Chapter 4

Route Types & Treatments

All walkway facilities in San Diego can be classified into one of seven types.

A district route includes sidewalks in the more intensive mixed use and concentrated areas of the city.

4.1 OVERVIEW

Roadways are typically grouped by functional type and capacity. This chapter defines the different types of pedestrian facilities that exist in the City of San Diego based on similar functions, adjacent uses and characteristics of the walking environment. Different route types require different treatments in order to best support the walking environment of a particular area. Not all walking facilities need the same level of treatment. This chapter helps to establish a common definition of walking facilities and recommends treatments that may be applied to match the facility with the circumstance.

4.2 TYPES DEFINED

All walking facilities found within the City of San Diego fit into one of the following categories of walking facilities. Table 26 describes each route type. See Figures 6a-g for route types and examples.

4.2.1 District Sidewalks

District Sidewalks, labeled as Route Type 1, are sidewalks along roads that support heavy pedestrian levels in mixed-use concentrated urban areas. Usually, the district is an urbanized area with special functions, such as theater districts, office parks, shopping centers, or college campuses. The location of the district may be adjacent to neighborhoods, but these routes can be distinguished easily by adjacent uses, densities and urban form. It has an identifiable focus that provides orientation and character, and reinforces a sense of community among users by encouraging walking.

Table 26: Route Types

ROUTE TYPE:	1. District Sidewalks	2. Corridor Sidewalks	3. Connector Sidewalks	4. Neighborhood Sidewalks	5. Ancillary Pedestrian Facilities	6. Path	7. Trail (Included for Reference Only, not a Focus of this Plan)
Purpose	Sidewalks Along Roads that Support Heavy Pedestrian Levels in Mixed-use Concentrated Urban Areas	Sidewalks Along Roads that Support Moderate Density Business & Shopping Districts with Moderate Pedestrian Levels	Sidewalks Along Roads that Support Institutional, Industrial or Business Complexes with Limited Lateral Access & Low Pedestrian Levels	Sidewalks Along Roads that Support Low to Moderate Density Housing with Low to Moderate Pedestrian Levels	Facilities Away or Crossing Over Streets such as Plazas, Paseos, Promenades, Courtyards or Pedestrian Bridges & Stairways	Walkways and Paved Paths that are not Adjacent to Roads that Support Recreational and Transportation Purposes	Unpaved Walk Not Adjacent to Roads Used for Recreational Purposes
Typical Adjacent "Street Design Manual" Classifications	All types of adjacent streets are possible	Commercial, Urban Collector, Urban Major & Arterial	Commercial, Industrial, Urban Major, Rural Collector & Arterial	Rural, Low Volume Residential, Residential Local & Sub-collector	Not associated with a street	Not associated with a street	Not associated with a street
Cross Reference to Related "Strategic Framework Plan" Definitions	Existing: Regional Centers, Urban Villages & Neighborhood Villages	Existing: Sub-regional Districts and Transit Corridors	Existing: Sub-regional Districts, Transit Corridors, & Suburban Residential along Major Arterials	All other Residential Areas not Classified under the Strategic Framework Plan	Most common in Regional Centers, Urban or Neighborhood Villages but can be in any area	Can occur in any area, but most often found in Recreation, Tourist or Open Space Areas	Can occur in any area, but most often found in Recreation or Open Space Areas
Typical Adjacent Land Uses	Mixed-use Housing, Commercial, Office & Entertainment with Urban Densities	Multiple Land Uses but may be Separated. Often Strip Commercial or Office Complex.	Open Space, Industrial Uses, Institutional Uses or other Pedestrian Restricted Uses	Single-family and Moderate Density Multi-Family with Limited Supporting Neighborhood Commercial	Adjacent Land Uses Vary	Adjacent Uses Vary, Often Recreational or Open Space or Housing	Open Space, Parks and Natural Areas

4.2.2 Corridor Sidewalks

A corridor sidewalk is associated with major arterials and linear corridors that provide for mixed uses with at least a moderate level of density.

Corridor sidewalks are labeled as Route Type 2 and defined as sidewalks along roads that support moderate density business and shopping districts with moderate pedestrian levels. They can range from wide walks along boulevards to small sidewalks along a heavily auto oriented roadway. They may connect moderate to high density residential areas, but only if they are located along major arterials.

4.2.3 Connector Sidewalks

A connector sidewalk is often along a lower density corridor with few connections to adjacent land uses.

Connector sidewalks, labeled as Route Type 3, tend to have low pedestrian levels and are along roads with moderate to high average vehicular traffic. Connector sidewalks tend to be long and, in some cases, do not have accessible land uses directly adjacent to the sidewalk. This can include sidewalks along major arterials that run parallel to open space and canyon lands. Often, they are along land uses that require buffering from the street noise, resulting in noise walls that further isolate the pedestrian from the adjacent land uses.

These sidewalks have limited pedestrian use levels typically because of their remoteness and lack of nearby destinations. Often they can lead to nowhere, with the sidewalk stopping a distance away from other uses, typically where topography restricts the width of the road or where a development ends its improvements. Even though they have limited use, they are often along high speed streets. Without the existence of these walkways, the pedestrian may be forced to walk in a high speed and high volume street.

4.2.4 Neighborhood Sidewalks

A neighborhood sidewalk is limited to areas of lower density and single use residential areas.

Neighborhood sidewalks, labeled as Route Type 4, are sidewalks along roads that support low to moderate density housing with low to moderate pedestrian levels. Neighborhood streets and their associated walkways are generally lower volume streets, with low to moderate widths, single lanes in each direction and posted (prima facia) speed limits of 25 miles per hour. They are not as difficult to cross as a pedestrian and pedestrian collisions occur less frequently because the driver has ample time to see, react and brake. Speeding on these streets does occur and can result in pedestrian collisions. However, most physical design changes are not as likely to reduce these pedestrian collisions since they result from careless behavior.

4.2.5 Ancillary Pedestrian Facilities

A variety of special use facilities that do not fit the above definitions can be classified as ancillary. These are often away from street edges.

Route Type 5, Ancillary Pedestrian Facilities, are facilities away from or crossing over streets such as plazas, paseos, promenades, courtyards or pedestrian bridges and stairways. Many of these ancillary facilities attract local residents and workers and therefore generate moderate to high pedestrian use.

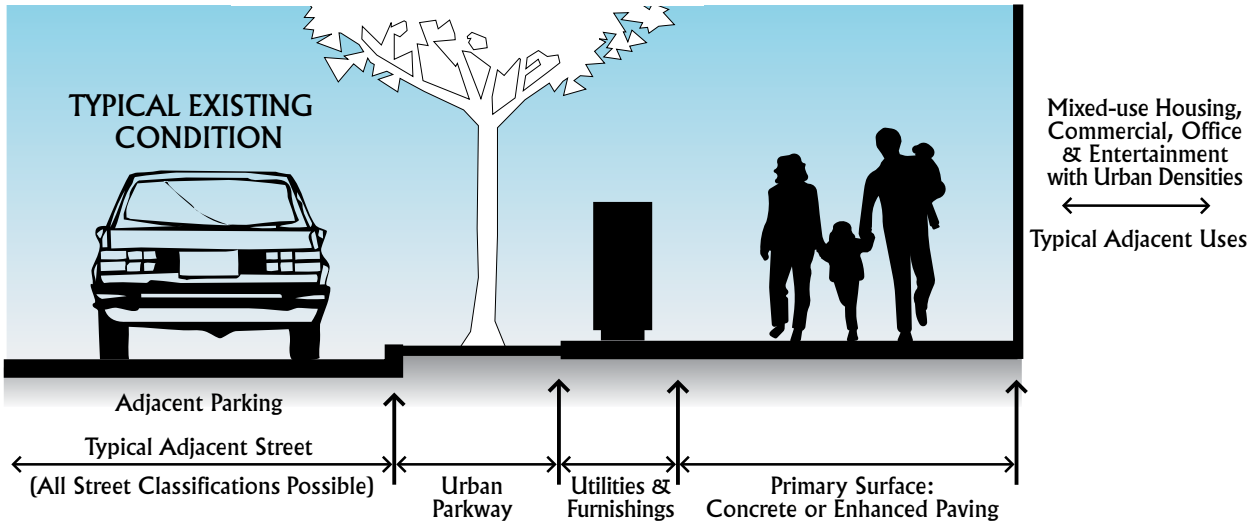
4.2.6 Paths

A path is a linear hard surface that is not connected to the edge of a street.

