
Section 7: Complete Streets Ordinance

Section 7.1:

Purpose

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The Complete Streets Ordinance provides guidance on street character, connectivity, access for all users, development of continuous pedestrian paths and trails/recreation opportunities, and the inclusion of public gathering spaces equitably placed throughout the City.

The Complete Streets Ordinance (referred to as the CSO hereafter) references the Pedestrian Safeguarding Recommendations, Active Transportation Plan, and Trails Master Plan for specific project location recommendations.

Development standards identified in the CSO shall supersede any other City of Riverside development standards identified through the municipal code, an adopted specific plan, or any other guidance. Additionally, City staff should align discretionary decisions with objectives outlined in this section.

Projects shall meet the purpose and intent of the development standards within the CSO and shall address the design and

compatibility of the project in relation to surrounding street and public right-of-way (ROW) conditions as they relate to the extents of the project and its adjacent ROW.

The City has developed the following development standards to direct the future implementation of complete streets improvements in the City of Riverside. The five objectives below highlight the purpose of the CSO.

- 1. PROVIDE SAFE, EQUITABLE, AND COMPREHENSIVE MULTI-MODAL TRANSPORTATION OPTIONS FOR ALL USERS**
- 2. BALANCE ROADWAY NEEDS**
- 3. ENCOURAGE HEALTHY, ACTIVE LIFESTYLE**
- 4. CREATE A CONNECTED NETWORK THROUGHOUT THE CITY OF RIVERSIDE FOR PEDESTRIANS, BICYCLISTS, AND RECREATIONAL USERS**
- 5. INTRODUCE EQUITABLE OPPORTUNITIES FOR OPEN SPACE INTO THE PUBLIC ROW**

In consideration of the fact that the City of Riverside has a substantial number of policies that support Complete Streets, specific policies from the General Plan are highlighted below:

- Policy CCM-2.9- Design all street improvement projects in a comprehensive fashion to include consideration of street trees, pedestrian walkways, bicycle lanes, pathways, signing, lighting, noise and air quality.
- Policy CCM-2.10- Emphasize the landscaping of parkways and boulevards.
- Policy CCM-6.1- Encourage reduction of vehicle miles, reduce total number of daily peak hour vehicular trips.
- Policy CCM-8.4- Give priority for sidewalk and curb construction to areas near schools with pedestrian traffic.
- CCM-9.6: Enhance and encourage the provision of attractive and appropriate transit amenities, including shaded bus stops, to facilitate the use of public transportation.
- Policy CCM-10.3- Provide properly designed pedestrian facilities for disabled and elderly.
- Policy CCM-10.4- Identify and seek to eliminate hazards to safe, efficient bike and pedestrian movements citywide.
- Policy CCM-10.5- Promote health benefits of using a bicycle or walking as a means of transportation.
- Policy CCM-10.6- Encourage pedestrian travel through the creation of sidewalks and street crossings.
- Policy CCM-10.10- Evaluate needs of bicycle traffic in the planning, design, construction and operations of all roadway projects funded by the City.
- Policy CCM-10.12- Encourage bicycling as a commute mode to school, work, etc.

In addition to these general plan policies, see Appendix A: Plan Policy Review for a complete review conducted on the following plans and municipal code to identify policies supporting Complete Streets.

- City of Riverside General Plan (2007)
- City of Riverside Bicycle Master Plan (2007)
- University Neighborhood Plan (June 2008)
- Eastside Neighborhood Plan (June 2009)
- City of Riverside Bicycle Master Plan Update: Addendum (2012)
- City of Riverside Restorative Growthprint - Climate Action Plan (RRG-CAP) (2014)
- Biking in Fresh Air: Consideration of Exposure to Traffic-Related Air Pollution in Bicycle Route Planning (2017)
- Riverside Transit Agency First and Last Mile Mobility Plan (2017)
- City of Riverside, California Downtown Specific Plan (Amended 2017)
- Western Riverside Council of Governments Active Transportation Plan (2018)
- Riverside County Comprehensive Trails Plan (2018)
- Marketplace District Plan (March 2019)
- City of Riverside traffic code, regulations, and policies (Version: Aug 1, 2019)

Note: Requirements using the term “shall” are mandatory with little to no discretion involved. Other criteria will require site specific analysis.

Section 7.2: Application

Section 7.2. Application

The development standards in this document are intended to guide private developers and City staff when implementing or updating a roadway design in response to a private development project or a publicly led project. While some standards, such as lane widths, will be more universally applied throughout the roadway system, others such as mid-block crossings or bus boarding area improvements, will be implemented in very site-specific situations. Elements such as parklets, bike corrals, and seating are often determined by site specific conditions but will require oversight and maintenance by the property owner, a non-profit association, or business organization.

The development standards identified in the CSO apply to public projects and any project meeting the threshold identified in Section 2A. Private Development. These projects are not eligible for in-lieu payment of transportation, local park, or trail development impact fee. The City reserves the right to require an applicant to prepare additional traffic analysis based on:

- Presence of an existing or potential safety problem.
- Location of the development in an environmentally or otherwise sensitive area, or in an area that is likely to generate public controversy.
- Presence of a nearby substandard intersection or street.
- Need for a focused study for access/operational issues.
- Designation of the project as having truck intensive uses. Truck intensive uses include heavy industrial, warehousing or as determined by the Traffic Engineering Division.
- Request from an affected agency, such as Caltrans or adjacent City; if the request is deemed reasonable and appropriate by the City of Riverside's staff.

APPLICATION OF VEHICLE WAYS DEVELOPMENT STANDARDS

A. PRIVATE DEVELOPMENT:

1. Projects generating more than 110 daily vehicle trips or exceeding the following development quantities:
 - a) 11 single family housing units
 - b) 16 multi-family, condominiums, or townhouse housing units
 - c) 10,000 sq. ft. of office or mixed use
 - d) 15,000 sq. ft. of light industrial
 - e) 63,000 sq. ft. of warehousing
 - f) 79,000 sq. ft. of high cube transload and short-term storage warehouse
2. All private streets, private drives, or public streets shall meet requirements of Section 3A: Vehicle Ways Development Standards and refer to Section 4: Complete Streets Roadway Cross Section Options.
3. All new development shall meet requirements of Section 3D Pedestrian Zones Development Standards.

B. PUBLIC PROJECTS:

1. Whenever the City undertakes a project involving the planning, construction, reconstruction, repaving, or resurfacing of a public right-of-way, such project shall consider inclusion, to the maximum extent practical and feasible, improvements as described in Section 3A Vehicle Ways Development Standards.

APPLICATION OF ALL OTHER DEVELOPMENT STANDARDS

A. PRIVATE DEVELOPMENT:

1. If determined necessary by City staff, new development projects shall install improvements based on number of residential units or square footage and land use.

B. PUBLIC PROJECTS:

1. Whenever the City undertakes a project involving the planning, construction, reconstruction, repaving/ resurfacing of a public ROW, the project shall consider installation of improvements to the maximum extent practical and feasible.

Section 7.3: Development Standards

Section 7.3. Development Standards

This section is intended to guide private developers and City staff when improvements to existing streets are undertaken or new streets are designed and constructed. In some situations, it may not be practical or feasible to implement the full extent of a particular regulation or guideline, and some or all of a street segment may continue to be non-conforming. In this case, City staff should pursue those improvements that best align with the CSO objectives in Section 1 of this document.

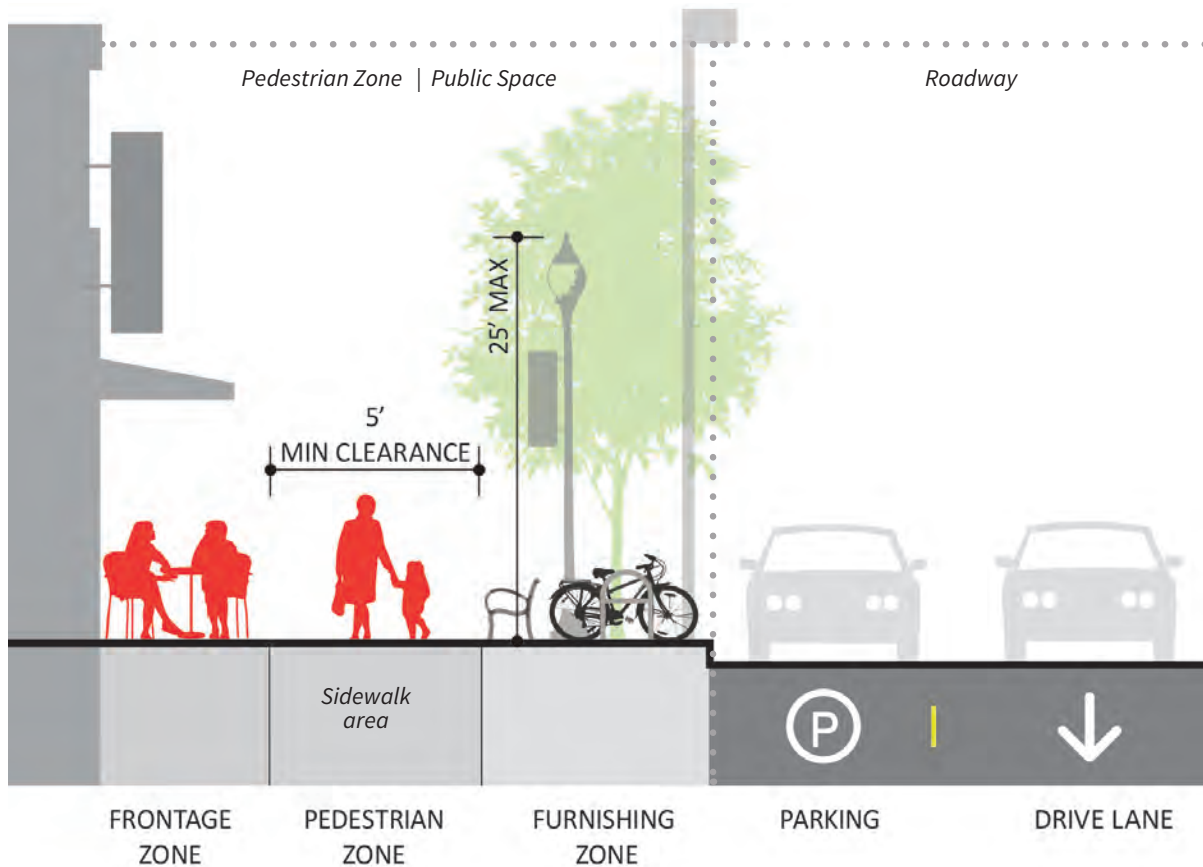
Vehicular travel speed plays a major role in determining the extent to which a pedestrian or cyclist feels safe and comfortable. In situations where pedestrians or bicyclists may be present, particularly at locations where a high number of vulnerable users such as children or the elderly are anticipated, physical treatments such as those included in this section can be introduced into the roadway to reduce travel speeds. The selected treatments will vary depending upon whether the roadway is classified according to the General Plan as a local, collector, or arterial street and will be further influenced by the types of land uses that are located nearby. For instance, the presence of a school will likely warrant a more intensive selection of treatments, whereas a stretch of roadway where there are relatively no adjacent land uses may suggest an application with a much more limited palette of treatments.

