unsafe gaps. Pedestrian delay at unsignalized crosswalks can be reduced either by adjustments to signals at nearby intersections (to increase gaps through platooning of



Midblock crosswalks are installed where there is a significant demand for crossing and no nearby existing crosswalks.



Very long crosswalks discourage pedestrian travel. Designers should avoid making crosswalks longer than 50 feet. For wider streets, consider the use of median refuge islands.

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traffic) or by the addition of *median refuge islands* (see page C-11, Crosswalk Toolbox).

C2.5 Minimizing Exposure During Crossing

Crossing the street is both safer and more convenient when the crossing distance is short. Pedestrian exposure to travel lanes should be minimized to the greatest extent possible.

What constitutes a short crossing distance will vary given the surroundings. In general, 50'-0" is the longest uninterrupted crossing a pedestrian should encounter at an unsignalized crosswalk.

There are several tools that the designer can employ to minimize crossing distance. One of the simplest is to use a small radius for the corner (see section B2.4). Use of other tools is discussed below, and specific information about each tool can be found in the Crosswalk Toolbox, beginning on page C-10.

C2.5a Curb Extensions

Curb extensions (also sometimes called “curb bulbs” or “bulb-outs”) are one way to reduce the crossing distance for pedestrians. Curb extensions allow pedestrians to move safely beyond a lane of parked cars to a position where they can see and be seen as they begin their crossing.

Curb extensions can also provide an area for accessible transit stops and other pedestrian amenities and street furnishings.

C2.5b Refuge Islands

Refuge islands allow pedestrians to cross one segment of the street to a relatively safe location out of the travel lanes, and then continue across the next segment in a separate gap. At unsignalized crosswalks on a two-way street, a median refuge island allows the crossing pedestrian to tackle each direction of traffic separately. This can significantly reduce the time a pedestrian must wait for an adequate gap in the traffic stream.



Curb extensions can shorten crossing distance.

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C2.5c Grade Separation of Pedestrians

Because pedestrians tend to cross where it is most convenient, grade-separated crossings, for example, an elevated walkway, are rarely successful where there is any possibility of gaps in the traffic stream that are adequate for crossing at grade.

Use grade-separated crossings only where it is not possible to provide an at-grade facility. Examples include crossing a freeway or major highway, a rail yard, or a waterway. See the Crosswalk Toolbox (page C-11) for guidelines on grade-separated crossings.

C2.6 Crosswalk Pavement Markings

Marked crosswalks indicate to pedestrians the appropriate route across traffic, facilitate crossing by the visually impaired, and remind turning drivers of potential conflicts with pedestrians.

Crosswalk pavement markings should generally be located to align with the Through Pedestrian Zone of the sidewalk corridor.

See the Crosswalk Toolbox (page C-14), for specific guidelines on the use of pavement markings.

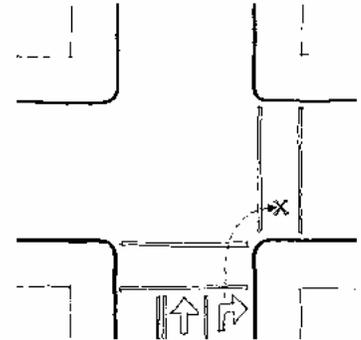
C2.7 Crosswalks and Traffic Signals

Traffic control signals are one way that both motorists and pedestrians can be given clear direction regarding the use of the roadway.

In future Pedestrian Districts where priority is given to walking trips it is appropriate to design for the convenience of pedestrians in considering signal placement and timing, even if it means reducing the efficiency of vehicle progression. For example, longer pedestrian phases may be desirable. The classification of the street in question must also be considered.

C2.7a Conflicting Movements of Pedestrians and Vehicles at Signals

Conflicts between vehicle movements and pedestrian movements at signals should generally be avoided, where possible.



The movements of traffic in turn lanes may conflict with pedestrian crossing.



Push buttons should be marked so pedestrians know which signal is activated.