Route Type 6, Paths, are paved facilities with exclusive right-of-ways that act as corridors and have little or no vehicular cross flows. Many of these paths are exclusive to pedestrians and bicycles and are not associated with streets. Paths defined by the Pedestrian Master Plan are often associated with recreational uses. Many of these paths can be found in parks, near open space preserves and away from streets in residential areas. They are defined in this plan as being paved, away from a street edge and not shared with vehicles (except for emergency or maintenance vehicles). They are often shared with runners, skaters, cyclists and other recreational users.

Figure 6a: Route Type 1: District Sidewalks

Sidewalks Along Roads that Support Heavy Pedestrian Levels in Mixed-use Concentrated Urban Areas



Sidewalk with enhanced paving and outdoor cafes
(University Avenue near 30th Street)

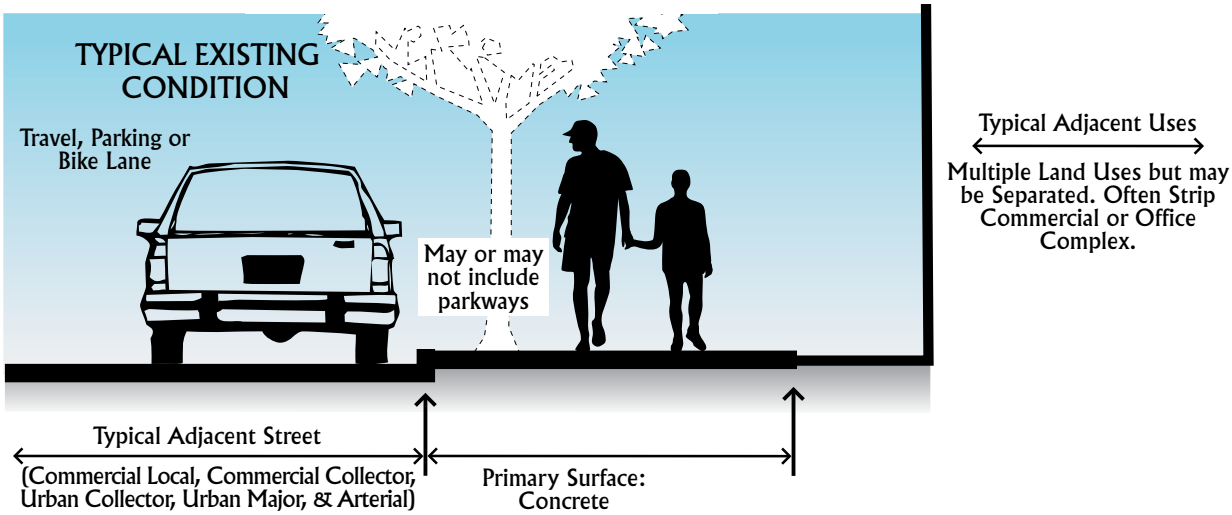
Sidewalk with wide clear paths and enhanced paving
(Fifth Avenue at Washington Street)

Sidewalk with furnishing and frontage zones
(Broadway at Columbia Street)

Sidewalk with street trees
(Goldfinch Street north of Washington Street)

Figure 6b: Route Type 2: Corridor Sidewalks

Sidewalks Along Roads that Support Moderate Density Business and Shopping Districts with Moderate Pedestrian Levels



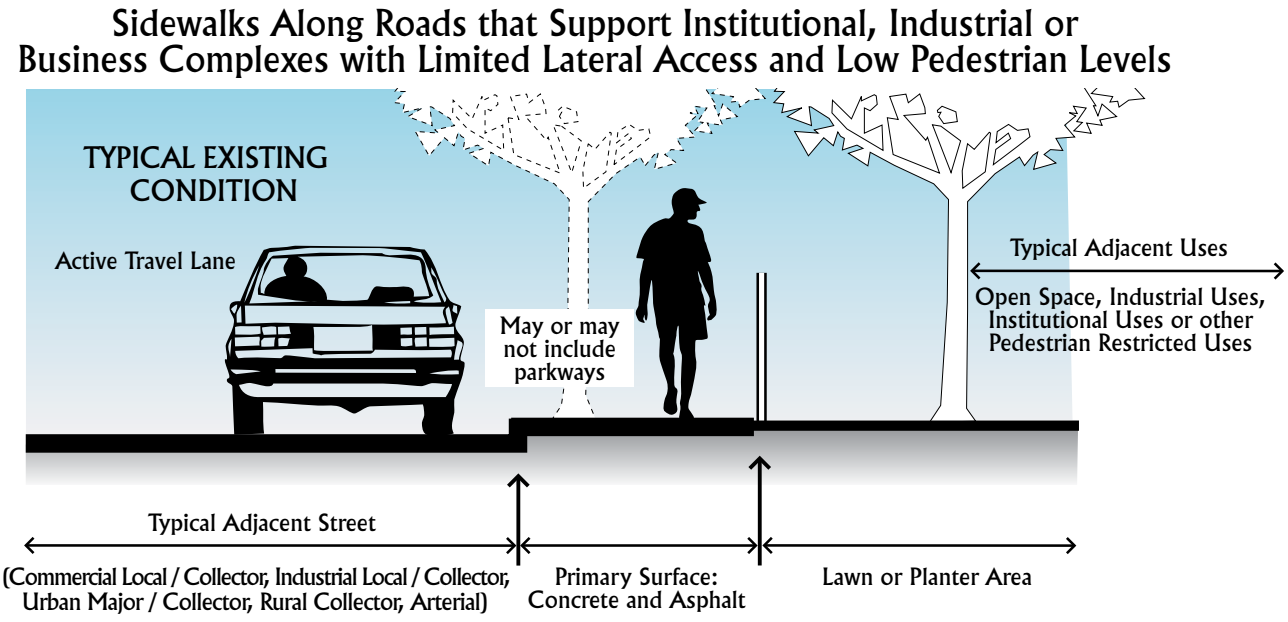
Sidewalk at curb
(Convoy Street at Engineer Road)

Wide sidewalk and angled parking
(Park Boulevard north of Polk Avenue)

Smaller scale sidewalk with street trees
(El Cajon Boulevard near Interstate 15)

Typical commercial district with supporting sidewalks
(San Ysidro)

Figure 6c: Route Type 3: Connector Sidewalks



Asphalt sidewalk along curb
(Genesee Avenue north of Regents Road)

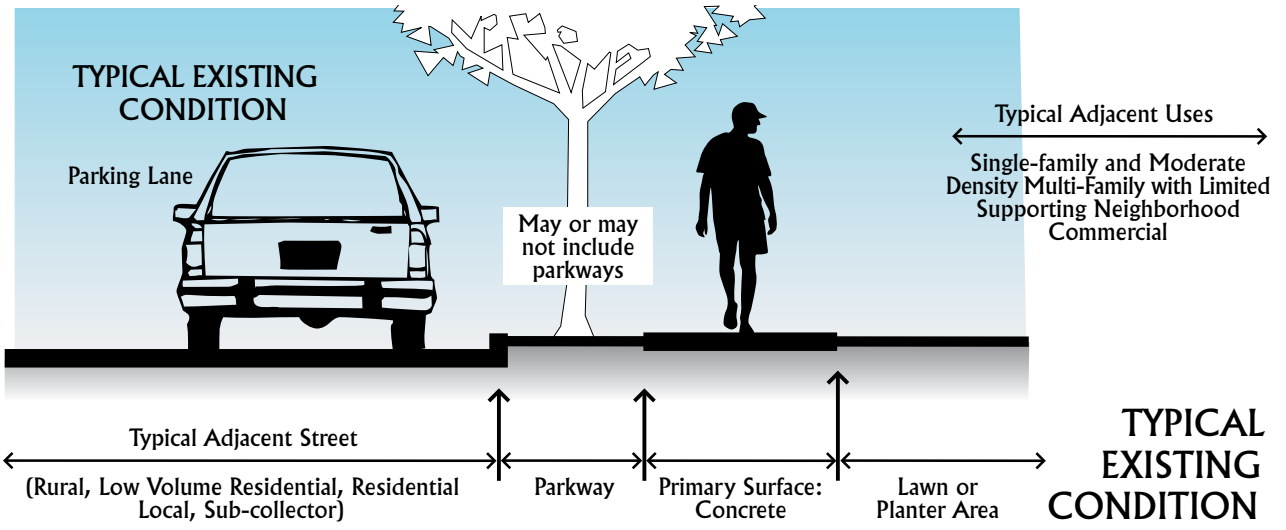
Though in a residential area, there are no connections to adjacent land uses (Camino de la Plaza in San Ysidro)

