ch.3

FACILITIES TO ENHANCE WALKABILITY

Most trips begin and end as walking trips even when a car, bicycle, bus, or train is involved. An accessible and useful pedestrian network needs to accommodate a range of diverse needs and abilities.

Age, for example, is one major factor that affects a person's physical abilities, walking speed, and environmental perception. Children have lower eye height and walk at slower speeds than adults. Older adults also may walk more slowly and may require assistive devices for walking stability, sight, and hearing. This section presents an overview of some key pedestrian facilities that help form a safe, convenient environment for all people walking.

WALKWAYS AND PUBLIC SPACE

Walkways

Walkways (e.g. sidewalks, shared-use paths, and trails) are the most fundamental element of the pedestrian network, as they provide an area for pedestrian travel separated from vehicle traffic. A sidewalk is a paved space along the side of a road, dedicated for pedestrian use. A shared-use path is dedicated space that supports multiple types of non-motorized travel, such as walking, bicycling, skating, and more; they are typically paved and may include separate spaces for pedestrian and bicycle use. A trail is dedicated space outside of the road right-of-way that is operated and maintained by the County Department of Parks and Recreation; this Plan refers exclusively to unpaved trails. A variety of considerations are important in walkway design. Providing enhanced and accessible facilities can lead to increased numbers of people walking, enhanced safety, and the creation of social space.

Sidewalks, paths, and trails can be more than areas for travel; they can provide places for people to interact. There can be spaces for standing, visiting, and sitting. They can contribute to the character of neighborhoods and business districts, strengthen their identity, and be areas where adults and children can safely participate in public life. In downtown and commercial areas, they should provide for higher volumes and engagement at varying activity levels. In residential areas, sidewalks should be designed for comfort, recreation, and socialization.

A sidewalk in Westmont/West Athens

A path in Lake Los Angeles

Public Space

A public space is a place for people to gather, which promotes social interaction and sense of community. A good public space reflects a community's local character, feels safe and comfortable, is accessible and accommodating for diverse ages and abilities, is maintained, and encourages interaction between community members and visitors alike. Examples of public spaces include plazas, squares, parks, sidewalks, and more.

People gather in a parklet in East Los Angeles

The Martin Luther King Jr. Fitness Garden provides a walking path, exercise equipment, and a place to gather for the Willowbrook community

CROSSING FACILITIES

Every intersection in Los Angeles County should be designed for pedestrian safety and comfort, with pedestrian enhancements appropriate to motor vehicle speed, motor vehicle volume, pedestrian crossing distance, and other considerations.

Crosswalks

Crosswalks or pedestrian crossings are designated locations and areas for pedestrians to cross a street. Marked crosswalks provide a visual indication to motorists by defining the area in which pedestrians have the right-of-way. Crosswalks legally exist wherever sidewalks and streets intersect, and may be marked or unmarked. Marked crosswalks encourage pedestrians to cross at designated locations, and indicate to motorists that they must yield for pedestrians.

At mid-block locations, crosswalks may be marked where there is a demand for crossing, where there is significant distance from the nearest intersection, and where engineering judgment deems it appropriate. Standard crosswalk markings, called transverse markings, consist of two parallel lines. To increase visibility, crosswalks may be marked with additional paint. Typical patterns include ladder (transverse with perpendicular cross bars) or continental (perpendicular bars only). In California, marked crosswalks within a school zone are painted yellow; all other crosswalks are white.

A ladder crosswalk with accessible curb ramps and curb extensions in Walnut Park

Accessible Curb Ramps

Curb ramps are design elements that allow all users to make the transition from the street to the sidewalk. There are a number of factors to be considered in the design and placement of curb ramps at corners. Properly designed curb ramps ensure that the sidewalk is accessible from the roadway. A sidewalk without a curb ramp can be a barrier to someone in a wheelchair, leading them to travel in the street instead of on the sidewalk and to use driveways for access to and from the sidewalk.