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In the case where an arrow signal is used to indicate a mandatory traffic turning movement, the green arrow phase is never actuated at the same time as the walk signal for the adjacent crosswalk across which the traffic will turn.

In other cases, such as at a “T” intersection or a turn-only lane, the traffic may have an ordinary green signal (as opposed to a mandatory arrow), and both the green signal and the walk signal are actuated simultaneously. Motorists are expected to yield to pedestrians in the crosswalk in this situation, but do not always recognize their duty, especially during the pedestrian clearance interval.

A dedicated pedestrian-only phase may be considered to alleviate these potential conflicts, depending on the length of the signal cycle, the traffic impacts and the relative traffic and transit classifications of the street. This treatment is especially appropriate in future Pedestrian Districts.

The potential also exists for a simultaneous 4-way pedestrian crosswalk. In heavy pedestrian traffic areas, this type of crosswalk stops all automobile traffic eliminating pedestrian/auto conflicts.

C2.7b Pedestrian-Only Signals (POS)

Pedestrian-only traffic control signals are used at midblock location, where pedestrian volumes meet the warrants established in the Manual on Uniform Traffic Control Devices. Pedestrian-only signals are always pedestrian-activated.

C2.7c Detecting Pedestrians at Signals

Traffic control signals in Creve Coeur generally operate in one of three modes:

Fixed-time signals have a regular cycle of phases with a fixed amount of green time for each movement. There is a regular WALK phase in each direction for each cycle.

Fully-actuated signals use detection of vehicles and pedestrians to actuate all movements through the intersection. These signals are highly responsive to local traffic variations, and tend to be at some distance from other signals.

Semi-actuated signals tend to be located at intersections where the streets are unequal in volume. The presence of

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pedestrians and/or vehicles attempting to cross the major street from the less traveled street will activate these signals. Both green signal and WALK phases are on for the major street when no other movement requests are detected.

In both actuated signal situations, the pedestrian waiting to cross must be detected, either through pedestrian activation (the pedestrian pushes a button to get a WALK phase) or through passive detection (the presence of a waiting pedestrian is sensed through infrared or other types of detectors)

C2.8 Crosswalks and Intersection Treatments

There are a number of intersection treatments that may require special attention to crosswalk design. Some of these are discussed below.

C2.8a Right-turn Slip Lanes

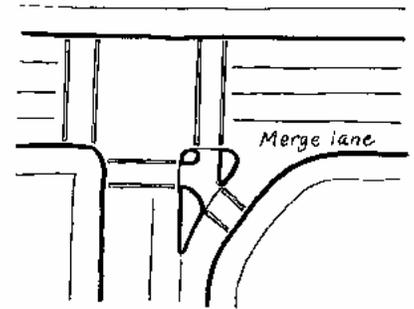
Right-turn slip lanes sometimes are provided to reduce traffic congestion by allowing the slip lane traffic to bypass a signalized intersection. The slip lane is separated from the originating street by a triangular refuge island sometimes called a "porkchop."

Right-turn slip lanes are not recommended in areas of high pedestrian use. In general, a standard corner with a small curb radius works better for pedestrians than the slip lane design. However, there are a number of factors that affect how well a given slip lane treatment functions for pedestrians, and these factors are discussed here.

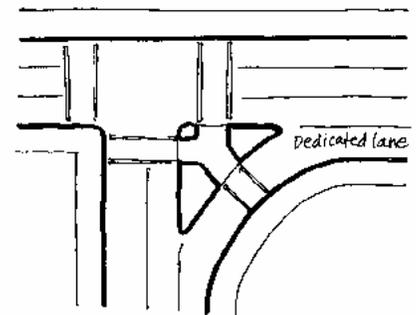
One factor is whether the turning traffic must yield to the cross-street traffic or has a dedicated lane to turn into. A slip lane design where turning traffic must yield to the cross street traffic gives a definite advantage to the pedestrian asserting his or her right-of-way in the crosswalk, compared to the dedicated lane design.