This section is organized into five parts:

- A. Vehicle Ways
- B. Bikeways
- C. Intersection Treatments
- D. Pedestrian Zone
- E. Pedestrian Safeguarding

These Development Standards apply to all public streets, private streets, and private driveways.

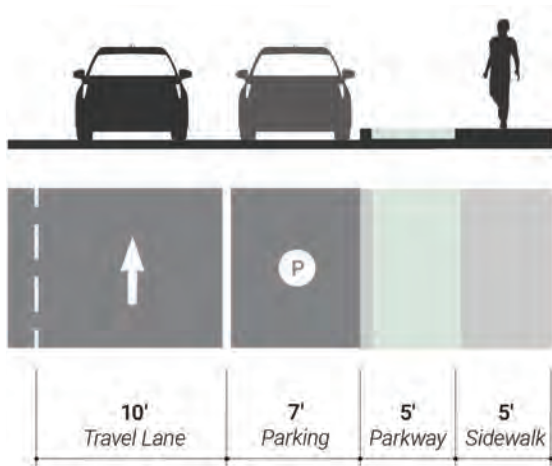
Vehicle ways and bikeways specifically address travel lane standards related to parking and bicycle use. Intersection treatments include signal timing and crosswalk design standards. Pedestrian zone (see figure below) includes development standards that address the pedestrian path, landscaping, and street furnishings. Pedestrian Safeguarding standards address security considerations and requirements for public spaces.



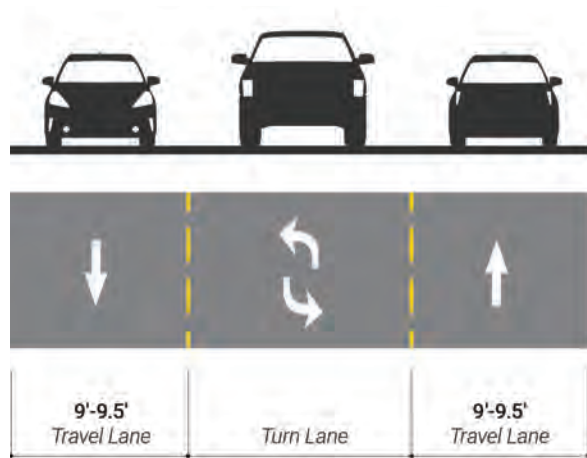
A. VEHICLE WAYS

1. Vehicle Lane Widths

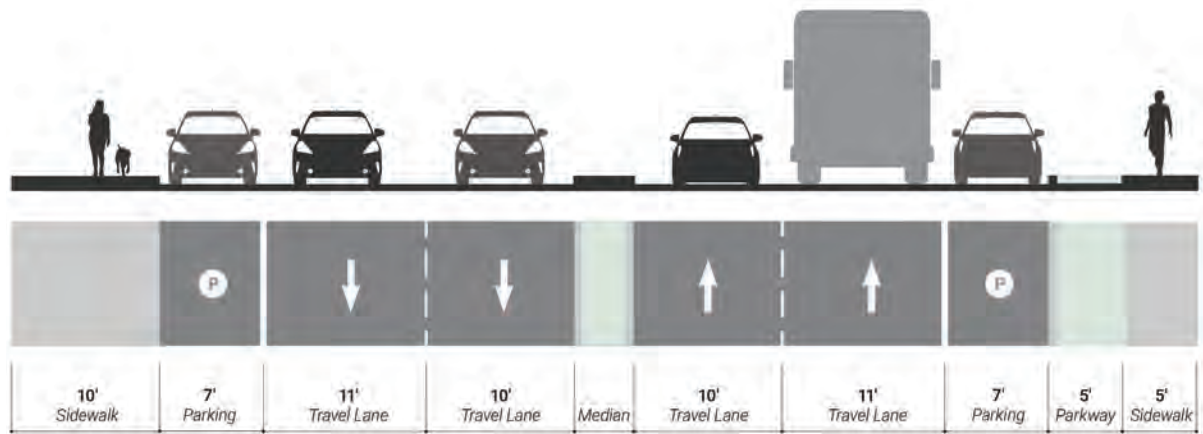
a) Travel lanes shall be 10 feet in width.



b) Narrower travel lanes (minimum 9 feet) can be effective as through lanes in conjunction with a turn lane if appropriate based on speed limit and traffic volumes.

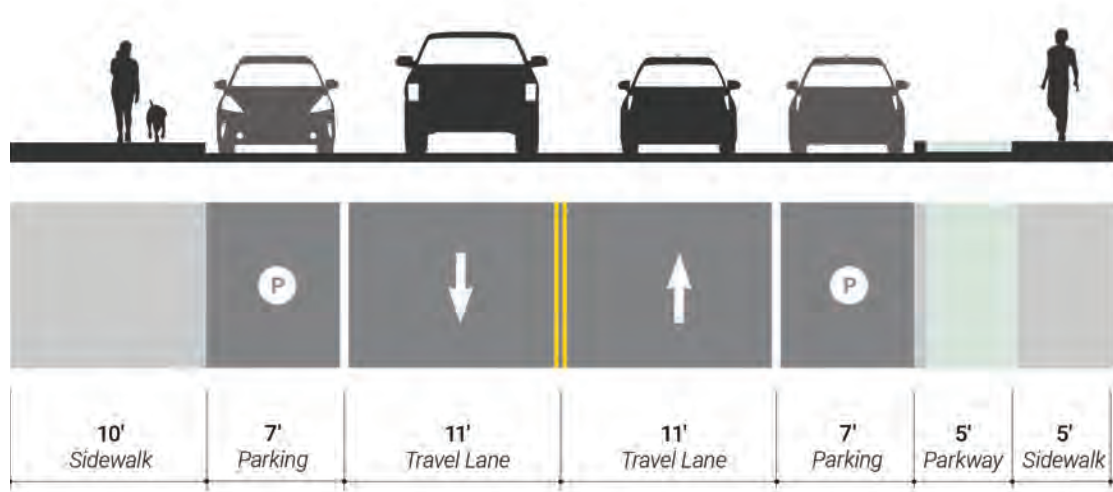


c) Curb or outside lanes on designated high truck volume roadways and/or bus routes shall be a minimum of 11 feet in width.



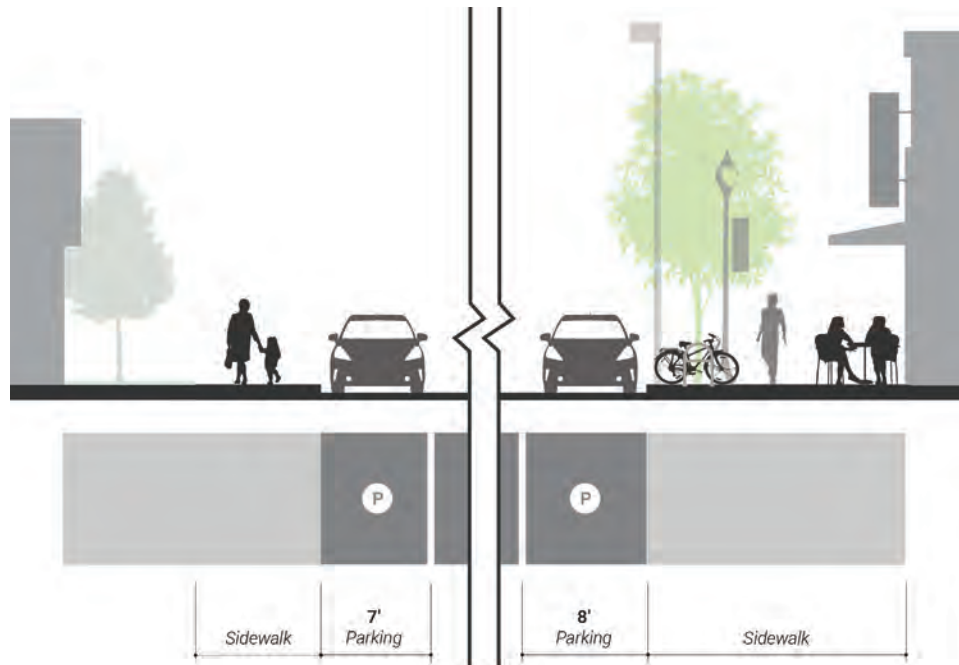
- d) Lanes adjacent to lanes in the opposing direction may be up to 11 feet in width.

- e) Lane width up to 11 feet may also be necessary for receiving lanes at turning locations with tight curves.



2. On-Street Parking

- a) Parking lanes shall be 7' except in locations with high parking turnover where an 8' parking lane shall be permitted.

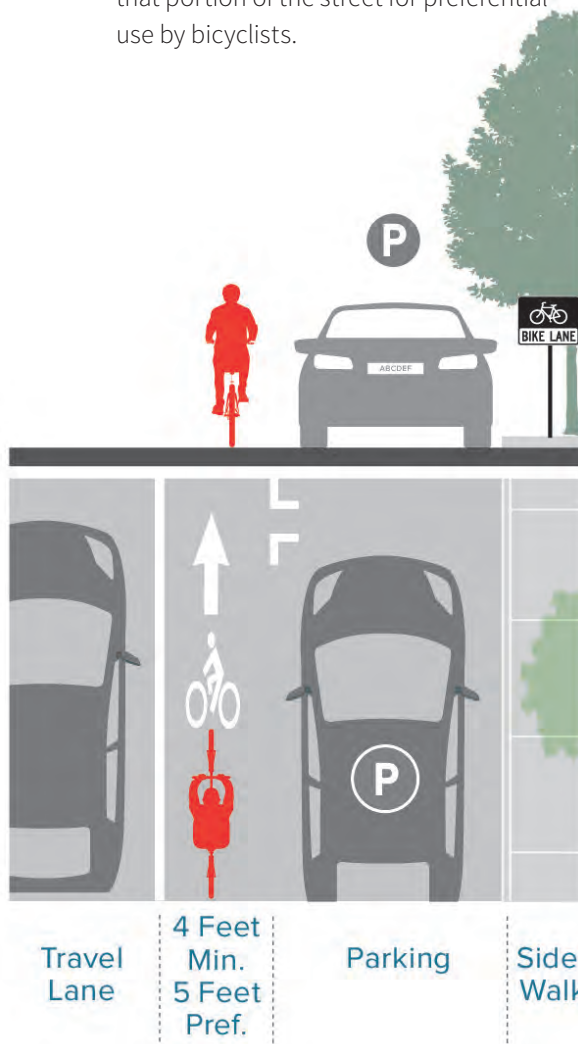


B. BIKEWAYS

See the Active Transportation Plan for specific bikeway recommendation locations. All requirements for bikeways must meet and reference the California MUTCD manual.