Two-ramp corner installations, also known as paired curb ramps allow pedestrians to be aligned with the crossing direction while waiting to cross the street which is especially beneficial for those in wheelchairs, with vision impairment, or pushing strollers or carts. Single shared curb ramps are aligned diagonally with the intersection and provide access where factors such as available right-of-way, turn radius, drainage, and sight distance preclude the use of paired curb ramps.

Advance Stop and Yield Markings

Advance stop and yield markings enhance visibility of pedestrians for drivers, enhancing pedestrian safety. Markings are typically placed 20 to 50 feet ahead of a crosswalk, encouraging drivers to stop far enough back that a pedestrian can see if a driver is not stopping. Supplemental signage indicating for drivers to stop or yield for pedestrians can be useful to further alert drivers where to stop for a pedestrian to cross.

A continental crosswalk with advance yield markings

Median Refuge Islands

Median refuge islands provide a space within a median, mid-way through a crosswalk for people to wait while crossing a wide street. They enhance comfort for people crossing the street by enabling pedestrians to focus on one direction of vehicle traffic at a time and wait for an acceptable gap in traffic. Refuge islands are best used to enhance marked crosswalks on multi-lane roadways, particularly those with higher motor vehicle speeds and volumes.

A median refuge island at a marked crosswalk with pedestrian crossing signage

TRAFFIC CONTROL DEVICES

Traffic Signals

Traffic signals control the movement of vehicles, bicyclists, and pedestrians at an intersection to minimize conflicts between all modes when crossing. The installation of traffic signals is based on signal warrants established by the California Manual on Uniform Traffic Control Devices (CA MUTCD), current edition, which are conditions that an intersection must meet to justify the installation. The satisfaction of a traffic signal warrant or warrants shall not, in itself, require the installation of a traffic control signal. The final decision made is based on engineering judgment. The 2014 CA MUTCD Warrants 4[1] and 5,[2] which concern pedestrian movements, require a certain pedestrian and motor vehicle volume threshold to be met to justify a traffic signal for a location, among other considerations.

1 Per Warrant 4, traffic control signal installation at intersection and mid-block crossings is dependent on certain pedestrian-to-vehicle volume ratios. This warrant is not applicable to locations where an existing signal is less than 300 feet away, unless the proposed signal will not impact traffic flow. If the warrant is met, the traffic control signal must include a pedestrian signal head. Source: Caltrans, 2014. CA MUTCD Section 4C.05 Warrant 4. www.dot.ca.gov/trafficops/camutcd/

2 Per Warrant 5, traffic control signal installation at intersections and mid-block crossings near schools is dependent on the number of adequate gaps in traffic flow when schoolchildren are crossing, and the number of schoolchildren crossing during peak crossing times (a minimum of 20 schoolchildren). It also indicates that other remedial measures, such as beacons, school speed zones, crossing guards, and more should be considered before installation of a traffic control signal. Source: Caltrans, 2014. CA MUTCD Section 4C.06 Warrant 5. www.dot.ca.gov/trafficops/camutcd/

PEDESTRIAN SIGNAL HEADS

Pedestrian Signal Heads contain the symbols WALKING PERSON (symbolizing WALK) and UPRAISED HAND (symbolizing DON'T WALK) and demonstrate to pedestrians when to cross at a signalized crosswalk. Generally, Pedestrian Signal Heads allow a pedestrian crossing in the crosswalk to travel at a walking speed of 3 1/2 feet per second. All traffic signals should be equipped with pedestrian signal heads except where a pedestrian crossing is prohibited by signage.

Pedestrian signal heads that only display a flashing DON'T WALK indication can make it difficult for pedestrians to judge whether they have enough time to cross an intersection safely. Countdown displays on pedestrian signal heads inform pedestrians of the number of seconds remaining in the pedestrian change interval. The CA MUTCD requires the use of countdown displays for all new signalized crossings with a pedestrian change interval (flashing DON'T WALK or UPRAISED HAND) greater than seven seconds.