Where the turning traffic must yield to the cross street traffic, if the traffic volume on the cross street is low it is also likely that the turning traffic volume will be low, so there will be gaps for pedestrians to cross. If the traffic volume is high on the cross street, turning traffic will have to stop, creating gaps for pedestrians.

Where the turning traffic moves into a dedicated lane and does not yield to cross traffic, speeds through the slip lane



Slip lane where turning traffic must yield to cross traffic



Slip lane where turning traffic moves into a dedicated lane and does not yield to cross traffic

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are likely to be higher, there may be inadequate gaps for pedestrian crossing, and drivers are likely to fail to yield to pedestrians.

Where slip lanes are used it is better from the pedestrian standpoint to design it so that turning vehicles must yield to the cross street traffic.

It is appropriate to use pavement markings to indicate the crosswalk location at a slip lane, since both pedestrians and motorists need guidance as to the correct location for crossing.

C2.8b Modern Roundabouts

The modern roundabout is an intersection treatment that appears to have some benefits in terms of traffic operation and safety over conventional signalized intersections. However, the benefits of roundabouts for pedestrian safety and convenience are not clear.

Of particular concern is the ability of visually impaired pedestrians, trained to use audible cues from the traffic movements, to judge when it is safe to cross.

A second concern is the distance pedestrians may need to travel out of direction to negotiate the roundabout.

The typical modern roundabout includes approach median islands (sometimes called splinter islands), which should serve as pedestrian refuges at the crosswalks. Crosswalks should be marked to show pedestrians and motorists the correct pedestrian crossing location.



Traffic circle

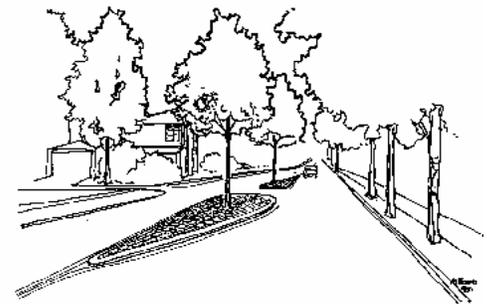
C2.8c Traffic Circles

Traffic circles are used as traffic calming devices to slow traffic speeds. The circles are typically placed in the center of intersections.

Pavement markings should be used where necessary to indicate offset locations of crosswalks around traffic circles. This may be needed to guide pedestrians away from the vehicle travel path around the circle.

C2.8d Slow Points

Slow point treatments are used as a traffic calming device to slow traffic speeds by narrowing the travel lanes, usually with a center median. This type of treatment can be



Slow point

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installed at a midblock crosswalk, providing a refuge island for crossing pedestrians.

C2.8e Traffic Diverters and Street Closures

Where traffic diverters or street closures are used for traffic management, pedestrian access needs to be considered and, where possible, should be maintained.

C2.9 Prohibiting Pedestrian Crossing

Typical intersections should allow pedestrians to cross in all the normal alignments. Prohibiting crossing should be considered only in limited circumstances. See the Crosswalks Toolbox, *No Pedestrian Crossing* (page C-12).

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CROSSWALK TOOLBOX

1. Audible Pedestrian Traffic Signals:

Purpose: To provide crossing assistance to pedestrians with vision impairment at signalized intersections.

Where to use: To be considered for audible signals, the location must first meet the following basic criteria:

- The intersection must already be signalized.
- The location must be suitable to the installation of audible signals, in terms of safety, noise level, and neighborhood acceptance.
- There must be a demonstrated need for an audible signal device. The need is demonstrated through a user request.
- The location must have a unique intersection configuration and characteristics.

Guidelines:

- Audible signals should be activated by a pedestrian signal push button with at least a one second-delay to activate the sound.