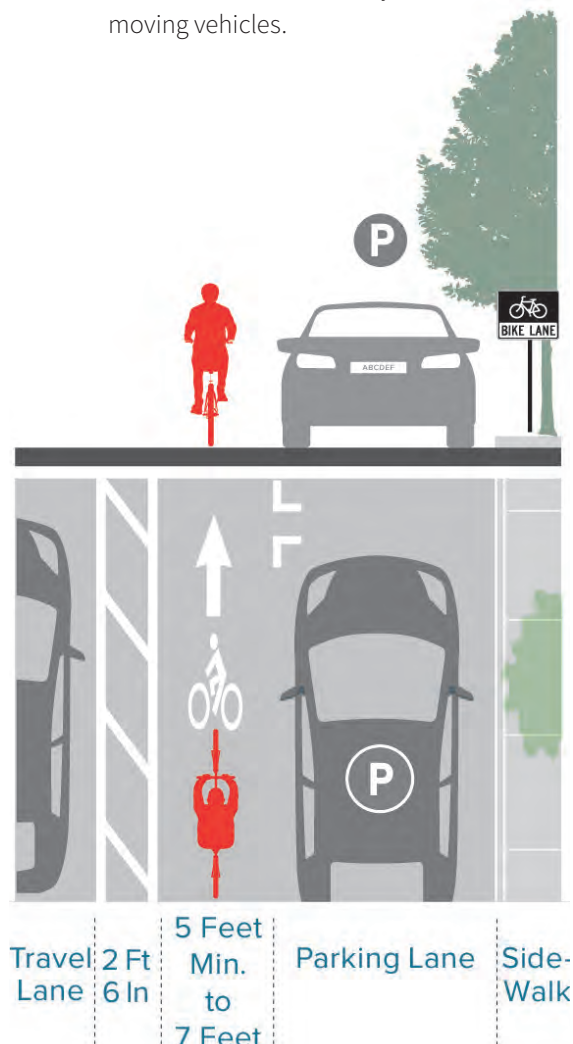
1. Bicycle Lane (Class II)

- a) Bike lane shall be a minimum of 5 feet wide when located on the driver's side of a parking lane. Wherever possible, increase bike lane to 6 feet and minimize the parking lane width.
- b) Bicycle lane word and/or symbol and arrow markings (MUTCD Figure 9C-3) shall be used to define the bike lane and designate that portion of the street for preferential use by bicyclists.



2. Buffered Bicycle Lane (Buffered Class II)

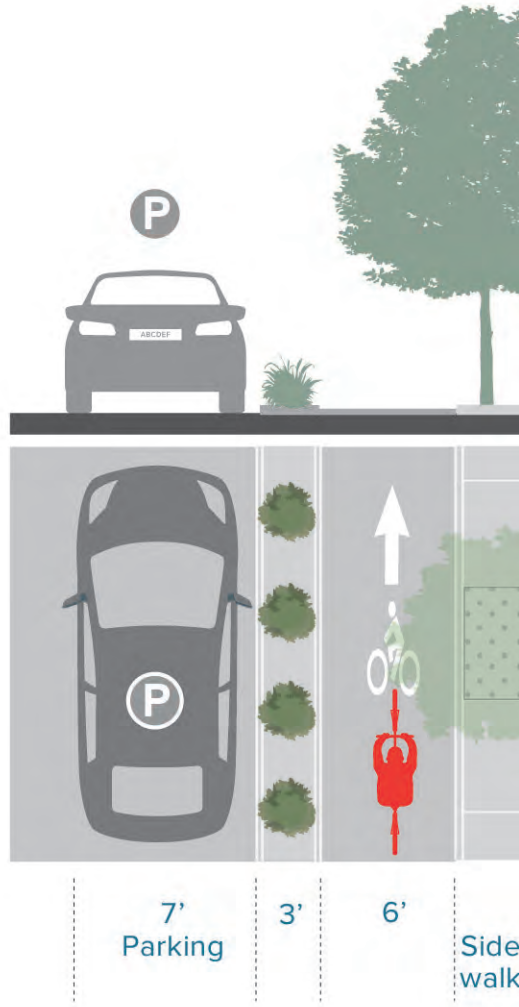
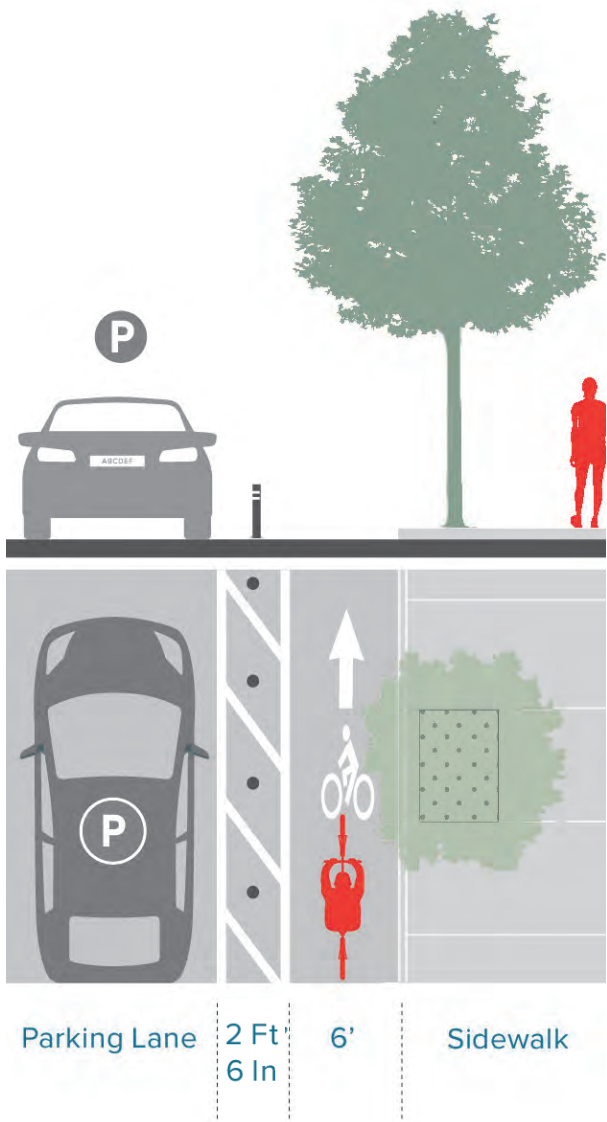
- a) Bike lane shall be a minimum of 5 feet wide. Provide a minimum striped buffer of 2 feet 6 inches between the travel lane and the bicycle lane. In this situation the parked car remains alongside the curb and the bicyclist continues to ride alongside of the vehicle lane but a painted buffer has been installed to provide for a bit more physical distance between the bicyclist and the moving vehicles.



b) **Separated Bicycle Lane (Class IV)**

- c) When placed adjacent to a curb or other vertical surface, the bicycle lane width shall be no less than 6 feet.
- d) A minimum physical separation of 2 feet 6 inches shall be maintained between the bicycle lane and the parking lane. The separation space should be used to locate bollards, planters, signs or other forms of physical protection.

- e) Bicycle lane word, symbol, and/or arrow markings (MUTCD Figure 9C-3) shall be placed at the beginning of the lane and at periodic intervals along the facility based on engineering judgment.
- f) Diagonal crosshatch markings should be placed in the neutral area for special emphasis. See MUTCD Section 3B.24.
- g) Raised medians or other barriers can also provide physical separation between the bicyclist and vehicle way or parking lane.



Chapter 1000 of the Caltrans Highway Design Manual establishes a classification system that differentiates bikeways into four types or facilities, Class I, II, III, and IV. The bikeway classifications are presented in order of least to most protected.

SHARED LANE

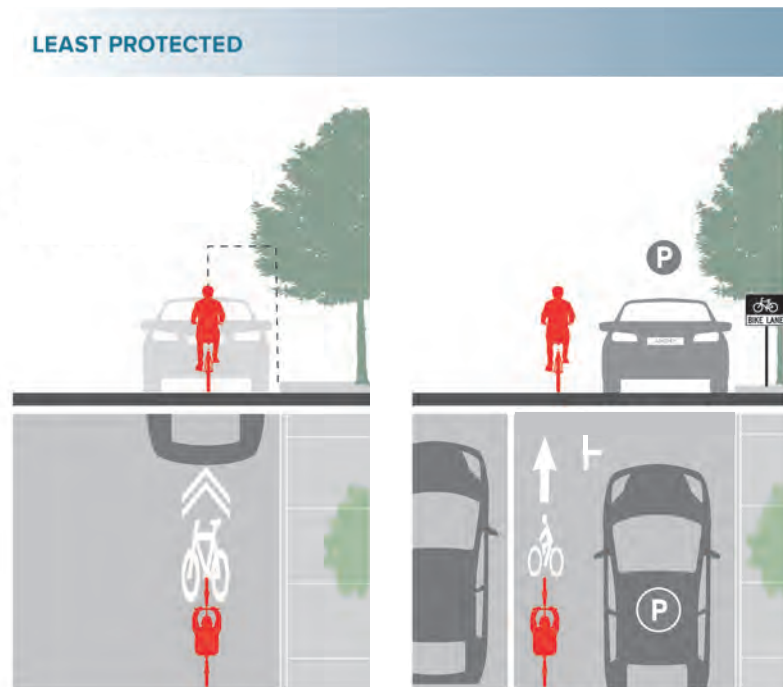
CLASS III

Class III shared bicycle lane is often referred to as a sharrow, bicycle route and does not provide for a dedicated bicycle space within the roadway. The bicyclist shares a travel lane with a vehicle. The bicyclist shares a travel lane with a vehicle. Class III bikeways typically include markings within the roadway area to let motorists know that bicyclists may be present.

BIKE LANE

CLASS II

Class II bicycle lane continues to be the most predominant bikeway type and is commonly installed between the far-right vehicle lane and either the curb or a parking lane.



BUFFERED BIKE LANE

BUFFERED CLASS II

Class II buffered bike lane is a hybrid between the Class II and Class IV. In this situation the parked car remains alongside the curb and the bicyclist continues to ride alongside of the vehicle lane but a painted buffer has been installed to provide for a bit more physical distance between the bicyclist and the moving vehicles.

SEPARATED BIKEWAY

CLASS IV

Class IV separated bikeway was recently added in response to the growing interest in protected bicycle lanes whereby a buffer and/or physical separator is located between the bicycle lane and the adjacent vehicle lane. Parking lanes and striped buffer can serve as a separator wherein other raised physical features such as planters or other vertical elements also serve to offer protection.

SHARED USE PATH

CLASS I

Class I shared use path is typically referred to as a bicycle path and this facility is often physically separated from the roadway area by grade as well as vertical elements.