Buffered sidewalk
(Scripps Poway Parkway near Spring Canyon Road)

Wide but unbuffered sidewalk
(Mira Mesa Boulevard near Parkdale Avenue)

Figure 6d: Route Type 4: Neighborhood Sidewalk

Sidewalks Along Roads that Support Low to Moderate Density Housing with Low to Moderate Pedestrian Levels



Sidewalk and parkway
(Myrtle Street west of Richmond Avenue)

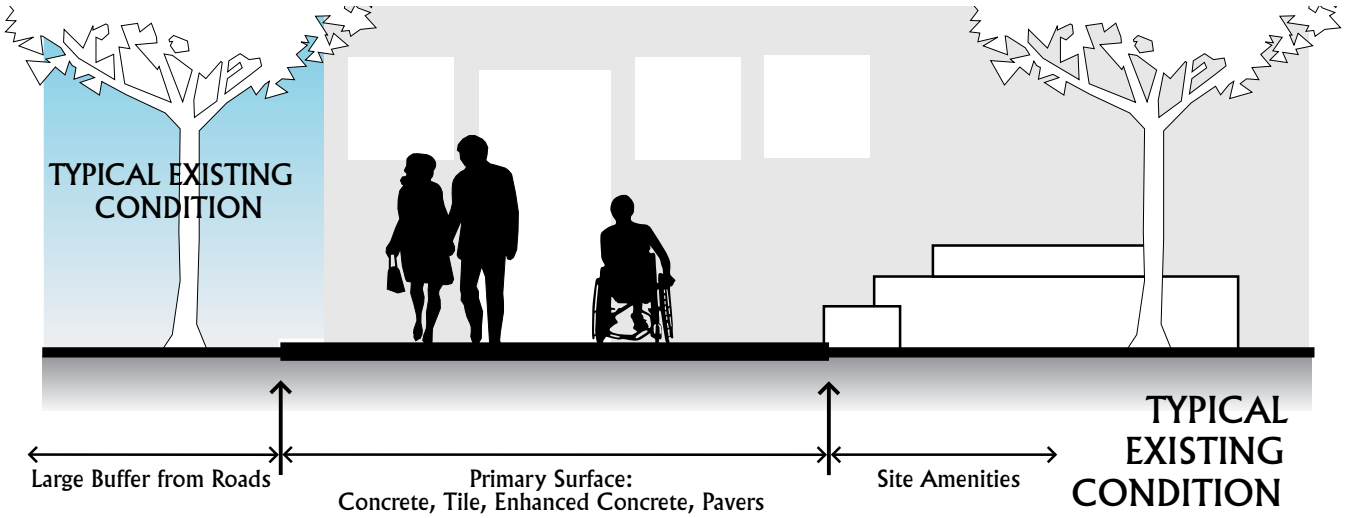
Typical sidewalk in newer residential area with three car garage driveways (Seadrift & Sea Reef Way, Otay Mesa)

Sidewalk with wide driveways
(41st Street south of University Avenue)

Sidewalk with numerous driveways
(Russet Leaf Lane and Street)

Figure 6e: Route Type 5: Ancillary Pedestrian Facilities

Facilities Away From or Crossing Over Streets such as Plazas, Paseos, Promenades, Courtyards or Pedestrian Bridges and Stairways



Vermont Street bridge (over Washington Street)

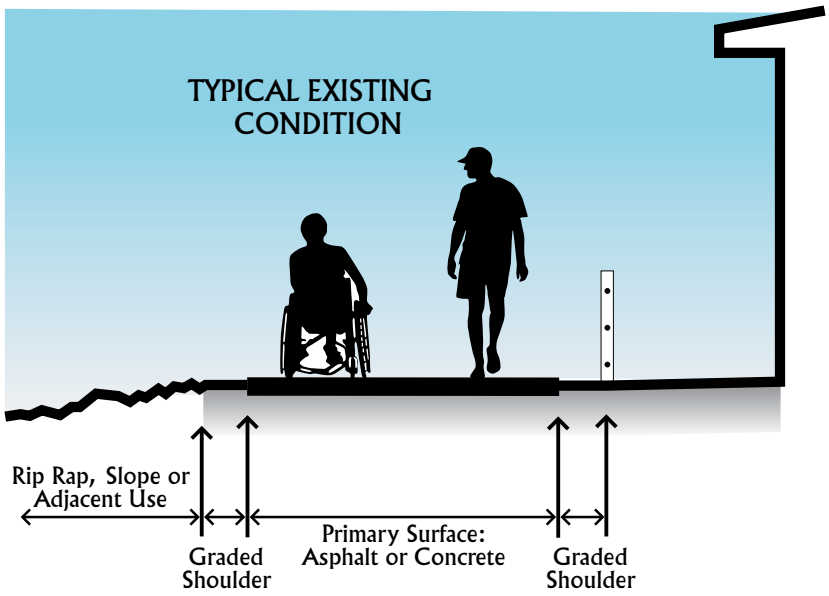
Martin Luther King Plaza and Promenade

Civic Center Plaza

Small Transit / Public Plaza in San Ysidro

Figure 6f: Route Type 6: Multi-use Pathways

Walkways and Paved Paths not Adjacent to Roads that Support Recreational and Transportation Uses

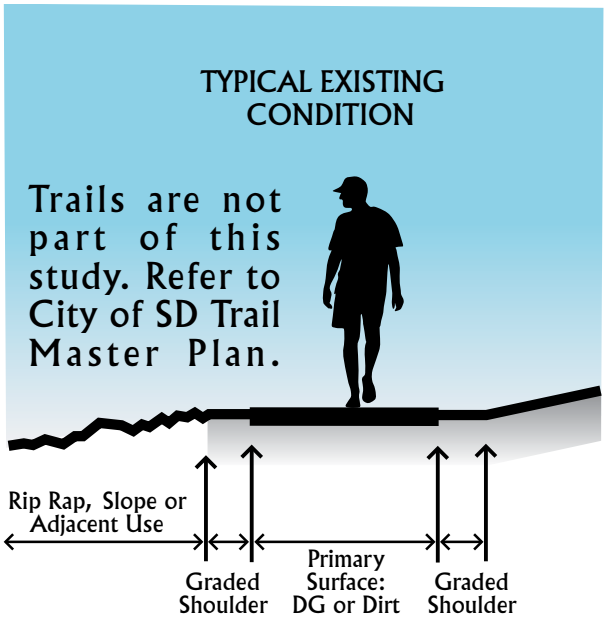


Multi-use path
(Mission Beach Boardwalk)

Walkway and bike path
(Embarcadero at G Street)

Figure 6g: Route Type 7: Walking or Hiking Trail

Unpaved Walk Not Adjacent to Roads, Used for Recreational Purposes



Dirt road/trail
(Balboa Park west of SR163)

Narrow trail
(Biltmore Trail in San Clemente Canyon)

4.2.7 Trails

A trail is unpaved and is not a focus of this plan.

Unpaved walkways or roads used for recreational use or open space maintenance are classified as Trails, Route Type 7. Trails are separated from roads and support activities such as hiking, biking and walking primarily through parks and open space. They differ from paths in that they are not paved with concrete or asphalt. Only authorized vehicles are permitted to access these trails, which in many cases are not ADA-compliant. Trails are not included in this study, but are defined to present all levels of pedestrian walkways. The San Diego Trails Master Plan and other Park Master Plans should be consulted for guidance on unpaved trails.

4.3 TREATMENT LEVELS

Though there should be flexibility in the specific conditions of any pedestrian facility, in general, different route types deserve different treatments.

This plan proposes four levels of pedestrian facilities, depending on the route type and special conditions found along a walkway.

Table 27 describes four treatment levels ranging from extensive treatments (Premium), to standard (Basic) and less expensive treatments for pedestrian facilities. Each of the treatment levels indicates the types of special circumstances that, if present, may warrant increasing the treatment up to the next level.

Table 27 also summarizes pedestrian facilities, techniques and enhancements that could be used in a particular area. This table (and the described treatment levels) have been created to help guide the appropriate use of treatments and to stretch limited public funding for pedestrian improvements.

A major premise of the "Basic Level" is that it is the minimum level that should be provided in all circumstances. In the case of certain neighborhoods and along certain connector streets, this "Basic Level" is adequate to provide the minimum level of safety, connectivity, access, and walkability.

In other areas, however, the "Basic Level" may not be enough to assure safety, connectivity, accessibility and walkability. In specific areas, the presence of major roadways and other detractors from pedestrian activity suggests a much higher level and expense associated with pedestrian treatments. In these situations, an "Enhanced Level" is recommended.

In yet other areas, the urban densities and design requirements and the presence of certain safety issues require a "Premium Level" to meet safety, connectivity, accessibility, and walkability goals.

...foot notes...

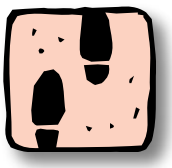
"Pay attention to the sidewalks--the most important part of the public realm."

Elizabeth Dunlop

4.4 TREATMENT LEVELS AND DEVELOPMENT PROJECTS

A developer is often required to construct and dedicate streets in newly developed areas or to pay into an assessment district or fund for the development's fair share of vehicular and pedestrian circulation requirements. The standards required for dedicating public streets by these new development projects are clearly defined in various ordinances and codes. Though the Street Design Manual has better defined standards for new development, often the full range of pedestrian facilities are not included in infill developments. Some developments apply for traffic reduction credits and off-street parking reductions based on efforts towards creating a better pedestrian environment or to obtain parking requirement reductions based on the existence of transit within the area of the development, whether a walkable connection exists or not.

Steps that can be taken ...



• The matrix (Table 27) and the discussion of potential solutions in this chapter, should be reviewed by various Departments of the City of San Diego and, if acceptable, be integrated into a variety of policies and departmental operating procedures and directives.

• Current city policies regarding requirements for pedestrian facilities, should be adjusted to use the route types described in this document. The route types each have different minimum width requirements and street crossing requirements as well as walkability amenities.

• An operating guide and brochure should be produced that can be distributed to the general public and to both developers and design / engineering professionals that describe the types of routes, typical issues and treatments that can be applied to those situations. The brochure should emphasize that final decisions on these treatments will require departmental review and approval.

• Project development policies should be reviewed to assure that projects in high pedestrian use areas where credit for smart growth or transit overlay zone parking reductions are taken, are providing off-site improvements if pedestrian connectivity or accessibility is not adequate in the immediate area.

• Policies should be developed that either require or encourage the right level of pedestrian improvements with the existing or potential level of pedestrian activity. The route types and associated treatments should be compared to the pedestrian priority areas discussed and mapped in the following chapter. Each infill, new development or redevelopment effort should be required to review pedestrian priorities, classification of existing route types in the area and recommended improvements for both on-site or off-site requirements.

In the developed areas of the city, new development or infill development are generally not required to bring streets up to the latest adopted standard. This is especially true for ministerial projects or smaller projects where finding a nexus between the project and the impacts on the community are difficult to define. A nexus is defined as a relationship between the project with a shortfall of infrastructure where the project would be expected to pay for its fair share of the shortfall. Developer impact fees can be collected for pedestrian improvements that might help bring an area into alignment with the latest adopted standards as long as a nexus can be found. In these cases, the development would pay for a fair share of costs for a particular public improvement. However, many community plans or public facility plans do not include recommendations on needed pedestrian improvements. Without the existence of adopted standards and plans, it is difficult to require projects to pay directly or indirectly for their fair share of these needed improvements.

This section of the plan suggests a strategy for helping to fund pedestrian improvements. Though a broad variety of funding sources may be applicable to pedestrian facilities, developer financed funding could be used more extensively. By providing a better defined level of treatment for areas, consistent requirements can be assigned to new or infill development. This is especially important for those types of developments that claim they are encouraging smart growth, mixed land uses, transit supportive land uses and pedestrian friendly facilities. If the development is requesting some variance, bonus, deviation or amendment from current plans or standards that affect the public realm, then it is reasonable to expect that a higher level of pedestrian facilities can be provided in order to justify these variances and to make findings of public benefit. An agreement between the developer and the community may exceed the project's normal fair share if the developer volunteers to provide more than the minimum in order to get an advisory approval by the local community planning group by showing additional public benefit.

In the case of infill development, it is much more difficult to have the development pay for and dedicate these improved facilities. Direct adjacent on-site improvements are commonly required, but generally do not extend beyond the parcel edge. If a PMP can be developed and adopted for a particular community, then new or infill development can be required to pay for their fair share of these improvements. The community planning discretionary process allows for a developer or applicant to voluntarily agree to certain conditions in order to obtain an advisory approval by the local community group. Please refer to Table 28 for how the various treatment levels can be applied to different development types.

4.5 SAMPLE PEDESTRIAN IMPROVEMENTS & TREATMENTS

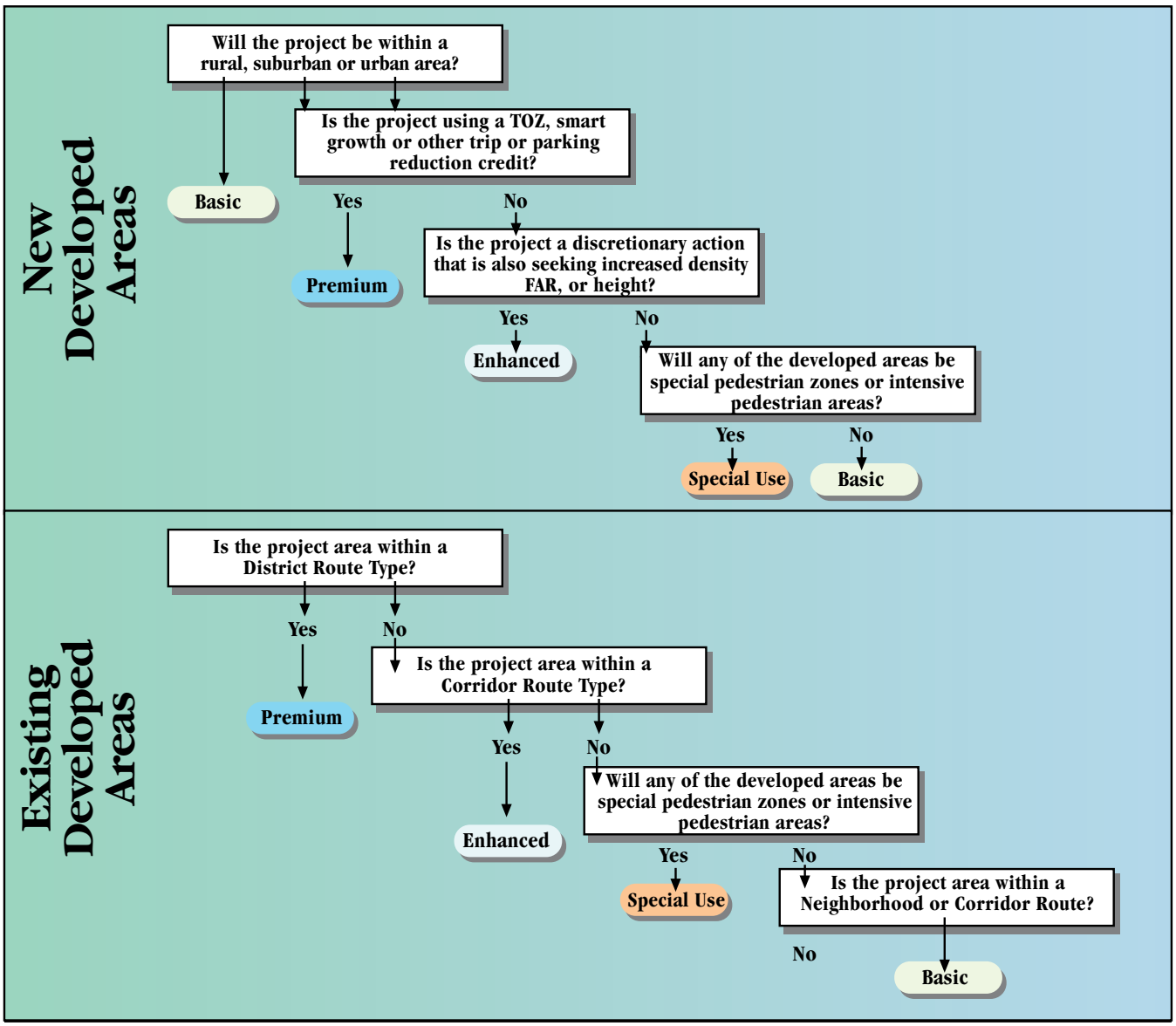
The following pages provide examples of the improvements indicated in Table 27 (refer to the numbering on this table). It will remain the responsibility of the planning, engineering and development services departments to determine which of these treatments are appropriate for specific areas or issues. They are included here so that a common language can be used and a comprehensive list of common tools can be identified that may help in a certain situation. This process can be used as the start of a dialog for needed solutions and treatments for specific situations. This dialog would normally be followed by review and recommendations from experts in the fields of traffic engineering, transportation planning, urban design, architecture or landscape architecture.

Table 27: Treatment Levels and Potential Improvements

TREATMENT LEVEL:	Treatment Level 1 "Premium" Walkway Improvements	Treatment Level 2 "Enhanced" Walkway Improvements	Treatment Level 3 "Basic" Walkway Improvements	Treatment Level 4 "Special Use" Walkway Improvements
Route Types Receiving These Treatment Levels (Unless Special Circumstances Exist*)	District Route Type / Special Pedestrian Zone	Corridor Route Type	Connector and Neighborhood Route Type	Path & Ancillary Route Types
*Special Circumstances that Warrant a Higher Treatment Level than Normal. Requirements in Each Column would Increase to the Column on its Left	Already Uses Highest Treatment Level	If within 1/4 mile of Transit/ School/ Ped. High Use/ Major Arterial	If within 1/4 mile of Transit/ School/ Maj. Commercial Facilities/ Maj. Arterials	Case-by-Case Basis
Provide Accessible Facilities Such As:				
1A) Curb ramps	!	!	!	?
2A) Audible/visual crosswalk signals	!	!	?	?
3A) Walkways & ramps free of damage or trip hazards	!	!	!	✔
4A) Pedestrian paths free of obstructions and barriers	!	!	!	✔
5A) Sidewalks with limited driveways and minimal cross-slope	!	✔	✔	✔
6A) Re-grade slope of walkway to meet ADA / Title 24 standards	?	?	?	?
7A) Repair, slice or patch lifts on walk surfaces or reset utility boxes to be flush	?	?	?	?
Provide Safety Features Such As:				
1S) Median refuges (a safe place to stand in the street)	!	✔	-	-
2S) Pedestrian popouts (curb / sidewalk extensions into street)	✔	✔	-	-
3S) High visibility crosswalk striping	!	✔	-	?
4S) Raised crosswalks or special paving materials to denote crosswalks	✔	✔	-	?
5S) Advance stop bars >10 feet from crosswalk	✔	✔	!	?
6S) Radar Speed Monitor & Display	?	?	?	?
7S) Reduced curb radii	✔	✔	✔	-
8S) Early pedestrian start at crossing signal (Lead Pedestrian Interval)	✔	?	-	?
9S) No Turn on Red at Intersection	?	?	?	?
10S) Mid-block crosswalks with ped. flashers but no traffic control	-	-	✔	-
11S) Automatic pedestrian detection & signal control	✔	-	-	?
12S) Mid-block crossing with signs, median or curb ext. & flashing lights in road	?	?	-	?
13S) Mid-block crosswalks with ped. actuated traffic control device	✔	?	-	-
14S) 1-Lane Mid-block with high contrast crossings, signs & center lane marker	?	?	✔	?
15S) Parkway planting for buffer between sidewalk and cars	!	!	!	?
16S) On-street parking for buffer between sidewalk and cars	!	✔	✔	-
17S) Adequate levels of pedestrian lighting	!	!	✔	✔
18S) Various traffic calming measures	✔	✔	✔	-
19S) Enforcement, education or encouragement solutions	?	?	?	?
20S) Missing sidewalks added or provide adeq. walk width clear of obstructions	?	?	?	?
Improve Walkability by Providing:				
1W) Above minimum walkway widths (> 5')	!	✔	?	?
2W) Trees that provide shade on walkways	!	!	✔	✔
3W) Street furnishings for comfort and enjoyment	!	✔	?	✔
4W) Countdown display crosswalk signals	✔	?	?	-
5W) Traffic control for crossings such as traffic signals or "All way stops"	!	✔	✔	✔
6W) Pedestrian scrambles (cross all directions of street)	?	-	-	?
Ensure Connectivity by Adding:				
1C) Missing sidewalk segments in areas where sidewalks mostly exist	!	!	✔	✔
2c) Missing sidewalks in areas where no sidewalks exist at all	!	✔	?	✔
3C) Connection pathways between streets	!	✔	✔	✔
4C) Narrow street widths or adding features to narrow for pedestrians	!	✔	✔	✔
5C) Destinations within walking distance of origins	!	✔	✔	✔
6C) Pedestrian bridges that avoid excessive ramp lengths	?	-	-	?
7C) Pedestrian crossing opportunities for all sides (legs) of an intersection	!	✔	✔	-
8C) Verify that pedestrian distances between land uses are reasonable & direct	?	?	?	?

LEGEND ("!"= required, "4" = suggested, "?"= suggested if conditions or standards met & "-" = not applicable)

Table 28: Development Type and Application of Route Treatment Levels

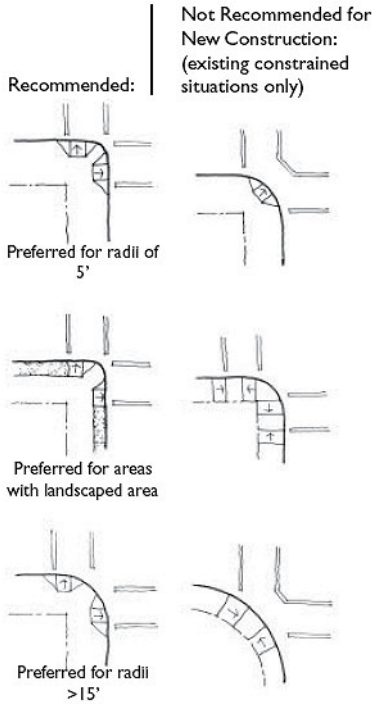


To determine the applicability of treatment levels to a particular area or project, first determine if it is within an existing developed community or a new community. Second, determine which route types are in the immediate area. Then, depending on the route type, determine the appropriate treatment level that would apply to the project or area.

1A) Typical Two Directional Curb Ramp (note: tactile strips and truncated domes needed but not shown) Photo credit: ITE Pedestrian Bike Council

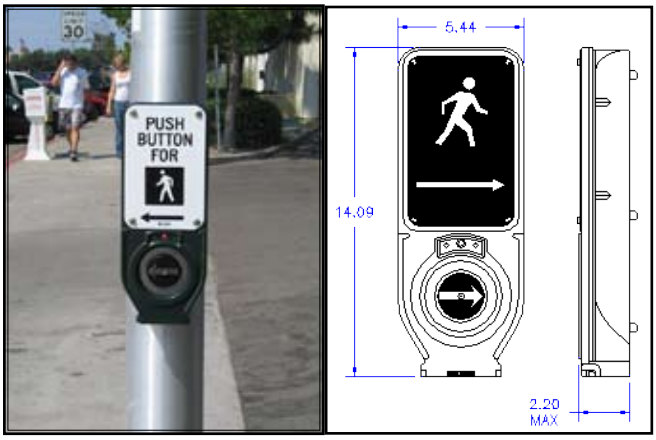
1A) Curb ramp meeting latest tactile strip and truncated dome requirements. Photo credit: Mike Singleton

1A) Apex ramps (single ramp on corner), should be avoided on high volume streets with travel lanes at the curb. Photo credit: Dan Burden



1A) Match the right ramp to the right circumstance. Source: Planning & Designing for Pedestrians, SANDAG, June 2002

2A) Pole mounted ped. signal actuator placed in accessible area next to the curb ramp. Photo credit: Michael Ronkin



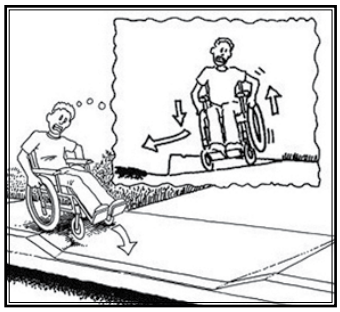
2A) Pedestrian actuator (Polara). Photo credit: ITE Pedestrian Bike Council

2A) Accessible and audible crossing pedestrian heads are required on most major intersections in San Diego. Audible signals do need to meet warrants. Photo credit: Dan Burden

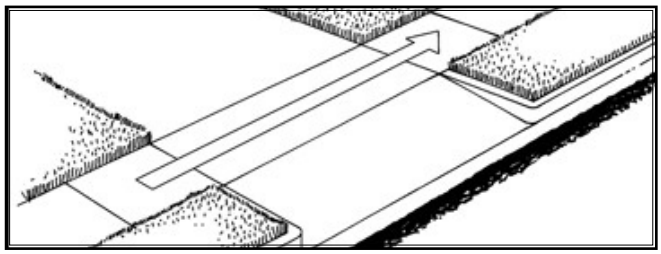
ACCESSIBILITY TREATMENTS

3A) Some of San Diego's sidewalks are in disrepair and represent both trip hazards as well as accessibility issues. Normally, property owners are responsible for repairs and replacement. Some shared cost programs do exist, however. Photo credit: Mike Singleton

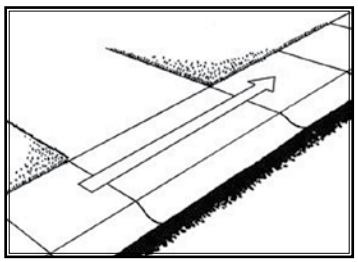
4A) Even though this project provided a wide walkway to start with, some equipment has been placed outside of the furnishings zone and in the throughway zone. Photo credit: Andy Hamilton



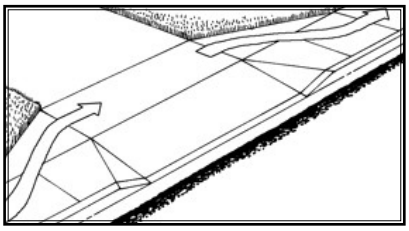
5A) The cross slope and transition area for many driveways are excessive for those in wheel chairs or those with other walking disabilities. Illustration credit: Gail Payne



5A) A walkway separated from the curb with a parkway strip is the preferred solution. Illustration credit: Gail Payne



5A) A mountable curb can resolve existing situations. Illustration credit: Gail Payne



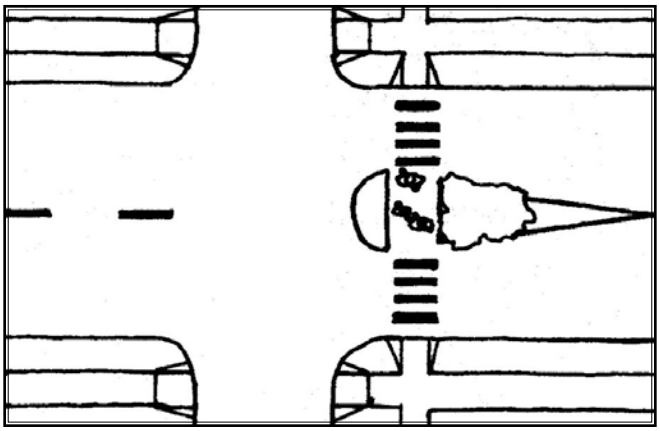
5A) A modified right of way can also solve the issue. Illustration credit: Gail Payne

6A) Re-grade slope of walkway to meet ADA / Title 24 standards where technically possible. Some exceptions exist such as when conformance would damage the natural or cultural environment.

7A) Repair, slice or patch lifts on walk surfaces and/or reset ground level utility boxes to be flush. Photo credit: Mike Singleton

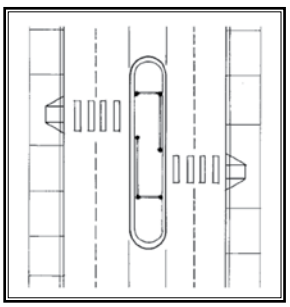
ACCESSIBILITY TREATMENTS

1S) A good example of a median refuge that provides access without ramps and protects a walker unable to make it across. Photo credit: Andy Hamilton

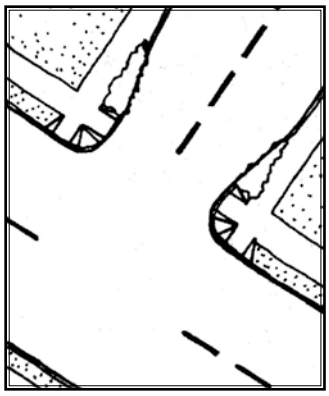


1S) Median refuges should be considered at intersections with or without traffic control. Multi-lane roadways should utilize solutions that include traffic control. Illustration credit: Planning & Designing for Pedestrians, SANDAG, June 2002

1S) Median refuges are essential where mid-block crossings are contemplated. They can include a straight cut-through or a staggered or coral style crossing. Photo credit: Dan Burden

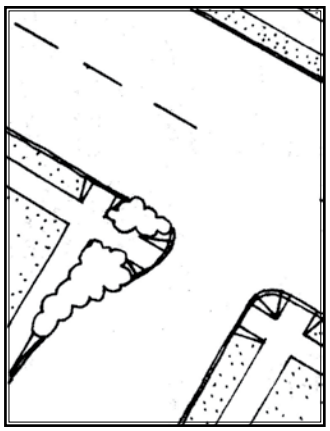


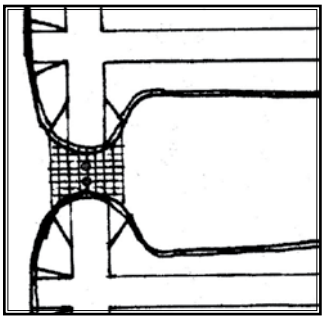
2S) Pedestrian pop-outs (curb extensions) can provide increased safety, improved visibility of pedestrians, protection for parked cars, and a shorter crossing distance for the pedestrian. They also provide for street furnishings, landscaping and social areas. Photo credit: Dan Burden



2S) Pedestrian pop-outs (sometimes referred to as curb extensions when not on all edges) decrease crossing distance and can help slow down traffic. Illustration credit: Dan Burden

2S) Pedestrian pop-outs can also serve to narrow a two lane one-way street into one lane or restrict entrance onto a two-way or one-way street. Illustration credit: Dan Burden





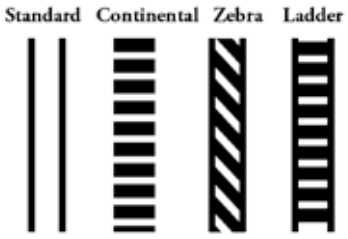
2S) Pedestrian pop-outs in conjunction with bollards can serve to block a street from vehicular traffic. Illustration credit: Dan Burden

SAFETY TREATMENTS

3S) Ladder style markings can be modified and spaced to lower the wear from vehicle tires. Photo credit: Dan Burden

3S) Increased visibility can be obtained through a change of paving materials and striping. Photo credit: Michael Ronkin

3S) Certain urban areas (that are pedestrian dominant) should utilize high visibility markings in the entire intersection. Photo credit: Michael Singleton



3S) A variety of crosswalk stripings are used in the United States. All are typically used in California except for the solid and the dashed. The standard would suffice for many intersections. Intersections with higher levels of pedestrian use, should utilize a spacing modified continental style (see 3S at the top of the page). Illustration credit: Dan Burden

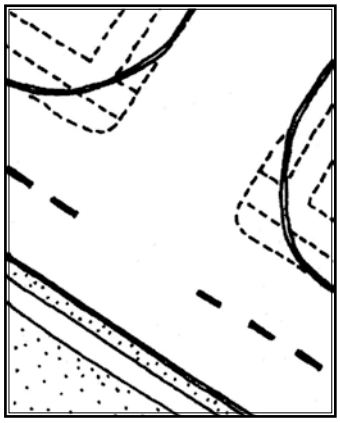
4S) Raised crosswalks (speed tables) provide clear signs of a pedestrian crossing but need to be limited to lower speed, lower volume streets. Photo credit: Andy Hamilton

5S) Adequate lighting, pop-outs, the latest MUTCD approved signs and high visibility markings are essential for non-controlled multi-lane mid-block crossings. Note the stop bar should be located at least 30 feet from the actual crosswalk (see image on right). Photo credit: Michael Ronkin

6S) Many cite increased regulation and enforcement as the solution to controlling speeding and reckless driving. Physical improvements provide a long term solution. However, some devices such as radar speed display systems, can help to educate the public and will slow the driver down while in use. Photo credit: Dan Burden

SAFETY TREATMENTS

7S) Wide radius corners can promote high speed turning movements that can conflict with pedestrians. A high speed right turn can also take the driver's focus away from the crossing and its users and place the focus only on vehicles approaching from the left instead of pedestrians in the crosswalk. Photo credit: Michael Ronkin



7S) Reducing the radius of corners also serves to decrease the crossing distance for a pedestrian and places them in a higher visibility zone. Illustration credit: Dan Burden

8S) Right turn on red restrictions with an advance lead for the pedestrian crossing phase can reduce right hand turning conflicts. Photo credit: Michael Ronkin

9S) Right turn on red restrictions can lessen the conflicts between users and, if signs are properly handled, can increase awareness of these types of pedestrian / vehicle conflicts. Photo credit: Michael Ronkin

10S) A number of flashing pedestrian crossing warning signs are used in San Diego. Other solutions may be more appropriate where multi-lanes of travel on high volume streets exist. This crossing has visible signage and crosswalks along with a median refuge. Improved street lighting and advance stop bars could increase safety, but a pedestrian actuated traffic signal would provide for the safest condition. Photo credit: Mike Singleton

SAFETY TREATMENTS

11S) A traffic signal or special pedestrian crossing can be controlled by sensors that note when a pedestrian approaches and / or leaves an intersection or a mid-block area. Photo credit: Michael Ronkin

11S) This signal uses both a pedestrian crossing symbol as well as a red light when actuated. Photo credit: Michael Ronkin

12S) This crossing utilizes lighting in the pavement and in the signs to indicate a pedestrian is in the walkway. Sensors pick up when a pedestrian approaches and if the crosswalk is clear of pedestrians. Photo credit: Mike Singleton

13S) This mid-block crossing utilizes standard traffic signals, a stop bar, ladder style crosswalks, median refuge and a pedestrian controlled actuator. Photo credit: Mike Singleton

13S) The response time for stopping traffic for this mid-block crossing was quick, assuring that pedestrians will tend to wait for the lights. The design of the adjacent walkways concentrated pedestrians into this walkway crossing. Photo credit: Mike Singleton

13S) This mid-block pedestrian activated crosswalk in Linda Vista includes standard traffic signals, ladder style markings, signage and a median refuge. Photo credit: Mike Singleton

14S) If traffic control is not provided at an intersection, signage and stripping along with a center pedestrian zone marker may help to make these crossings as safe as possible. This type of sign may require changes to existing San Diego policies, though it is allowed under MUTCD. Photo credit: ITE Pedestrian and Bicycle Council

14S) This type of crossing should only be used on streets with one lane each direction or two one way lanes. The center marker is collapsible. It works to slow traffic and concentrate attention on the crosswalk. Photo credit: ITE Pedestrian and Bike Council

14S) This crossing is on a one lane in each direction street with curb extensions, striping, signage and trees that all help to slow a driver down. There is no multi-lane, multi-direction threat to this use of an uncontrolled mid-block crossing. Photo credit: Portland Office of Transportation

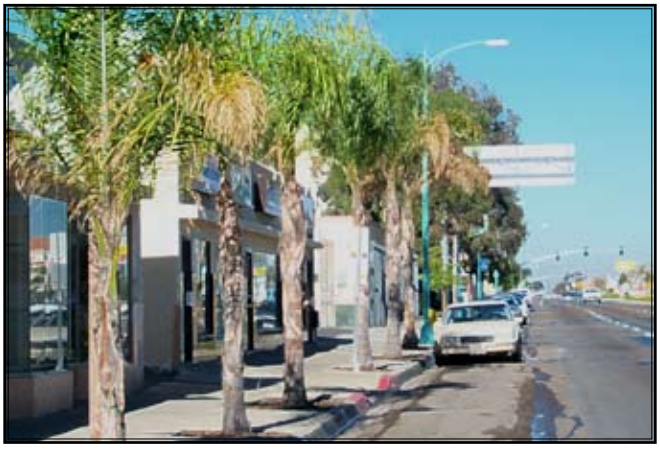
SAFETY TREATMENTS

15S) Sidewalks placed against the curb, against a high speed and high volume street are not comfortable to walk on because of a fear (perceived or real) of being hit by a passing vehicle. Photo credit: Michael Ronkin

15S) Having an outside striped shoulder or bike lane along with a parkway strip and street trees can dramatically reduce collision potential and increase comfort levels for pedestrians. Photo credit: Michael Ronkin

15S) Trees placed in a parkway strip with the sidewalk away from the edge of the curb are much safer for pedestrians since the trees provide a level of collision protection and the distance increases the ability to get out of the way. Tree lined streets also tend to slow speeds slightly. Photo credit: Mike Singleton

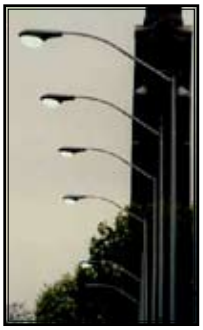
16S) Adjacent parallel or angled parking provides an increased level of protection and comfort along major streets. Photo credit: Mike Singleton



15S) Even if a parkway strip does not exist, such as in this urban area, trees planted within close proximity of each other afford some level of comfort and protection for the pedestrian. Photo credit: Mike Singleton

16S) As a last resort, barriers may be required to protect pedestrians along high speed streets, especially on high speed horizontal curves. Photo credit: Mike Singleton

17S) Adequate levels of pedestrian lighting are critical for public safety related to vehicular collisions or for the avoidance of crime related incidents. Photo credit: Mike Singleton

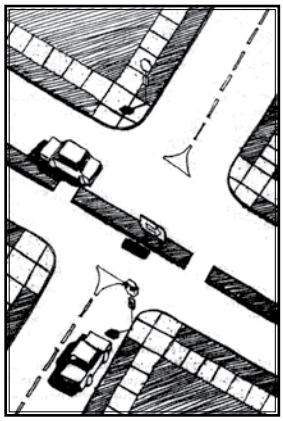


17S) Lighting levels are determined by spacing, height, lumens of the light fixture and orientation. Lighting should be concentrated in areas with collision potential. However, a minimal amount of lighting is needed along the entire walkway in order to make the general public feel safe when walking at night. Photo credit: Mike Singleton

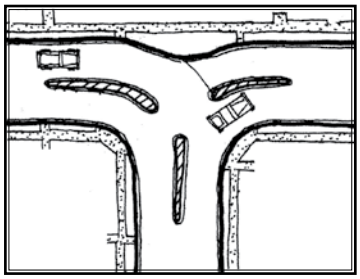
18S) Roundabout. Photo credit: Michael Ronkin

18S) Mini-traffic circle. Photo credit: Michael Ronkin

18S) Modern roundabout with properly planned pedestrian crossings, markings, signage and lighting Photo credit: Dan Burden



18S) Traffic divertors and median control points. Illustration credit: Dan Burden



18S) Speed tables (raised intersection). Illustration credit: Dan Burden

18S) Raised crosswalks. Illustration credit: Dan Burden

19S) Engineering, education or enforcement solutions can include, engineered physical solutions, increased regulatory enforcement through citations and warnings and the development of a public campaign to improve pedestrian and driver actions and awareness or other programs that encourage proper driving and awareness of pedestrian and cycling

20S) Fill in missing sidewalks or provide adequate walk width clear of obstructions

SAFETY TREATMENTS

1W) Match the sidewalk width to the intended use. Only suburban residential areas should be allowed at or below a 5' width. Photo credit: Dan Burden

2W) Trees provide filtered shade as well as protection from adjacent cars. Other site amenities compel people to stop for a while. Photo credit: Dan Burden

1W) Commercial area widths should approach at least 10' in width since they must accommodate a variety of uses, street furniture and utilities. Photo credit: Andy Hamilton

3W) If an active street is desired, then accommodations for street furnishings and street uses must be made. Photo credit: Mike Singleton

1W) Residential area widths should be at least 5' in width but no more than 10'. A walkway can feel smaller or larger depending on adjacent walls or fences and the presence of a landscape buffer. Photo credit: Andy Hamilton

3W) Public art or public amenities with varied and interesting materials can be used for their aesthetic value, as well as for their functional value. Photo credit: Mike Singleton

WALKABILITY IMPROVEMENTS

4W) Countdown pedestrian heads / timers can provide information to the pedestrian about when they should enter the crossing and how much time they have to exit the crosswalk. This treatment can be effectively used with a two-phase capable median refuge for those who do not make it across in one cycle. This treatment is effective in curtailing the number of pedestrians that enter the intersection after the light has changed to a flashing hand. A pedestrian viewing the opposing side countdown is also given information on when the other leg of the intersection will be green, thereby reducing the number of pedestrians walking against the light. Photo credit: Michael Ronkin

5W) Traffic signal controlled intersections are still one of the best methods for providing a safe crossing and should be considered at intersections with frequent pedestrian crossings. Photo credit: Mike Singleton

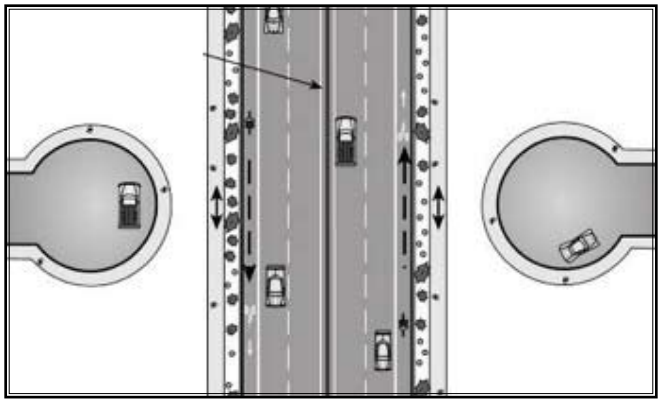
5W) Stop signs (2 or 4 way) can help in safe pedestrian crossings but are not essential on low volume, low speed residential neighborhood streets. Photo credit: Mike Singleton

6W) Pedestrian scrambles allow for pedestrian crossings across all portions of the segment and they tend to lower conflicts between pedestrians and vehciles at the beginning of the signal cycle.

7W) High quality design in conjunction with the integration of public art and other physical elements, combine to create a walkable environment. Greater diversity in the visual environment will result in increased pedestrian use as well as longer social engagements along the walkway and increased window shopping that will economically help viable shopping districts.

WALKABILITY IMPROVEMENTS

1C) Sidewalk gaps affect the ability to connect areas by walking. They are especially unfair to those with physical challenges. All urban areas need to have sidewalks. Photo credit: Michael Ronkin



3C) Missing connections for pedestrians between streets designed not to allow through vehicular traffic are unfriendly to walkers but sometimes can be retrofitted or at least avoided with new development. Illustration credit: Michael Ronkin

2C) Where signs of continual pedestrian use are present along higher volume and higher speed streets, the addition of sidewalks should be a top priority. Photo credit: Michael Ronkin

3C) A variety of barriers exist in the curvilinear and hierarchical street patterns of many suburbs. These should be avoided since fixing them later is very difficult. Photo credit: Michael Ronkin

2C) In areas currently without sidewalks, where the street volume and speed is very low and the character is rural, sidewalks may not be needed. Photo credit: Michael Ronkin

3C) Even heavily traveled urban streets can act as barriers to pedestrians if appropriate crossings have not been provided. Photo credit: Mike Singleton

CONNECTIVITY IMPROVEMENTS

4C) Wide intersections are more difficult for pedestrians to feel comfortable crossing because of the distance to travel and wait time between crossings. Those that enter the crossing after the pedestrian light begins flashing can find themselves caught in traffic. Photo credit: Mike Singleton

4C) Wide streets negatively affect walkability and pedestrian safety. Narrow streets on the other hand, calm traffic and are more conducive for walking along and crossing.
Photo credit: Mike Singleton

4C) Retrofitting wide streets and intersections to improve walkability, can be very expensive. It is generally far less expensive to build these streets with pedestrians and cyclists in mind than to retrofit later. Photo credit: Dan Burden

5C) Mixed use compact development supports both transit and walking by providing destinations within short distances of trip origins. Photo credit: Dan Burden

5C) The proper pedestrian environment can support a variety of retail businesses and mixed land uses while offering a pleasant urban design. Photo credit: Dan Burden

5C) Streets should be designed for more than driving vehicles on. When all elements come together, a socially interactive environment will evolve. Photo credit: Dan Burden

CONNECTIVITY IMPROVEMENTS

6C) Grade separated pedestrian crossings should generally be avoided because of the expense and low level of use. Some circumstances warrant their use such as over freeways, railroads and other intensive surface uses where at-grade crossing may not be safe. Bridges that limit the amount of vertical climbing or do not go dramatically out of direction, will be used. Photo credit: Dan Burden

6C) To meet accessibility requirements, long ramps are required to climb over a roadway. These are often not used by pedestrians, creating a potentially greater risk of collision at street level. Photo credit: Michael Ronkin

7C) Some circumstances, such as dual left turn lanes, may require pedestrian restrictions on crossing in order to avoid safety issues. In other locations, the restrictions may have been primarily used to increase turning movements through the intersection. A case-by-case analysis is required to determine the right balance. Photo credit: Mike Singleton

7C) There are valid reasons for closing one or more segments of an intersection including intersection geometry, such as shown above. Photo credit: Mike Singleton

8C) Verify that pedestrian distances between land uses are reasonable and direct. Projects claiming reduced parking requirements and density bonuses for supporting smart growth, transit oriented development or mixed use projects, should provide for access and walkability in and around their sites. The applicant should submit plans showing actual distances along walking routes to transit, neighborhood services, parks, schools and other destinations found within the normal 1/4 mile walking distance radius.

CONNECTIVITY IMPROVEMENTS