Countdown pedestrian signals provide timing information to people crossing the street

PEDESTRIAN DETECTORS

Manual activation of pedestrian signal heads is performed with a pedestrian push button. This requires the pedestrian to locate and press the push button to actuate the pedestrian signal phase. For this reason, push buttons should be easy to identify and access.

An alternative to manual actuation is passive detection. Installation of developing pedestrian detection technologies (i.e. video, microwave and/or infrared) may make it possible to automatically detect pedestrians. The automatic detection allows the pedestrian to activate the pedestrian signal head without having to locate the push button. Passive detection can also contribute to the efficiency of signal operations by allowing for walk time extensions, and/or not dedicating walk time in the absence of pedestrians.

PEDESTRIAN RECALLED SIGNALS

Pedestrian recall signals do not require pedestrians to press a push button to cross. Rather, when the signal turns green, the walk signal is automatically turned on. These are useful in areas with high levels of pedestrian activity and where vehicle speeds are intended to be low, such as downtowns and urban areas.

LEADING PEDESTRIAN INTERVALS

Leading Pedestrian Intervals (LPI) give pedestrians a WALK indication before vehicles are given a green light (typically three to seven seconds). This head start into the crosswalk for pedestrians makes them more visible to turning motorists. The LPI can be omitted if no pedestrians press the push button.

SEMI-EXCLUSIVE/EXCLUSIVE PEDESTRIAN MOVEMENTS

Semi-exclusive/exclusive pedestrian movements allow pedestrians to cross a street during non-conflicting vehicle movements or to cross in all directions at the same time while vehicle traffic is stopped (i.e., a pedestrian scramble).

ACCESSIBLE PEDESTRIAN SIGNALS

Accessible pedestrian signals are designed to be accessible by individuals with visual disabilities. They provide audible tones or verbal messages to convey when it is appropriate to walk, when they must wait, and feedback when the signal has been actuated via push button. This eliminates the need for pedestrians to rely entirely on the audible cues provided by moving cars, which may be deceiving depending on the complexity of traffic signal operations at the intersection.

Pedestrian-Activated Warning Systems

Pedestrian-activated warning systems describe the use of a flashing yellow warning beacon to supplement a pedestrian crossing sign. The beacon is pedestrian-activated to increase its effectiveness in making the crossing sign more conspicuous when a person desires to cross the roadway. On multi-lane streets, the beacons may be installed on an overhead mast arm.

At uncontrolled pedestrian crossings, engineers take into account the number of pedestrians at the crosswalk and average daily motor vehicle volume/ peak-hour volume, among other factors.

Stop Signs

Stop signs notify drivers that they must stop and check for oncoming traffic (including pedestrian, bicycle, and vehicle) before proceeding. Stop signs can be enhanced with embedded LEDs, to increase driver visibility and awareness. Where appropriate, all-way stops can reduce left- and right-turn collisions.

Stop signs are supplemented by stop lines that tell the driver where to stop. Per CA MUTCD guidelines, stop lines, if used, should be placed at least four feet in advance of a marked crosswalk. If marked crosswalks are not present, stop lines should be placed in advance of the pedestrian path.

An all-way stop in Los Angeles County

TRAFFIC CALMING

Traffic calming is the process of using physical design and other measures to enhance the safety of all roadway users. Some traffic calming devices include speed humps/speed cushions, curb extensions, and traffic circles. These devices tend to reduce vehicle speeds along a street, thus enhancing safety by allowing drivers and other parties more time to react and minimize damages and injury if a collision were to occur.

Speed Humps/Speed Cushions

Speed humps are vertical traffic calming measures intended to slow drivers on local streets with low motor vehicle volumes and speeds.

A typical speed hump, supplemented with speed hump signage and pavement markings

Speed humps can reduce speeds to 15 to 20 mph. They are typically three to four inches high and extend the full width of the street. A speed cushion is a variation of a standard speed hump. However, these devices do not span the entire width of the roadway but taper off at the edges. The width of the raised portion is sufficient to ensure that cars have to pass over some of the hump but may allow buses and emergency vehicles to pass over with less impact. Typically, they are supplemented by signage and/or pavement markings warning drivers of the upcoming speed hump or cushion.

Curb Radii Reduction

Larger curb radii typically result in high-speed turning movements by motorists, which may increase the risk of pedestrians being struck by right-turning vehicles. Smaller radii can enhance pedestrian safety by requiring motorists to reduce vehicle speed by making sharper turns, and shortening pedestrian crossing distances (which thereby enhances signal timing at signalized intersections).

Curb Extensions

Curb extensions narrow the roadway and are typically installed in parking lanes so they do not impede motor vehicle travel, bicycle lanes, or shoulders. Curb extensions shorten the crossing distance at intersections or mid-block crossings, helping to minimize pedestrian exposure and increasing visibility for pedestrians and motorists. They also prevent drivers from parking in or too close to a crosswalk and from blocking a curb ramp. Motor vehicles parked too close to crosswalks present a threat to pedestrian safety by decreasing visibility of pedestrians and other vehicles.

Bus bulbs are a form of curb extension that align the bus stop with parking lanes, allowing buses to stop and board passengers without ever leaving the travel lane. Bus bulbs help transit vehicles move faster and more reliably by decreasing the amount of time lost from merging in and out of traffic. Ideally, they are the length of two buses on routes with frequent service and one bus on less frequent routes.

All types of curb extensions can be enhanced with amenities such as seating, landscaping, and wayfinding. Evaluation should be conducted to ensure that the curb radius movement for vehicles, such as school buses, public buses, and fire trucks, are not impacted.

A curb extension with seating and landscaping in Walnut Park

Neighborhood Traffic Circles and Mini Roundabouts

Neighborhood traffic circles and mini roundabouts may be used to lower speeds at the intersection of two minor streets. Per the CA MUTCD, mini-roundabouts can be distinguished from traffic circles primarily by their yield control at all legs.

Top: a traffic circle
Bottom: a speed feedback sign

Neighborhood traffic circles, on the other hand, typically operate as two-way or all-way stop-controlled intersections.[1] Both treatments can feature plantings or other elements that help beautify the neighborhood and further calm traffic. High-visibility crosswalks may be marked to indicate where pedestrians should cross.

Speed Feedback Signs

Speed feedback signs provide drivers with information about their speed in relationship to the posted speed limit. Alongside enforcement, speed feedback signs can reduce speeds at select locations, such as school zones and busy local residential streets. Speed feedback signs can be used alone or in conjunction with other treatments such as speed humps/cushions or curb extensions.

1 FHWA, 2015. Intersection Safety Roundabouts. https://safety.fhwa.dot.gov/intersection/innovative/roundabouts/fhwasa10007/

LIGHTING

Pedestrian-scale lighting increases visibility for both pedestrians and drivers, and can be beneficial at intersections and in areas where personal safety is a concern. Pedestrian-scale lighting is characterized by shorter light poles (around 15 feet high), close spacing, low levels of illumination (except at crossings), and the use of LED lamps to produce good color rendition, long service life, and high energy efficiency. Lighting should be oriented downward to illuminate the pedestrian environment.

Both street and pedestrian lighting levels may be considered for the same street corridor, including areas with tree canopy. “Dark Sky” lighting should be pursued to reduce light pollution – this is usually desirable in residential and rural/mountainous areas. Pedestrian-scale lighting may be used in areas of high pedestrian activity and along pedestrian corridors connecting destinations, including transit hubs and access points, and multi-family neighborhoods.

Pedestrian-scale lighting fixtures may complement the look of existing streetlights or use the standard lamp fixtures of streetlights where appropriate. They are typically consistent with surrounding architectural and streetscape design elements and can be used to incorporate local art of cultural or historical relevance.

From left to right: path lighting; pedestrian-scale lighting in Walnut Park

TRANSIT STOPS AND STATIONS

At bus stops, a variety of streetscape elements can define the pedestrian realm, offer protection from moving vehicles, and enhance the walking experience for the first and last mile of a transit trip. These elements include public signage, lighting, seating, and shelters.

- Sidewalks provide comfortable pedestrian connections to transit stops and space for the streetscape elements listed below
- Signage at bus stops is an important element of good transit service. Signs serve as a source of information to patrons and operators regarding the location of the bus stop and are excellent marketing tools to promote transit use. Basic signs with route maps, fares, schedules, and applicable ADA information may be provided at all stops. On narrow sidewalks, transit signage may create obstructions for pedestrians. Thoughtful placement or relocation of these signs is important for ensuring easy mobility for people traveling on the sidewalk,
- Lighting is beneficial for safety and security. A brightly lit transit stop can make it easier for the transit vehicle operator to observe waiting passengers, and can allow motorists to see pedestrians in the vacinity of a transit stop,
- Seating provides comfort and convenience at bus stops and is usually installed on the basis of existing or projected ridership figures. Seats may be installed as freestanding units or as part of a shelter,
- Shelters protect pedestrians from the sun and rain, increase comfort for patrons waiting for rides, and may encourage more people to ride transit. The location of shelters, however, can create barriers for people walking down the street. To avoid this issue, sidewalks may be able to be widened near shelters, providing enough room for people to walk or roll.

A bus shelter in Westmont/West Athens provides shade and seating

STREETSCAPE

Landscaping, street trees, and street furniture such as benches, tables, and chairs can have a profound positive effect on the feel of a corridor. Landscaping and tree maintenance enhance the pedestrian environment by creating a visual buffer from the roadway. Trees also offer welcome shade on sunny days. Sidewalks can become inaccessible due to overgrown vegetation; landscaping should be designed and maintained to ensure compatibility with the use of pedestrian facilities. Curbs around landscaped areas should be flush with the adjacent sidewalk.

Benches and street trees provide a more comfortable walking experience along Florence Avenue

PEDESTRIAN WAYFINDING

Wayfinding can enhance the pedestrian experience – in some cases, it can encourage people to choose walking as their first choice of transportation. Street signs provide the most basic wayfinding information for transportation users; however, pedestrians often have the flexibility to use other areas for walking including shared-use paths, public staircases, and other locations that are impassable by motor vehicles. As pedestrians are traveling on foot, additional information on distance and time to significant landmarks can be helpful to inform route choice.

Pedestrian wayfinding signage can also be used to create a local identity and complement placekeeping efforts in downtowns or along paths. Further, wayfinding signs can provide important non-business contact information for local law enforcement in high-crime areas, if requested by a community.

A pedestrian wayfinding system consists of comprehensive signing and/or pavement markings to guide pedestrians to their destinations along preferred walking routes.

There are three general types of wayfinding signs:

1. **Gateway Signage and Kiosks** indicate that users have arrived at a key destination, such as a transit station, trail head, or parking area. This type of signage includes a map of the surrounding area with key routes and destinations. This signage can both be informational and encourage people to consider walking to their destinations by providing context on the distances and convenience to destinations.
2. **Confirmation Signs** indicate that users are on a designated path and headed toward a destination or multiple destinations. This signage includes destinations and distance and/or time, but does not include arrows. These signs can be combined with mile markers if desired.
3. **Decision Signage** indicates the junction of two or more paths or routes and informs users of the direction and, often, distances to key destinations. Directional arrows are included on these signs as well and can serve a dual purpose as a confirmation sign.

Wayfinding at the East Los Angeles Civic Center. Credit: SKA Design