C. INTERSECTION TREATMENTS

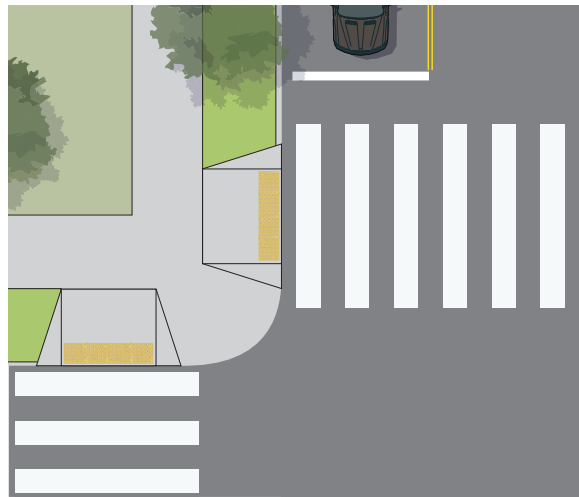
1. Signal Timing at Signalized

Intersections

- a) If determined necessary by City staff, new development projects shall install a lead pedestrian interval (LPI) of 3-7 seconds, depending on the overall crossing distance (as determined by Dept. of Public Works).

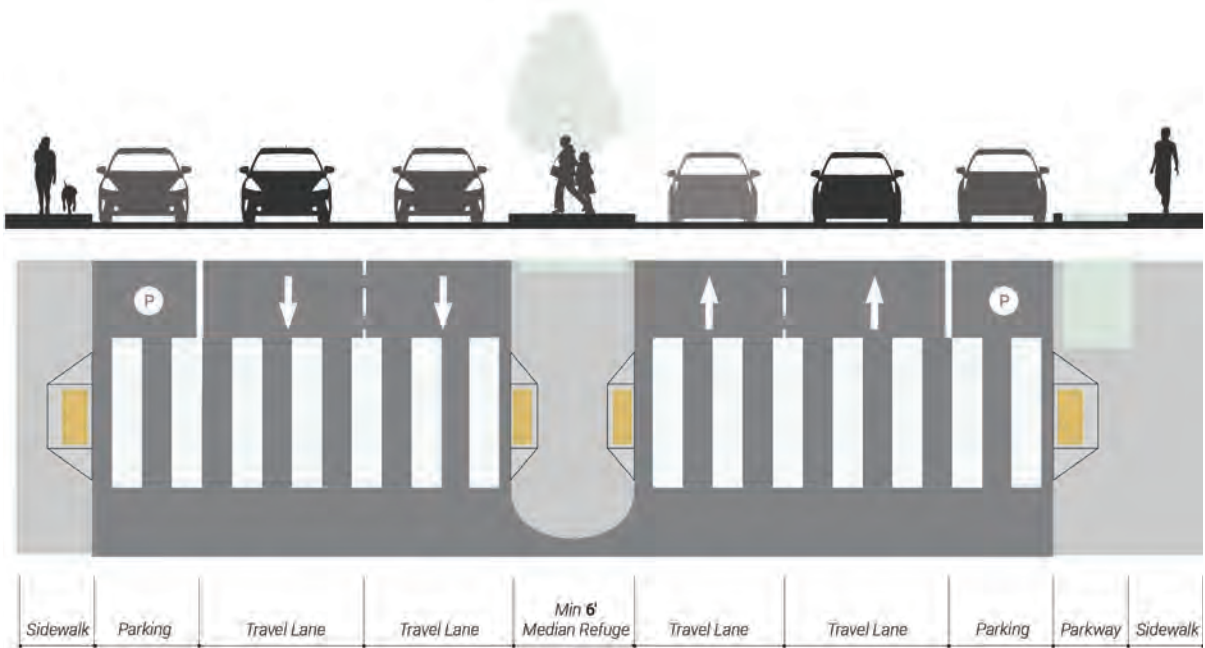
2. Crosswalks

- a) If determined necessary by City staff, new development projects shall install continental style (or zebra/ladder) crosswalks of the nearest signalized intersections using high visibility markings.
 - i. Crosswalks shall be 10 - 15 feet wide and include distinct, 2 foot white painted strips. (In School zones the strips shall be yellow.)
 - ii. Place an advanced stop bar perpendicular to the travel lane in advance of the crosswalk to increase pedestrian safety.
- b) If determined necessary by City staff, new development projects shall install high visibility crosswalk markings at the nearest non-signalized intersection where a school, park or other high-intensity use is present.



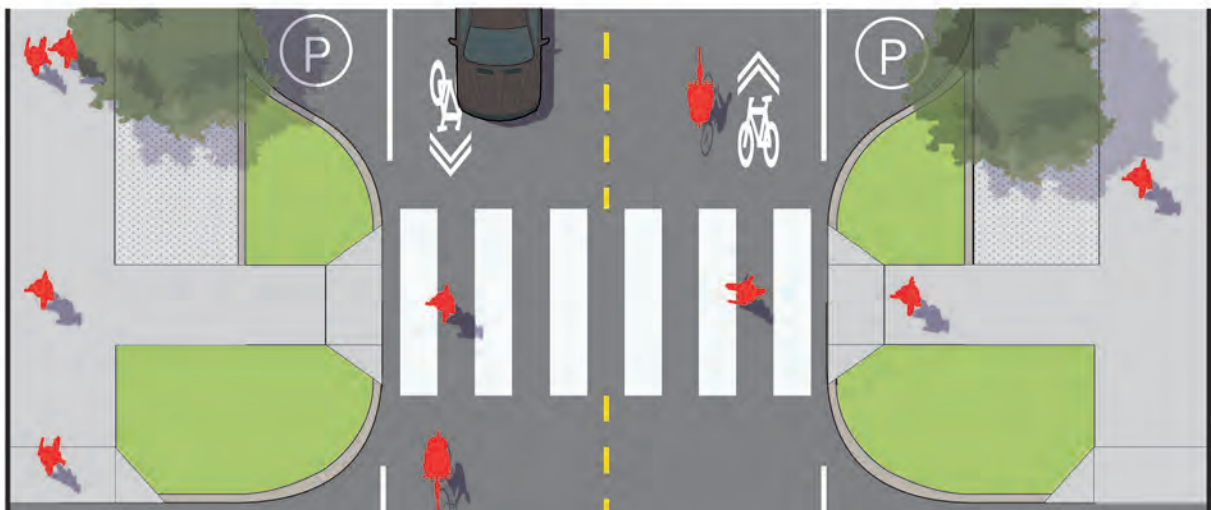
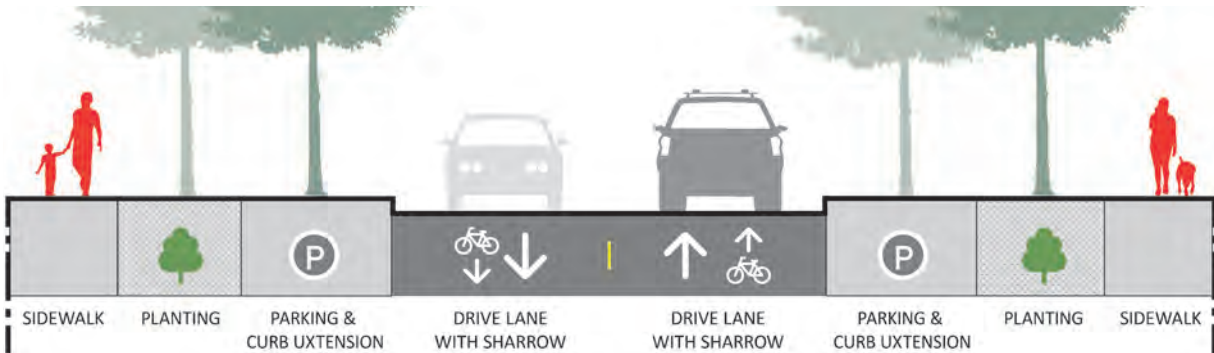
3. Median Refuge

- a) If determined necessary by City staff, install a median refuge along multi-lane roadways where there are pedestrian crossings and high volumes of traffic accounting for more than 12,000 vehicles per day.
 - i. Median refuge islands should be a minimum of 6 feet wide. A preferred design includes an 8 foot wide median refuge to enhance pedestrian comfort and to be of adequate length to allow a number of pedestrians to stand and wait for gaps in traffic before crossing the second half of a street.
 - ii. Detectable warning strips complying with the requirements of the Americans with Disabilities Act shall be installed.



4. Curb Extensions

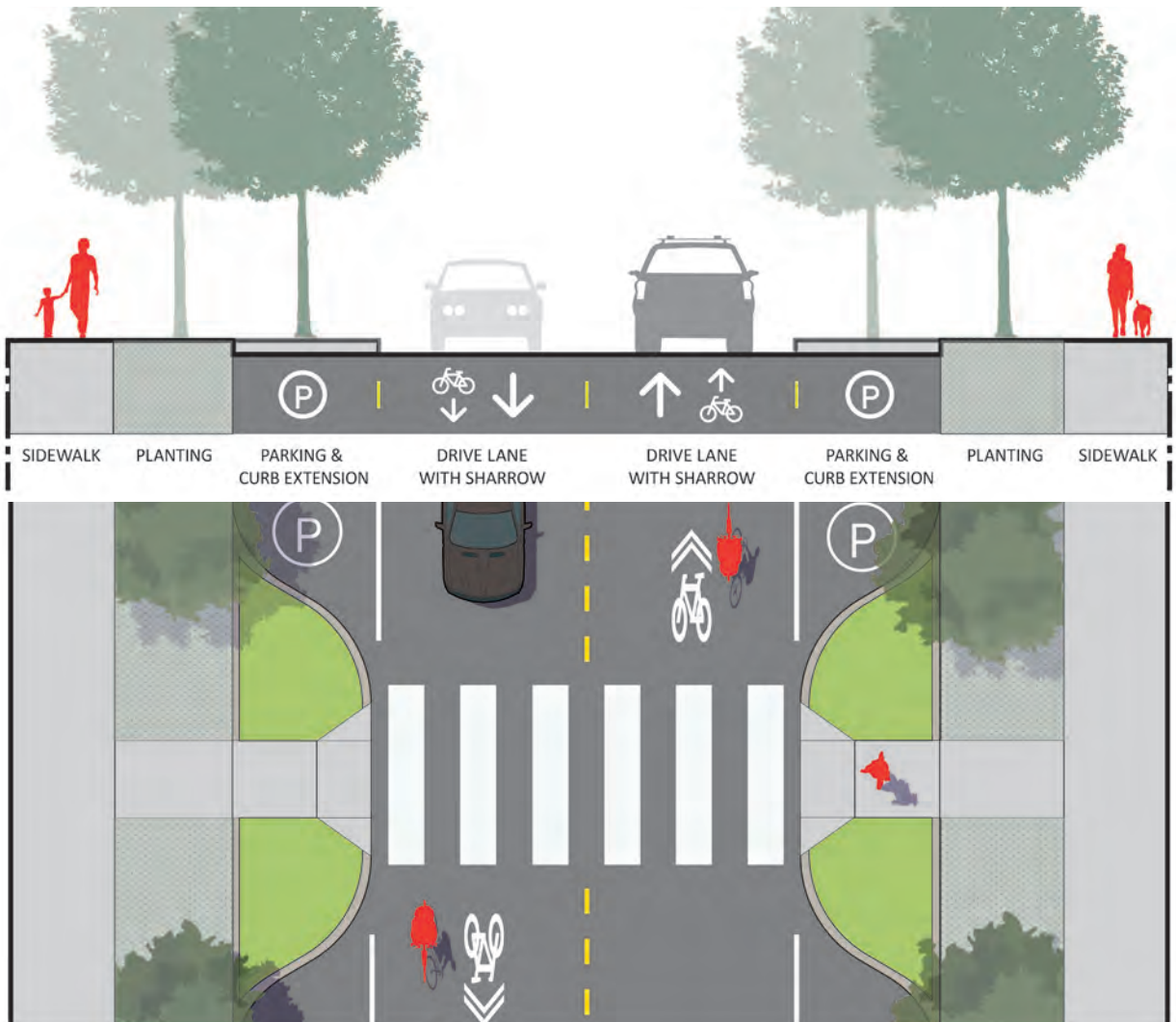
- a) Where appropriate and as approved in project specific water quality management plan, install curb extensions on streets, to increase visibility, reduce the crossing distance, reduce the speed of turning movements, and allow for enhancements such as seating or greenery.
- b) Curb extensions shall include bi-directional access ramps on all approaches where feasible.
- c) Where deemed appropriate and approved, install curb extensions, or neckdowns at the entry to local or minor streets.
- d) Include stormwater management features within the curb extension to absorb rainwater and reduce the impervious surface area of a street.
 - i. Use low plantings in bioretention facilities in curb extensions near intersections to maintain sight distance; plants should grow no higher than 24 inches above the sidewalk grade. The curb return from bump-out edge to original curb line should be designed to enable street sweeping along the curb edge, typically angled between 30 and 60 degrees relative to the curb line and with a minimum radius of 10 degrees. Steeper return angles will usually require hand-sweeping.
 - ii. Where application of a curb extension adversely impacts drainage, curb extensions may be designed as edge islands with a 1–2-foot gap from the curb or a trench drain.



D. STREET DESIGN FEATURES

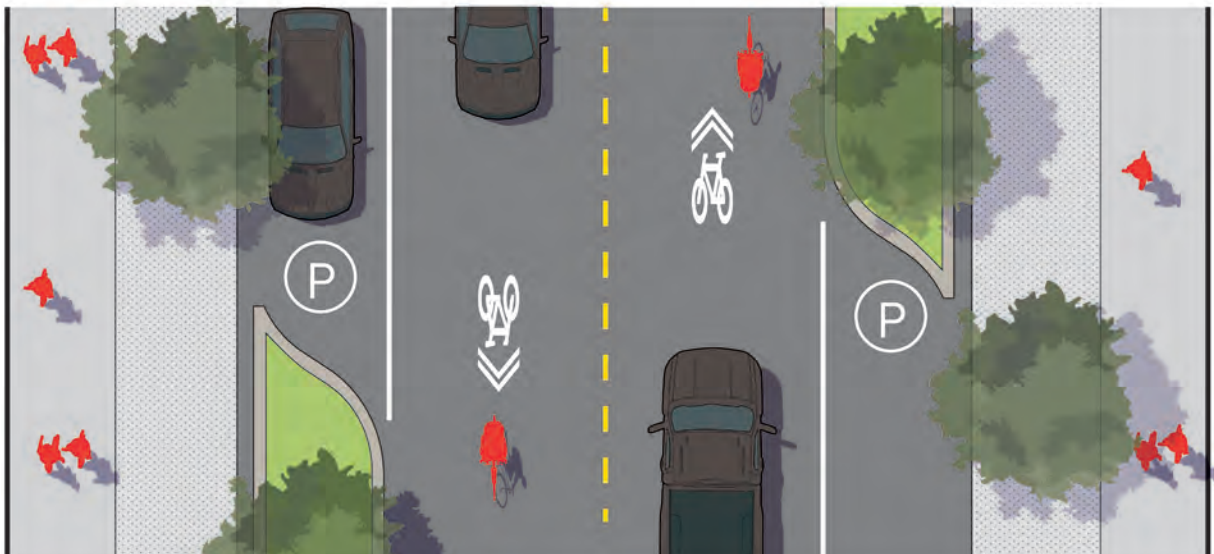
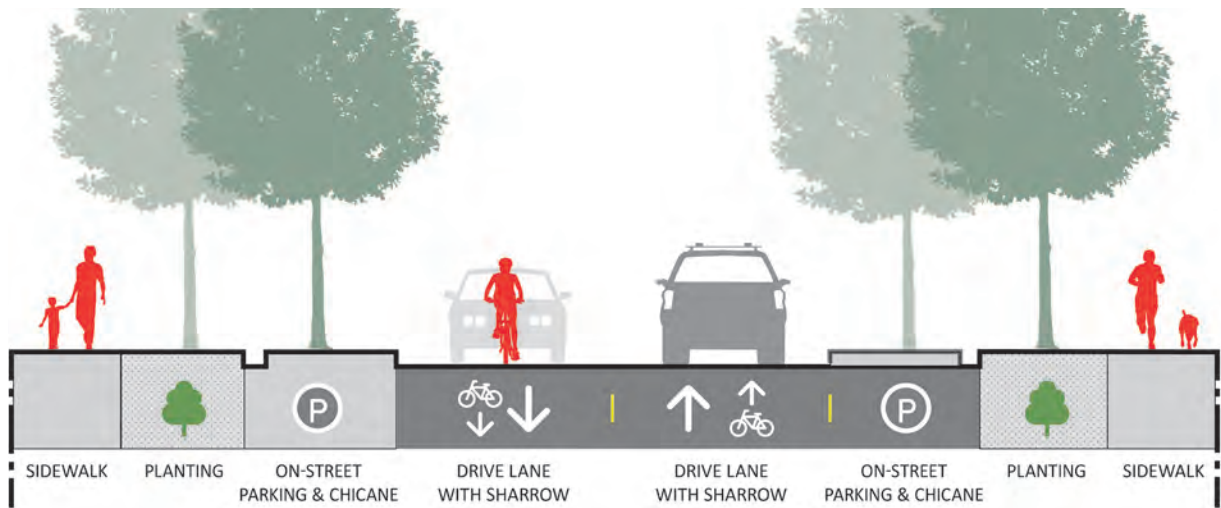
1. Mid-Block Curb Extensions

- a) Where appropriate and as approved in project specific water quality management plan, install mid-block curb extensions, known as pinch points or chokers, to facilitate mid-block pedestrian crossings.
- i. Where traffic volumes exceed 2,000–3,000 vehicles per day, install a marked crosswalk and other enhanced treatments such as a median refuge, and/or Rectangular Rapid Flashing Beacon (RRFB).



2. Chicanes

- a) Where deemed appropriate and approved, install an offset curb extension, or chicane, on a local, low traffic volume street to slow vehicles speeds and create a safer, more comfortable pedestrian environment.
- i. Chicanes should be designed using a return angle of 45 degrees, or a more gradual taper and transition, resulting in an S-shaped roadway.



3. Bulb-Outs

- a) Install bulb-outs in the parking or curb lane at certain intervals as a means to introduce street trees in locations where sidewalk width is not sufficient to accommodate a street tree and still maintain a comfortable walking environment.



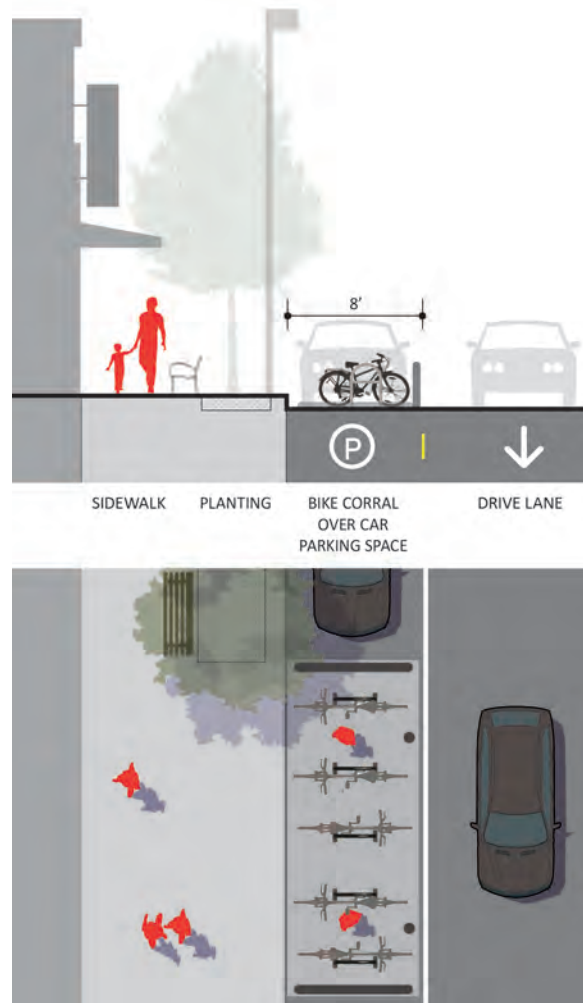
4. Parklets

- a) Consider the installation of a parklet per City Council Resolution No. 21322. Reference this resolution for additional information on the parklet application process.
- b) Parklets are encouraged in downtown Riverside, near mixed use centers, transit centers, or locations where the property owners or residents see a need to expand the seating capacity or public space and where impacts to on-street parking are determined to be acceptable.



5. On-Street Bike Parking Corral

- a) A development project may satisfy their off-site bicycle parking requirement, subject to approval by the Public Works Department, by installing either of the following:
 - i. Convert one or two on-street motor vehicle parking spaces into on-street bicycle parking in commercial areas where demand for bicycle parking is high.
 - ii. Locate the bike parking in no-parking zones near intersections and crosswalks.



E. PEDESTRIAN ZONE

1. Streets and Driveways

- a) All new development shall provide a minimum of one pedestrian and one bicycle connection to the existing City network as a part of the project.
- b) Private streets and driveways shall be coordinated and connected to the public street system and provide a continuous pedestrian path.

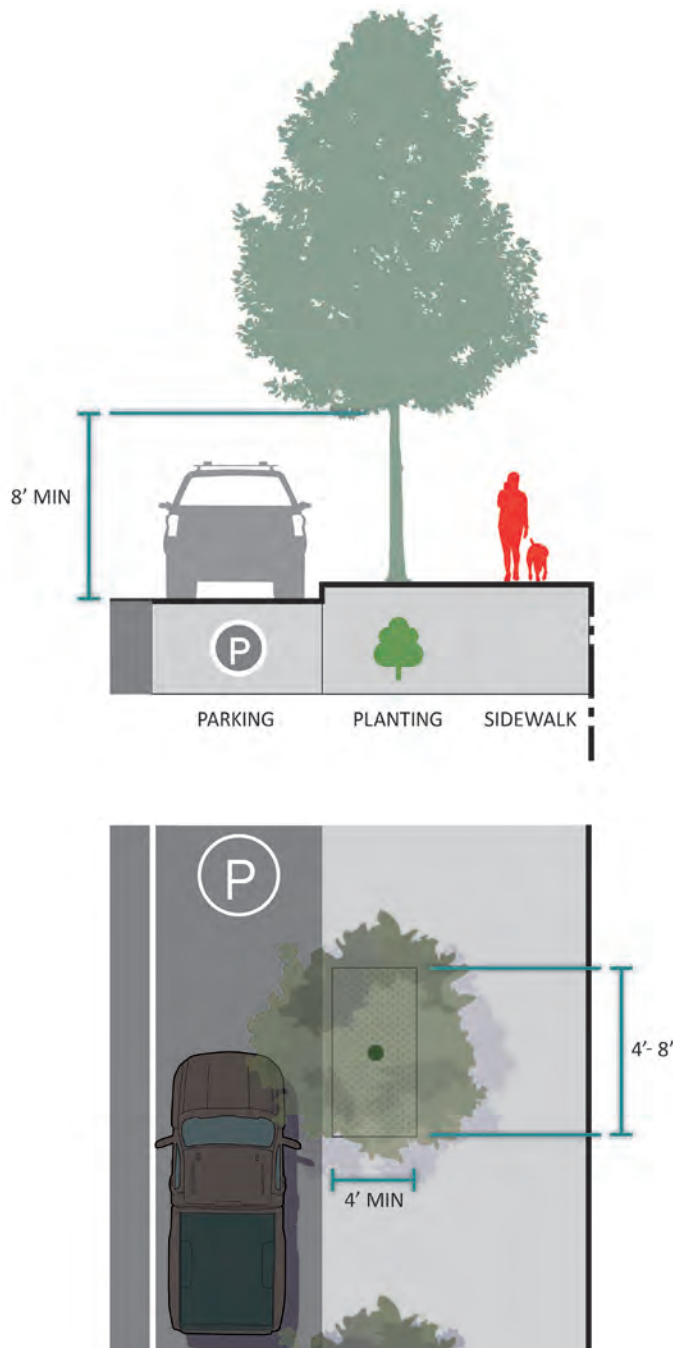
2. Passage during Construction

- a) Any construction project shall provide a temporary sidewalk that affords a safe and convenient passage or clearly directs users to an equivalent nearby detour. The temporary sidewalk shall provide:
 - i. A clear path, free of obstruction, a minimum of 5 feet in width.
 - ii. A durable walking surface capable of supporting all imposed loads and in no case shall the design live loads be less than 150 pounds per square foot.
 - iii. Mirrors at all blind corners.
 - iv. Exception: Where a 5 foot clearance is not possible, the sidewalk, or pathway shall be kept open to the extent required by the Department of Transportation as well as comply with applicable provisions of the ADA Accessibility Guidelines for Buildings and Facilities and/or the ADA Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way, as applicable.

- b) Sidewalk sheds shall be installed and maintained to protect all sidewalks, walkways, and pathways within the property line of a site, and all public sidewalks that abut the property as follows:
 - i. Below a scaffold, mast climber or chute.
 - ii. When a structure or facade higher than 40 feet is to be constructed, altered, maintained, or repaired.
 - iii. When a structure higher than 25 feet is to be demolished.
 - iv. The decking of the sidewalk shed shall extend the full length of the area plus an additional 5 feet beyond the length. The decking must extend the full width of the protected sidewalk, walkway or pathway.

3. Street Trees

- a) All development projects shall provide street trees to establish a shaded environment and give character to the street. Street trees shall conform to the following conditions:
 - i. The number of trees required for each public street, private street and private drive frontage shall be calculated at the average rate of one canopy tree for every 30 feet of frontage. Tree spacing will depend upon a number of key factors and should be tailored to the chosen species, standard (or desired) tree pit size, fixed property lines, setback from curb, and integration with utilities, street lights and other furniture with consideration to impacts to sight distance.

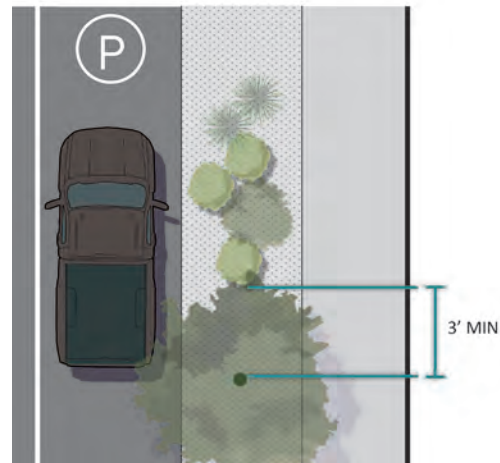
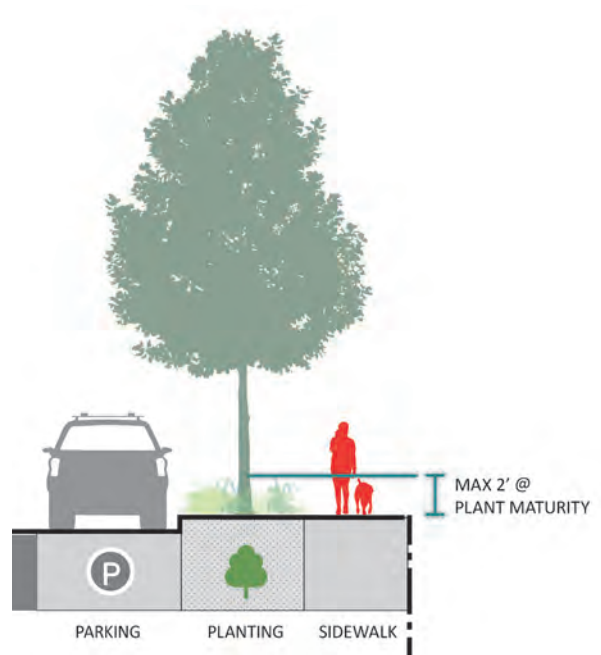


- ii. The City's Urban Forestry Management Plan shall be consulted for any tree work and removal based on their Urban Forestry Manual Policy and guidelines when designating species for a new City street.
- iii. 3 inches of organic mulch shall be placed in the tree well but mulch should be kept clear of the root crown to avoid root rot.
- iv. The tree well shall be 4 feet x 4 feet at a minimum and where feasible should be extended to 4 feet x 6 feet or even 4 feet x 8 feet.
- v. A root barrier shall be installed in all improved right-of-way plantings.
- vi. Root barrier products shall be installed along all hardscapes and installed as per the manufacturer's instructions.
- vii. Root barriers shall be a minimum of 24 inches deep.
- viii. The top of the root barrier shall be $\frac{1}{2}$ inch above the finished soil grade or level with the sidewalk, whichever is lower, when installation is complete.
- ix. All new tree plantings in the right-of-way shall include a deep root irrigation system.
- x. Refer to the Public Works Landscape Specifications and Guidelines document for additional requirements and procedures.
- xi. When trees are adjacent to a bikeway, ensure branches do not impede bicyclists; branches that overhang the bikeway or street should hang no lower than 8 feet above bikeway or street surface.

4. Landscaped Parkway Areas

- a) Landscaped areas within the sidewalk area are governed by the Public Works Landscape Specifications and Guidelines document. In low-density areas with landscaped parkway areas the following shall also apply where appropriate and as approved in project specific water quality management plan:
 - i. Plant materials shall be drought tolerant or drought resistant.
 - ii. Low growing, turf-substitute groundcover plants are preferred.
 - iii. Plant materials must be lower than 24 inches in height at full maturity.
 - iv. Plant materials must not be noxious or invasive.
 - v. Plant materials should not have exposed, rigid spines or thorns.
 - vi. 3 inches of an organic mulch should be applied to any exposed dirt areas within the parkway. Mulch should be pulled several inches away from the root crown to avoid root rot.
 - vii. Where suitable, provide an appropriate inlet to capture runoff and distribute stormwater to support bioretention performance. This may be a curb cut or depression, or a catch basin that circulates water through connected tree boxes using capillary action.

- viii. The property owner shall be responsible for the installation and maintenance of all abutting landscaped parkway improvements.
- ix. In cases where parkway improvements are deemed a nuisance or safety hazard to the public, the City reserves the right to remove any offending landscape materials and to restore the parkway area using City forces.



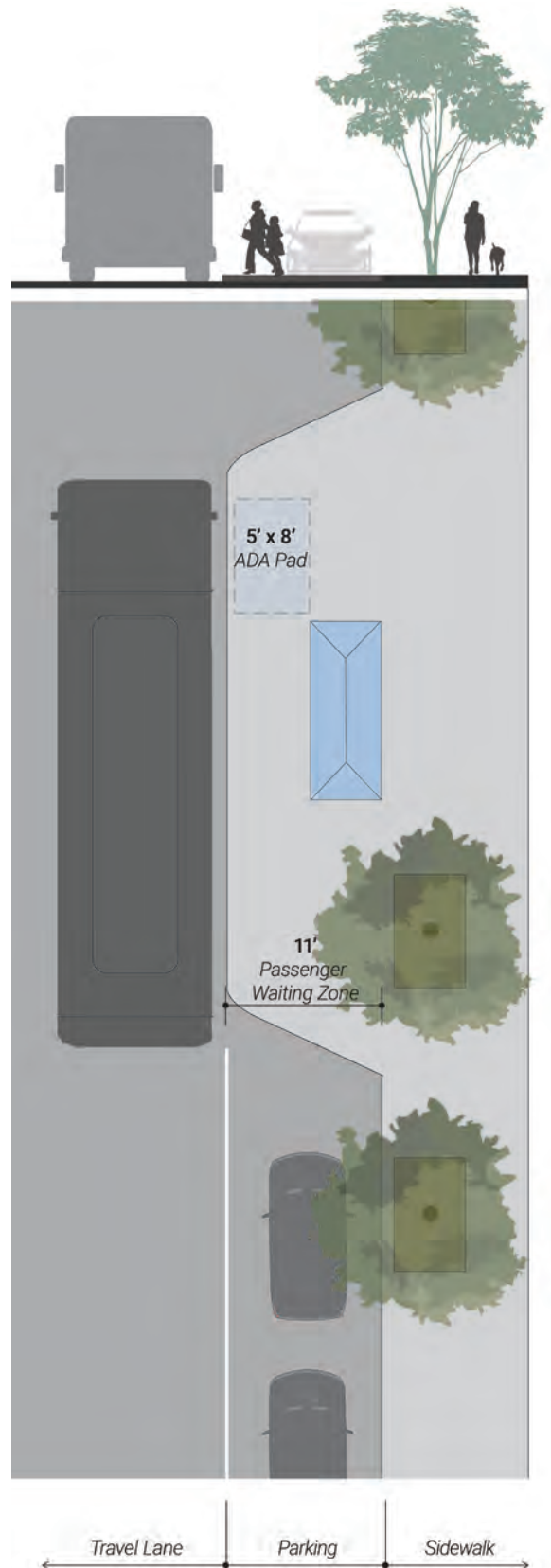
5. Setback Area

- a) Development projects shall provide for a minimum 5-foot landscaped parkway and minimum 5-foot non-contiguous sidewalk for very low density to low density residential land use per the General Plan 2025.
- b) For land uses with a 0-foot setback requirement, to the greatest extent possible a 10-foot sidewalk should be provided.
- c) Development projects shall provide for a minimum 5-foot landscaped parkway and minimum 5-foot non-contiguous sidewalk for medium density residential, medium high density residential, high density residential, very high density residential land uses per the General Plan 2025.
- d) Any development project seeking to increase the front yard setback beyond the required setback distance shall:
 - i. Designate the additional area as a pedestrian amenity such as a plaza or public seating area.
 - ii. The width of the increased setback area shall not exceed 30% of the width of the project's total public or private street frontage where deemed appropriate by the City.

6. Bus Boarding Areas

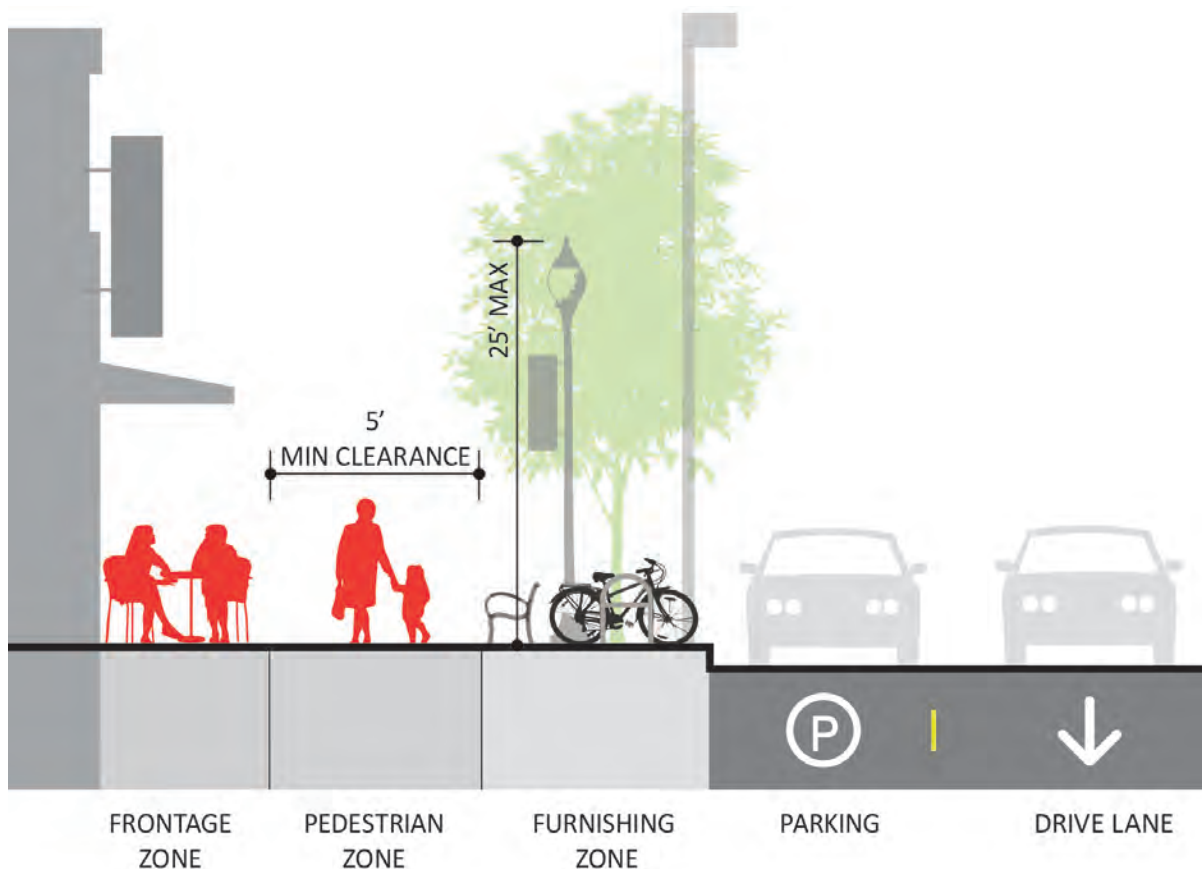
- a) All new development projects of a minimum of 25 units or 25,000 square feet and located within one half mile of a transit stop shall coordinate with the Riverside Transit Agency (RTA) to install and/or upgrade one bus stop to include:
 - i. Install an 11 foot wide concrete pad in travel lane at bus stop to support weight of buses and reduce wear and tear on pavement.
 - ii. Provide a minimum of 10 feet of sidewalk/platform clear zone for loading onto transit vehicles.
 - iii. Install pedestrian scaled, LED lighting at selected bus boarding area(s) per RTA standards.
 - iv. Integrate lighting into bus shelters, existing street poles, and canopy columns to avoid clutter within sidewalk area per RTA standards.
 - v. Provide seating per RTA standards.

- b) Design of the bus boarding area shall include:
 - i. A clear path from the boarding area to the required 5 foot x 8 foot ADA pad at the bus door entrance.
 - ii. Tactile cues/elements at bus stop pole and bus boarding locations.
 - iii. Low maintenance color selections and quick dry materials.
 - iv. Seating with intermediate armrests to serve disabled passengers and discourage non-transit related uses.
 - v. Folding seats and lean bars in lieu of seating with armrests when space is limited.
- c) Design of the seating shall include shelter and shade:
 - i. Shelters shall be placed at the left or right edge of the walkway - and a clear path of travel shall be maintained in the public ROW.
 - ii. Maintain an ADA clear zone within sheltered seating area.
- d) Provide trash and recycling receptacles per RTA standards to keep the transit area clean.
- e) Bolt down receptacles to avoid removal. If possible, avoid placing bins in direct sunlight to minimize odors.



F. PEDESTRIAN SAFEGUARDING

- a) Street furnishings shall be placed within the furnishing zone. Street furnishings such as bollards, boulders, light poles, benches, and public art can act as pedestrian safeguarding elements
 - i. The location of fixed objects, such as utility poles, light fixtures, and other street furniture should not impinge on or restrict the adjacent walkway and shall maintain a minimum 5 foot clear path of pedestrian travel.
 - ii. Walkways or pedestrian zones must be clear of fixed objects in coordination with ADA accessibility guidelines.
 - iii. Install pedestrian-scale lighting (typically lamps less than 25 feet high), with an average illumination level of 10 Lux (1.0 FC) to increase comfort and safety in the furnishing zone adjacent to the pedestrian zone. The uniformity ratio should be designed for 3:1.
- b) Street furnishings along streets should serve as deterrents to accidental vehicle intrusions to sidewalks
 - i. Streets furnishings including light standards, seating, waste receptacles, and wayfinding signage should act as pedestrian safeguarding elements. These street furnishings shall be placed a maximum of 4 feet on center.
 - ii. Street furnishings should be clustered to conserve space. The objective is to create a rhythm of spacing to avoid any gaps larger than 4 feet.



1. Public Space Standards

- a) All new projects that include a public space such as a plaza or park in excess of 2,500 square feet or 200 linear feet abutting a public right-of-way shall include pedestrian safeguarding design.
 - i. There shall be no more than 4 feet of space between any of the street furnishing elements
 - ii. Project shall incorporate two layers of linear street furnishings in linear alignments along the public space adjacent to roadways.
 - iii. No pedestrian safeguarding element shall be less than 33 inches in height.
 - iv. With the exception of light poles, no pedestrian safeguarding element shall exceed 40 inches in height.
- b) Projects with a 0 foot lot line setback may provide required short-term bike parking within the sidewalk area in front of the project as long as a permit has been obtained from the Public Works Director/ Department.
 - i. The rack element should keep the bike upright, supporting the frame in two places and allowing one or both wheels to be secured.
 - ii. Install racks with sufficient space between adjacent parked bicycles to enable easy locking of bicycles.
 - iii. Empty racks should not pose a tripping hazard for visually impaired pedestrians. Position racks out of the walkway's clear zone.
- c) Consider opportunities to include seating and/or art elements within the sidewalk area. Projects seeking to include such amenities shall utilize the Public Works

Encroachment Process. Information regarding the process can be found at: <https://riversideca.gov/PWSurvey/forms/EncroachmentPermit.pdf>

2. Security Zones

- a) Curb Lane (or Furnishing Zone): The curb lane is the portion of the right-of-way between the sidewalk and the curb.
 - i. Streetscape security components should be placed at least 2 feet from the edge of the curb to allow for the opening of car doors and to facilitate passenger vehicle pick-ups and drop-offs.
 - ii. Protect street trees. Before a final design solution can be implemented, a survey will be required to determine the location of underground structures and utilities, and an evaluation will be conducted to determine the impact of nearby trees and root systems. The type of structural system must be carefully considered and alternative structural systems and installation techniques investigated, such as core drilling for pile footing, when determining the final design and location of the security components. Care must be taken to protect existing trees for both aesthetic and security reasons.
 - iii. Locate security elements at curb with consideration to health of street trees. If damage occurs to existing street trees, new street trees are recommended throughout.
- b) Sidewalk: The sidewalk zone is located between the building or site and the curb or parking lane. In this context, the sidewalk serves as the common space for

pedestrian interaction, movement, and activity. It is therefore important to allow for and to promote active public use of the sidewalk.

- i. To the greatest extent possible, sidewalks should be left open and accessible to pedestrian movement. Generally, streetscape security elements should be excluded from this zone.
- ii. Use bollards, planters, or bench furnishings to secure intersections and access to building pedestrian entrances.
- iii. Use careful consideration to allow free and easy pedestrian movement, including handicap and wheelchair access to the sidewalk and building entrances.
- iv. Ensure the design accommodates emergency vehicles and maintenance equipment such as utility trucks and motorized cleaners, and allows easy access to bus stops.

3. Streetscape Security Elements

a) Considerations

- i. Incorporate site perimeter security seamlessly into a well-designed and aesthetically pleasing streetscape. A broad palette of security elements, to arrange and incorporate, allows for more flexibility in the design solution for perimeter security.
- ii. Some of the street furnishings may require “hardening” to ensure they function as both amenities and as structural barriers. See the Riverside PACT Pedestrian Target Safeguarding document for additional information.

- iii. Proposed security elements should meet the City standards of any required engineering or testing to ensure they satisfy security requirements.

- iv. Locate underground systems. Some security elements may require substantial below-grade structural systems that will compete with the location of underground structures, utilities, and tree roots. In some cases, the feasibility of installing streetscape components for security will be affected by these underground conditions and will significantly influence the location of the security elements, and the cost of installation.

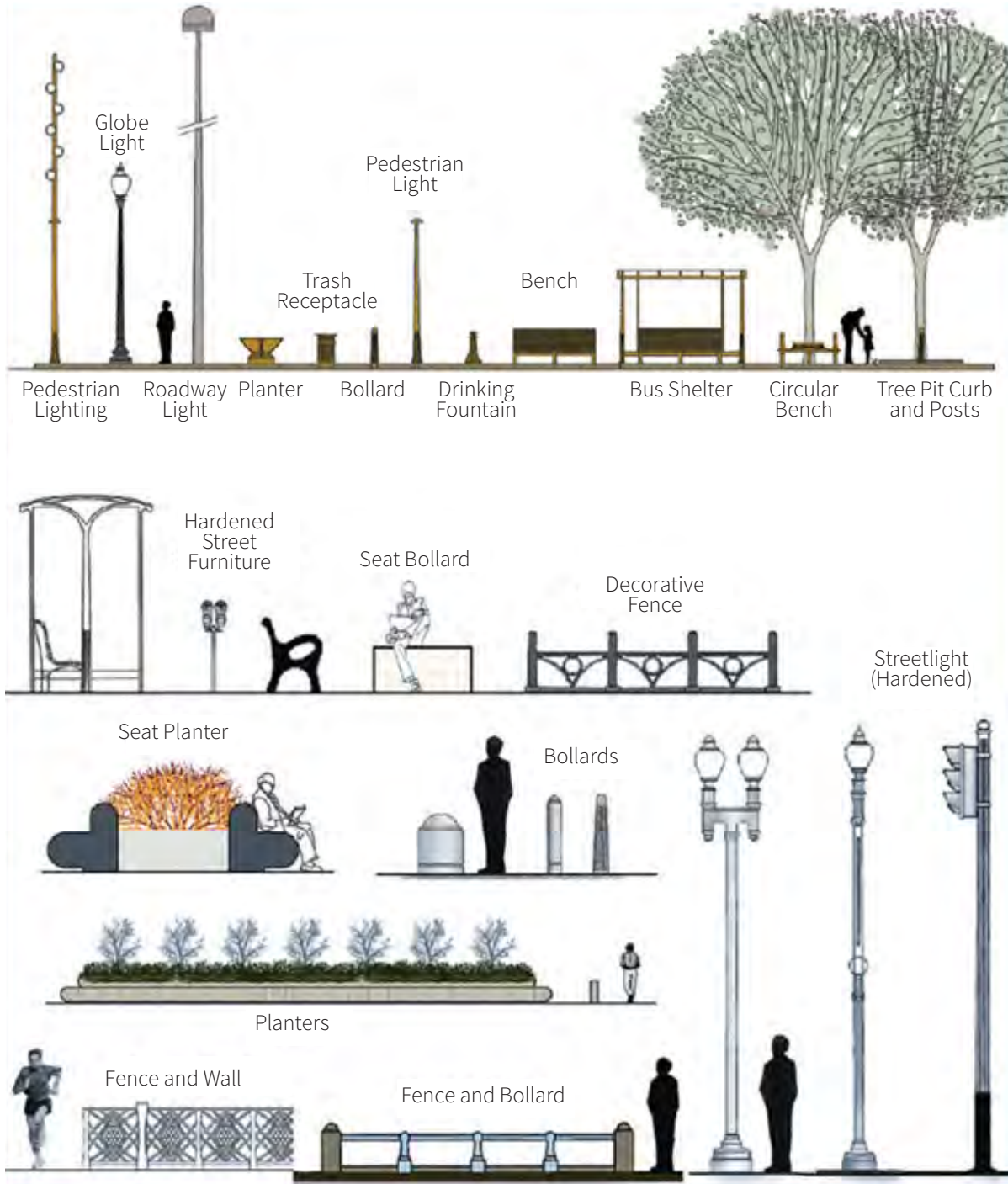
- v. Implement traffic calming measures deemed appropriate by Public Works Department to reduce vehicular travel speeds along corridors adjacent to sites identified as vulnerable.

- vi. Secured vehicle entrances require removable or retractable bollards, gates, or plate barriers. These elements must be able to accommodate highly repetitive usage.

- vii. Monotonous repetition of a single element should be avoided. When a continuous line of bollards approaches 50 feet, they should be interspersed with other streetscape elements, such as hardened benches, planters or trees.

- viii. Landscape materials can soften and naturalize the appearance of many types of constructed barriers, improving appearance and compatibility with the surrounding streetscape.

- b) Street furniture (includes hardened benches, waste receptacles, etc).



Streetscape elements suitable for hardening as security elements. See the Riverside PACT Pedestrian Target Safeguarding document for additional information.

- c) Benches
 - i. Dimensions (2 feet 6 inches high, 2 feet wide, 7 feet long). Bench is sized specifically for pedestrian safeguarding.
- d) Bollards
 - i. Recommended at entries and corners to maintain the free movement of pedestrians. A bollard is a vehicle barrier consisting of a cylinder, usually made of steel and filled with concrete placed on end in a deep concrete footing in the ground to prevent vehicles from passing, but allowing the entrance of pedestrians and bicycles.
 - ii. Use removable bollards (and/or gate arms) for emergency vehicle and service entrances.
 - iii. A typical fixed anti-ram bollard consists of a ½-inch thick steel pipe, 8 inches in diameter projecting about 30 inches above grade and buried about 48 inches in a continuous strip foundation.
 - iv. In no case shall bollards exceed a height of 38 inches.
 - v. Note: Commonly used decorative bollards without deep foundations do not have anti-ram capacity, though they may provide some deterrence value by making the building look more protected than it is.
- e) Seat bollards provide additional outdoor seating options which can include a bench with reinforced hidden bollards or a larger concrete bollard that serves as a seating surface.
- f) Retractable Bollard (3 feet high, 8 inches in diameter, at 42 inches clearance between bollards).
- g) Bollard system guidelines are:
 - i. Space between 36 and 48 inches depending on the kind of traffic expected with consideration to the needs of pedestrians, persons with strollers, wheelchair users, and the elderly.
 - ii. In long barrier systems, the bollards should be interspersed with other streetscape elements such as hardened benches, light poles, or decorative planters.
 - iii. Keep clear of ADA access ramps and the corner quadrants at intersections.
 - iv. Arrange in a linear fashion in which the center of the bollards is parallel to the center line of existing streets.
 - v. If underground utilities make the installation of conventional bollard foundations too difficult, a possible solution is to use bollards with a wide shallow base and a system of beams below the pavement to provide resistance against overturning.
- h) Gate Arms (as per manufacturer's specification).
- i) Fences and Walls
 - i. Decorative metal fence: (minimum 2 feet 6 inches high, length may vary).
 - ii. Fence and Wall (see page 7-36).
 - iii. Fence and bollard: Can be engineered as an anti-ram system. A typical solution is to use cable restraints to stop the vehicle: these can be placed at bumper height within the fence, hidden in planting. The cable needs to be held in place using bollards and anchored to the ground at the ends.
 - iv. Plinth Wall (Low retaining wall): Dimensions: (minimum 2 feet 3 inches high, 2 feet wide, length may vary).

- j) Planters
 - i. Well-designed planters can form an effective vehicle barrier. Engineered planters need considerable reinforcing and below-grade depth to be effective and become fixed elements in the landscape design.
 - ii. Rectangular planters should be no more than 2 feet wide, and circular planters should be no more than 3 feet wide. The horizontal dimension of rectangular planters should not exceed 6 feet.
 - iii. Landscaping within planters should be kept below 2-1/2 feet, except when special use requirements call for increased foliage. In addition, planters should not have enough vegetation to hide a package 6 inches thick, such as a briefcase.
 - iv. Planters should contain live landscaping at all times and be regularly cleaned of trash and debris.
 - v. Planters should not be used in high pedestrian traffic areas as determined by City staff. In these locations, bollards or other less obtrusive objects are appropriate.
 - vi. Planter design, location, and maintenance should create viable conditions for healthy plants. These include adequate water or irrigation, appropriate soil mixture, and selection of plants appropriate to be grown in planters. Seasonal characteristics and ultimate size of plant material shape the choices.
- k) Pre-Cast Concrete or Stone Seat Planter
 - i. Dimensions: (2 feet 6 inches high, 9 feet 6 inches wide, 24 feet long)
 - ii. 42 inches between planters
- l) Street Trees (as a security element)
 - i. Size: minimum 8 inch caliper
 - ii. Spacing: minimum 20 feet on-center, maximum 40 feet on-center
 - iii. Tree enclosures are to be installed on the inside of the tree planting bed
- m) Deciduous or Evergreen Plantings
 - i. Size 3 foot BB, full to ground
- n) Street Light Standards
 - i. 40 feet on-center
- o) Pedestrian Light Standards
 - i. 20 feet on-center
- p) Heavy Objects (boulders, art, etc.)
 - i. Heavy objects, such as large sculptural objects, massive boulders, earthen berms or concrete forms with unassailable slopes, and dense planting and trees can be used in a similar way to bollards to prevent vehicles from passing, while allowing the passage of pedestrians and bicycles. To ensure that such barriers can effectively reduce the threat level, engineering design and/or evaluation is necessary.



Pedestrian Target Safeguarding streetscape elements depicted in the above images are for illustrative purposes only. The actual design and layout should be approved by an engineer to ensure safety protocols are met.

Section 7.4: Complete Street Roadway Cross Section Options

Section 7.4. Complete Street Roadway Cross Section Options

The proposed street cross-sections include recommended modifications to the roadway of the four primary arterial types that are prevalent within the City of Riverside including the 88, 100, 110, and 120 foot arterials. The proposed modifications make suggestions for potential improvements to the roadway area and do not consider any changes in the placement of the curb or the sidewalk dimension at this time.

88 FOOT ARTERIAL

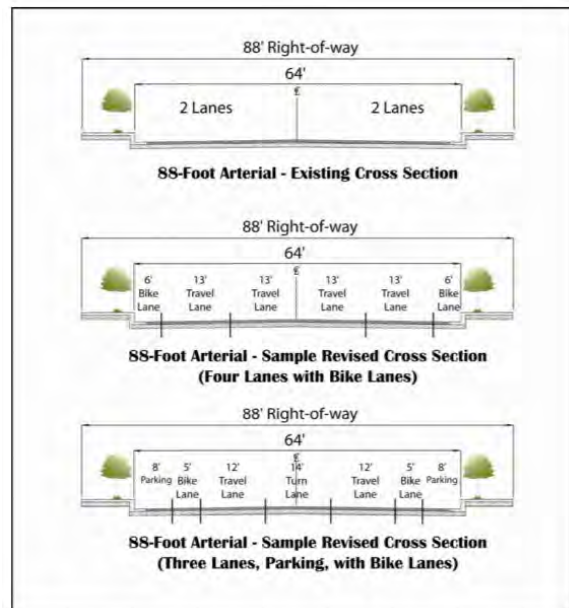
The 88 Foot Arterial represents a roadway with two lanes in each direction. The typical cross-section also includes a parking lane and 6 foot sidewalks (or 5 foot sidewalk if on property line). The majority of streets designated with this type are primarily found within the original City limits and includes such streets as California Avenue, Central Avenue, and portions of Riverside Avenue, Lincoln Avenue and Third Street. Each of the streets noted above are currently proposed to receive Class II Bicycle Lane as described in the City’s Master Plan of Trails and Bikeways. