Pedestrian Recommendation Toolbox

This toolbox summarizes the crossing, traffic signal, transit stop, and walking environment enhancements that should be considered and incorporated into roadway and development plans and designs. Implementing these improvements will make walking in Santa Clara feel safer and more comfortable for pedestrians.

Crossing Improvement

Curb Extension

Curb extensions, or bulbouts, are extensions of the sidewalk and curb at the corners of intersections. They normally extend out the width of the parking lane, 7' to 8'. Curb extensions shorten the roadway crossing distance and make pedestrians more visible to motorists. They can also help calm traffic by narrowing the travel lane, and provide additional space for plantings and street furnishings.

Curb Radius Reduction

Shorter turn radii at intersections shorten the crossing distance for pedestrians and require vehicles to turn more slowly.

Improved Right-Turn Slip Lane Design

Right-turn slip lanes can be improved for pedestrian safety by either shortening the turn radius, requiring vehicles to turn more slowly, or removing slip lane entirely. Other improvements include installing pedestrian refuge islands and marked pedestrian crossings that are perpendicular to the slip lane (or as close to perpendicular as possible) so that people are clearly visible to oncoming drivers.

Continued

Crossing Improvement

High-Visibility Crosswalk Marking

High visibility crosswalks use marking patterns that are more visible to motorists than the standard parallel 'transverse" markings, and help increase yielding behavior and deter encroachment. Ladder, zebra, and the continental markings (shown here) are commonly used patterns.

Advance Yield/ Stop Lines

Advance yield and stop lines inform motorists of the correct position to wait for pedestrians at marked crossings. Advanced yield lines are triangular pavement markings ("sharks teeth") placed in advance of uncontrolled crossing locations. These markings are especially important at multi-lane uncontrolled crossings to ensure vehicles in one lane stop sufficiently far back so that approaching vehicles in the other lane can see the pedestrian and also yield. Advanced stop lines are used in advance of stop signs or signalized crossings.

Curb Ramp

Curb ramps provide a transition between the sidewalk and roadway crossings. Curb ramps are essential for pedestrians using wheeled mobility devices and provide universal access for all users including small children, adults pushing strollers, people with luggage, etc. Each corner should have two "perpendicular" ramps, one leading directly into each crosswalk. Ramps should include a tactile warning surface to inform users with visual impairments that they are transitioning between the sidewalk and the roadway.

Continued

Crossing Improvement

Crossing Island

Crossing islands, or pedestrian refuge islands, are typically areas at the mid-point of a marked crossing that prove a safe waiting space for pedestrians. They minimize pedestrian exposure by allowing pedestrian to cross the roadway in two separate stages.

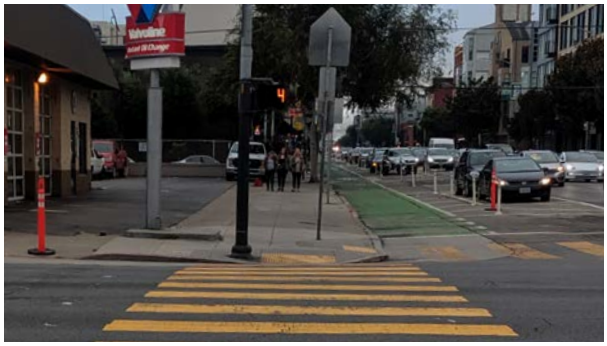
Pedestrian-Scale Lighting

Pedestrian-scale lighting can improve walking accessibility at night time by illuminating sidewalks, crosswalks, curbs, and signs as well as barriers and potential hazards. Pedestrian-scale lighting should be employed in areas of high pedestrian activity.

Pedestrian Motion Sensors

Pedestrian motion sensors will detect whether pedestrians are still within a crosswalk at the end of a crossing phase. If pedestrians are still crossing, the sensor will extend the green time of the accompanying vehicle phase before the traffic signal phase turns red, giving pedestrians additional time to safely exit the crosswalk.

Signal Improvement



Pedestrian Signal/Countdown Signal

A pedestrian signal communicates when a pedestrian may cross an intersection. Countdown signals notify the pedestrian of how much time remains in the crossing phase. They can help prevent people from getting stuck in the middle of the intersection when the signal changes.

Traffic Control Study

A traffic control study designates an area where the city is considering adding a signal, sign, or beacon to improve pedestrians' crossing experience. A warrant must be met before the City can consider installing one of these traffic control devices. The MUTCD defines a warrant as a threshold condition based upon average or normal conditions that, if found to be satisfied as part of an engineering study, shall result in analysis of other traffic conditions or factors to determine whether a traffic control device or other improvement is justified.

Pedestrian Hybrid Beacon (PHB)

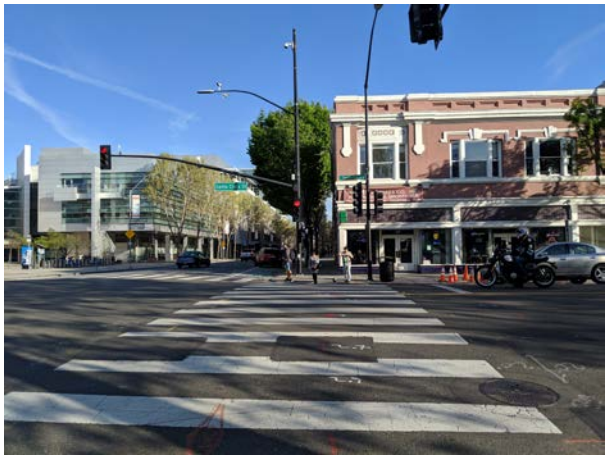
Pedestrian Hybrid Beacons, also known as High-Intensity Activated Crosswalk Beacons (HAWKs), are user-activated traffic control devices that cycle through a flashing yellow, flashing red, and then steady red light to stop vehicles and allow pedestrians to cross a road safely. They can be installed at any uncontrolled crossing location. A traffic control study must be completed and warranted before the installation of this traffic control device.

Continued

Signal Improvement

Rectangular Rapid Flash Beacon (RRFB)

Rectangular Rapid Flash Beacons (RRFBs) are user-activated pedestrian beacons that use flashing high intensity LED lights to alert motorists to the presence of pedestrians in the crosswalk. They can be installed at any uncontrolled crossing location. A traffic control study must be completed and warranted before the installation of this traffic control device.



Leading Pedestrian Interval

A Leading Pedestrian Interval (LPI) typically gives pedestrians a 3–7 second head start when entering an intersection with a corresponding green signal in the same direction of travel.

Stop Sign/Signal

Stop sign or signal warrant studies evaluates traffic conditions, pedestrian characteristics, and physical characteristics of the location to determine whether installation of a traffic control device is justified at a particular location. A traffic control study must be completed and warranted before the installation of this traffic control device.

Continued

Signal Improvement

Pedestrian Crossing Sign

Pedestrian crossing signs alert motorists to the presence of a marked crosswalk. They can be placed parallel to or in advance of a crosswalk, and are particularly useful in locations where a crosswalk may not be expected by motorists.

Transit Stop Improvement

Transit Waiting Area Improvements

Transit stop amenities such as benches, bike racks, shade structures, and shelters enhance pedestrian comfort. The addition of real time transit information can provide real-time bus departure times for that stop.

Walking Environment Improvement

Public Space Activation

Public space activation refers to urban design and programming with the goal of enhancing a space to make it more inviting to people and encouraging them to linger. Examples of public space activation include art installations, parklets, outdoor seating and tables, farmers markets, and festivals.