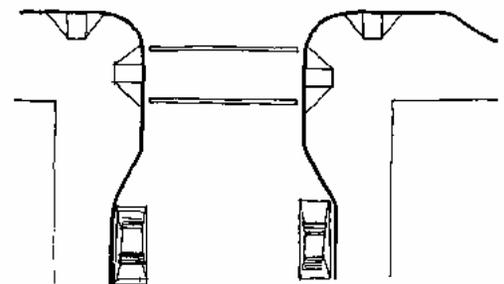
2. Curb Extension

Purpose: To minimize pedestrian exposure during crossing by shortening crossing distance and give pedestrians a better chance to see and be seen before committing to crossing.

Where to use: Appropriate for any crosswalk where it is desirable to shorten the crossing distance and there is a parking lane adjacent to the curb. (Note that if there is no parking lane, the extensions may be a problem for bicycle travel and truck or bus turning movements.)

Guidelines:

- In most cases, the curb extension should be designed to transition between the extended curb and the running curb in the shortest practicable distance.
- For purposes of efficient street sweeping, the minimum radius for the reverse curves of the



Curb extensions

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transition is 10 ft and the two radii should be balanced to be nearly equal.

3. Curb Ramps

Purpose: To make the sidewalk accessible from the roadway level of the crosswalk.

Where to use: At every intersection location where there is a crosswalk, whether or not the crosswalk is indicated with pavement markings.

Guidelines: See Section B, Guidelines for Street Corners and Curb Extensions.

4. Grade Separated Crossing

Purpose: To completely separate pedestrian travel from vehicular travel.

Where to use: Use only where it is not possible to provide an at-grade facility.

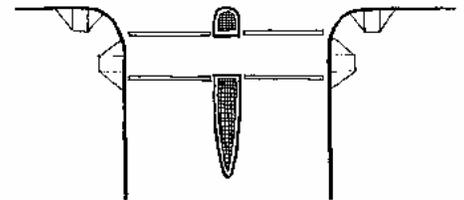
Guidelines:

- The crossing must be accessible.
- Grade changes should be minimized to the greatest extent possible.
- Shared bicycle/pedestrian facilities should have a clear passage width of at least 12'-0".

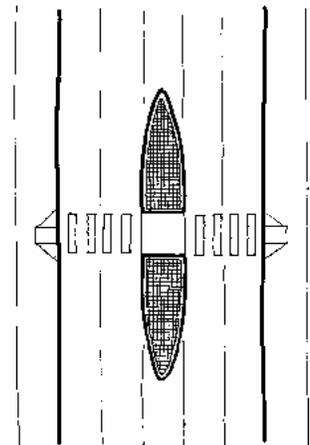
5. Median Refuge Island

Purpose: To minimize pedestrian exposure during crossing by shortening crossing distance and increasing the number of available gaps for crossing.

Where to use: Appropriate where the roadway to be crossed is greater than fifty (50) feet wide or more than four travel lanes; can be used where distance is less to increase available safe gaps. Use at signalized or unsignalized crosswalks.



Typical median refuge island at an intersection, with median nose and at-grade passage for crosswalk



Typical median refuge island at midblock, with at-grade passage for crosswalk

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Guidelines:

- The refuge island must be accessible, preferably with an at-grade passage through the island rather than ramps and landings.
- A median refuge island should be at least six feet wide between travel lanes and at least twenty feet long. On streets with speeds higher than 25 mph there should also be double centerline marking, reflectors, and “KEEP RIGHT” signage.
- If a refuge island is landscaped, the landscaping should not compromise the visibility of pedestrians crossing in the crosswalk. Tree species should be selected for small diameter trunks and tree branches should be no lower than 14'-0". Shrubs and ground plantings should be no higher than 1'-6".
- Refuge islands at intersections should have a median “nose” that gives protection to the crossing pedestrian (see illustration).

6. Midblock Crosswalk

Purpose: To provide a crossing opportunity where there is no intersection.

Where to use: At midblock locations, crosswalks are marked where:

- there is a demand for crossing, and
- there are no nearby marked crosswalks.

Guidelines:

Midblock crosswalks are always indicated with pavement markings and warning signs.

7. No Pedestrian Crossing

Purpose: to avoid conflicts between pedestrians and traffic in situations that are especially dangerous.

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Where to use: Prohibiting crossing should be considered only in very limited circumstances, for example:

- where it would be very dangerous for pedestrians to cross, as where visibility (for pedestrians or motorists) is obstructed and the obstruction cannot be reasonably removed.
- where so many legal crosswalks exist that they begin to conflict with other modes, as on an arterial street with multiple offset or "T" intersections.
- where there are unique considerations at a particular intersection and pedestrian mobility is not disproportionately affected by the closure.

Guidelines:

- Do not close crosswalks at "T" and offset intersections unless there is a safer crosswalk within 100' of the closed crosswalk
- use "Pedestrians Use Marked Crosswalk" signs for crosswalks closed to reduce an excess of crosswalks on a street with "T" or offset intersections
- use "No Pedestrian Crossing" signs for crosswalks closed for pedestrian safety

8. Parking Control

Purpose: to improve visibility in the vicinity of the crosswalk.

Where to use: Parking is prohibited within all intersections and crosswalks unless otherwise signed.

At "T" and offset intersections, where the boundaries of the intersection may not be obvious, this prohibition should be made clear with signage.

In areas where there is high parking demand (as determined by the City Traffic Engineer), parking for compact vehicles may be allowed within "T" or offset intersections and on either side of the crosswalk. At these locations, signs will be placed to prohibit parking within the designated crosswalk areas.

Parking shall not be allowed within any type of intersection adjacent to schools, school crosswalks, and parks. This includes "T" and offset intersections.

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9. Pavement Markings for Crosswalks

Purpose: To indicate to pedestrians the appropriate route across traffic, to facilitate crossing by the visually impaired, and to remind turning drivers of potential conflicts with pedestrians.

Where to use: At signalized intersections, all crosswalks should be marked. At unsignalized intersections, crosswalks should be marked when they:

- help orient pedestrians in finding their way across a complex intersection, or
- help show pedestrians the shortest route across traffic with the least exposure to vehicular traffic and traffic conflicts, or
- help position pedestrians where they can best be seen by oncoming traffic.

At midblock locations, crosswalks are marked where

- there is a demand for crossing, and
- there are no nearby marked crosswalks.

Guidelines:

- Use parallel pavement markings for signalized or stop-controlled crosswalks. A parallel pavement marking consists of two 1'-0" wide stripes placed 10'-0" apart (inside dimension) to delineate the outside edges of the crosswalk, parallel to pedestrian travel. Where there is a compelling reason to narrow the crosswalk, the inside dimension between stripes may be reduced to as narrow as 6'-0".
- Use ladder pavement markings for crosswalks at school crossings, across arterial streets for pedestrian-only signals, at midblock crosswalks, and where the crosswalk crosses a street not controlled by signals or stop signs. A ladder pavement marking consists of 2'-0" wide, 10'-0" long bars on 5'-0" centers, with the bars placed perpendicular to pedestrian travel.
- Where the Sidewalk Corridor is wider than 12 ft the crosswalks may be wider than the standard width to match the Sidewalk Corridor.
- At midblock locations, marked crosswalks are always accompanied by signing to warn drivers of the unexpected crosswalk.



Parallel pavement markings



Ladder pavement markings

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- The crosswalk should be located to align as closely as possible with the Through Pedestrian Zone of the Sidewalk Corridor.
- Where traffic travel lanes are adjacent to the curb, crosswalks should be set back a minimum of 2'-0" from the edge of the travel lane.
- Use headlight illuminated traffic bumps to alert drivers of upcoming unsignalized pedestrian crossings.

10. Pedestrian Push Buttons

Purpose: To permit the signal controller to detect pedestrians desiring to cross.

Where to use: Used at an actuated or semi-actuated traffic signal.

Guidelines:

- When push buttons are used, they should be located so that someone in a wheelchair can reach the button from a level area of the sidewalk without deviating significantly from the natural line of travel into the crosswalk.
- The button should be marked (for example, with arrows) so that it is clear which signal is affected.
- In general, use of pedestrian push buttons should be avoided in areas of high pedestrian use, such as future Pedestrian Districts. However, the pedestrian classification must be balanced with the other functions of the street. In future Pedestrian Districts there should be a demonstrated benefit for actuated signals before push buttons are installed. The following are some criteria for that benefit:
 - the main street carries through traffic or transit
 - traffic volumes on the side street are considerably lower than on the main street
 - the pedestrian signal phase is long (for example, on a wide street) and eliminating it when there is no demand would significantly improve the level of service of the main street

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- Where push buttons must be installed in high pedestrian use areas, designers should consider operating the signal with a regular pedestrian phase during off-peak hours.

11. Pedestrian Signal Indication (“Ped Head”)

Purpose: To indicate to pedestrians when to cross at a signalized crosswalk.

Where to use: All traffic signals should be equipped with pedestrian signal indications except where pedestrian crossing is prohibited by signage.

12. Porkchop Refuge Island (see Median Refuge Island)

Purpose: to shorten crossing distances and provide a refuge for pedestrians between separated traffic movements.

Where to use: Use with right turn slip lanes, modern roundabouts, or other intersection treatments where pedestrians benefit from a refuge. Can also use at “T” intersections between right-turning and left-turning travel lanes. Note that right-turn slip lanes are not recommended in areas of high pedestrian use.

Guidelines:

- Refuge must be accessible.
- Crosswalks should be indicated with pavement markings to show pedestrians and motorists the correct crossing location.
- Generally, the crosswalk should be set back 20 ft from the point where the traffic merges, so that pedestrians cross behind the first vehicle, and should be oriented perpendicular to the line of vehicle travel.

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13. Raised Crosswalk or Raised intersection

Purpose: to eliminate grade changes from the pedestrian path and give pedestrians greater prominence as they cross the street.

Where to use: use only in very limited cases where a special emphasis on pedestrians is desired; review on case-by-case basis.

Guidelines:

- Use detectable warnings at the curb edges to alert vision-impaired pedestrians that they are entering the roadway.
- Approaches to the raised crosswalk may be designed to be similar to speed humps, or may be designed so they do not have a slowing effect (for example, on emergency response routes)

GLOSSARY

Accessible route - in the ADA, a continuous route on private property that is accessible to persons with disabilities. There must be at least one accessible route linking the public sidewalk to each accessible building. See also “Continuous path.”

Actuated signal - a signal where the length of the phases for different traffic movements is adjusted for demand by a signal controller using information from detectors.

ADA - Americans with Disabilities Act of 1990; broad legislation mandating provision of access to employment, services, and the built environment to those with disabilities.

ANSI – American National Standards Institute.

Attached sidewalk - a sidewalk with one edge adjacent to the back of the street curb. An attached sidewalk may or may not have intermittent planting of street trees in wells along its length.

Audible pedestrian signals- pedestrian signal indicators that provide an audible signal to assist visually impaired pedestrians in crossing the street.

BOCA code – A building code of the Building Officials and Code Administrators International, Inc.

Capital Improvement Plan – A plan outlining the long-term capital needs of the city and a guide for the prioritizing and funding of these long term capital improvement projects.

Clearance interval - the length of time that the DON'T WALK indication is flashing on a pedestrian signal indication.

Comprehensive Plan - a broad collection of goals, policies, and objectives adopted by the Planning and Zoning Commission of Creve Coeur that is intended to inspire, guide, and direct growth in the City.

Continuous path - in the ADA, a continuous, unobstructed pedestrian circulation path within a public sidewalk connecting pedestrian areas, elements and facilities in the public right-of-way to accessible routes on adjacent sites. The continuous path is similar to the “Accessible route” on private property, but is subject to different guidelines.

Creve Coeur Design Guidelines – A set of design guidelines developed by the Planning and Zoning Commission to guide and nurture good building and site design and planning.

Crossing treatment - a physical treatment of a crosswalk to make it safer and more convenient for pedestrian travel; may include such elements as crosswalk markings, median refuges, or curb extensions.

Cross slope - the slope of the sidewalk across the usual line of travel.

Crosswalk - any portion of a roadway at an intersection or elsewhere that is distinctly indicated for pedestrian crossing. Where there are no pavement markings, there is a crosswalk at each leg of every intersection, defined by law as the prolongation or connection of the lateral lines of the sidewalks.

Cul-de-sac - a street closed at one end.

Glossary

Curb extension - an area where the sidewalk and curb are extended into the parking lane, usually in order to shorten pedestrian crossing distance. Also called “bulb-out” or “curb bulb”.

Curb radius - the length of the radius of the curve where a curb turns a street corner.

Curb ramp - a combined ramp and landing to accomplish a change of level at a curb in order to provide access to pedestrians using wheelchairs.

Curb Zone - the portion of the Sidewalk Corridor that physically separates the sidewalk from the roadway.

Detached sidewalk - a sidewalk that is separated from the curb by a linear planting strip. (see Separated sidewalk.)

Dropped landing - accessibility element in which the sidewalk ramps down to a landing at street level. Used only in constrained circumstances where a standard curb ramp can't be accommodated.

Fixed-time signal - a signal that operates on a regular fixed cycle and has no actuated phases.

Frontage Zone - a linear portion of the Sidewalk Corridor, adjacent to the edge of the right-of-way (or property line).

Fully-actuated signal - a signal where all signal phases are actuated. (See “Actuated signal.”)

Furnishings Zone - a linear portion of the Sidewalk Corridor, adjacent to the curb that contains elements such as street trees, signal poles, utility poles, street lights, controller boxes, hydrants, traffic signs, street signs, parking signs, parking meters, driveway aprons, planting strip, or street furniture.

Grade separation - the separation of a pedestrian facility from facilities for vehicular movement by placing the facilities at different vertical elevations. Examples include pedestrian overpasses and underpasses.

Intersection - the area of a roadway created when two or more public roadways join together at any angle.

Landing - the level area at the top (or bottom) of a curb ramp.

Median refuge island - a refuge island located between vehicle travel lanes.

Midblock crossing - a crossing treatment that occurs between intersections.

MUTCD - Manual on Uniform Traffic Control Devices, a publication of the Federal Highway Administration that establishes a national standard for traffic control.

Obstruction-free Area - at a street corner, the space between the curb and the lines created by extending the property line (or the line of a public walkway easement) to the curb face, in which no obstructions to pedestrian movement should be located.

Parallel curb ramp - ADA term for the element described in this guide as a “dropped landing,” in which the sidewalk ramps down to a landing at street level. Used only where constraints prevent accommodating a standard curb ramp.

Parking control - the use of meters, signs or curb markings to indicate where parking is and is not allowed.

Glossary

Pedestrian - a person going about on foot; a person riding on, or pulling a coaster wagon, sled, scooter, tricycle, bicycle with wheels less than 14 inches in diameter, or a similar conveyance, or on roller skates, skateboard, wheelchair or a baby in a carriage.

Pedestrian District - districts characterized by dense mixed-use development with a concentration of pedestrian-generating activities.

Pedestrian signal indication - the lighted WALK/DON'T WALK(or walking man/hand) signal that indicates the pedestrian phase.

Perpendicular curb ramp - ADA term for a curb ramp in which the slope of the ramp is generally perpendicular to the line of the curb. This guide uses the term "curb ramp" to refer to such elements. See also "Parallel curb ramp" and "Dropped landing."

Primary street – A commercial collector or arterial street, usually characterized by 4 or more traffic lanes.

Priority subdivision street – A subdivision street characterized by unusually heavy traffic, cut through traffic, or a subdivision street providing access to a significant community destination, such as a park or school.

Public sidewalk easement - an easement held by or granted to a municipality, county, state or utility company on land owned by a private individual or entity.

Refuge island - a raised island in the roadway that separates a crosswalk into discrete legs and provides a refuge for crossing pedestrians.

Right-of-way - land owned by controlled by a municipality, county or state, typically used for the construction of public roadways, sidewalks, utilities and other improvements and infrastructure.

ROW - see "Right-of-way."

Running grade - the slope of the sidewalk or roadway along the line of travel.

Secondary street – A residential collector street or minor commercial street, usually characterized by 2 traffic lanes.

Semi-actuated signals - signals where only some phases (usually the side street) are actuated. (See "Actuated signals.")

Separated sidewalk - a sidewalk separated from the curb by linear planting strip which may include lawn or groundcover and street trees. (see "Detached sidewalk.")

Sidewalk - an improved facility intended to provide for pedestrian movement, located in the public right-of-way adjacent to a roadway or private property, typically constructed of concrete.

Sidewalk Corridor - the area located within the public right-of-way between the curb line of a street or roadway edge and the property line at the edge of right-of-way.

Site Concept Plan – A basic plan indicating the phased development or redevelopment of a parcel of land exceeding ten acres in size, or a tract of different size as otherwise required by the Creve Coeur Zoning Ordinance, indicating the proposed use or uses which are to be developed over an extended period of time, the location of existing and proposed buildings and structures, the location and dimensions of the parcel and other basic information as required in Section 26-115 of the Creve Coeur Zoning Ordinance.

Glossary

Site Development Plan – A detailed plan for the development or redevelopment of a parcel of land depicting the precise location of all roads, parking areas, proposed buildings, structures, landscaping and planting material, the provision of necessary infrastructure and other information as required in Section 26-115 of the Creve Coeur Zoning Ordinance.

Slip lane - a lane provided for ease of right-hand turns at street intersections. In new construction, this is often accomplished by the use of a large turning radius and an intermediate refuge island for pedestrian crossings.

Splinter island - used to separate opposing lanes of traffic at the throat of a modern roundabout intersection treatment.

Street vacation - the process of vacating the public right-of-way, the control of which reverts to the underlying property owners unless the City retains a Public Walkway Easement.

Tactile warning - a surface treatment, usually at a curb ramp or any unexpected edge, that can be detected with a cane by a person with vision impairment.

“T” intersection - an intersection where one street ends at a through street, forming an intersection shaped like the letter “T”.

Through Pedestrian Zone - a linear portion of the Sidewalk Corridor which contains no obstructions, openings, or other impediments that would prevent or discourage movement by pedestrians.

Vacation - see “Street Vacation.”

Walkway - a pedestrian facility, whether in the public right-of-way or on private property, which is provided for the benefit and use of the public.

RESOURCES

The following resources were used in the preparation and review of this document.

Americans with Disabilities Act
American National Standards

City of Ballwin, MO; Department of Planning
City of Chesterfield, MO; Department of Planning
City of Clayton, MO; Department of Planning
City of Manchester, MO; Department of Planning
St. Louis County; Department of Planning
St. Louis County; Department of Highways & Traffic
City of Webster Groves; Department of Planning

City of Creve Coeur Building Code
City of Creve Coeur Department of Community Development
City of Creve Coeur Interim Design Guidelines
City of Creve Coeur Parks & Recreation Committee
City of Creve Coeur Police Department
City of Creve Coeur Public Works Department
City of Creve Coeur Traffic Committee
City of Creve Coeur Zoning Ordinance

Missouri Revised Statutes

Oregon Department of Transportation: I.2. Planning Principles; II.4. Walkways
Portland Pedestrian Design Guide

School Safety by Design, Innerview, Vol.13 No.4, 1999

1998 Report by Dan Burden, Director of Walkable Communities, Inc., to the City of Creve Coeur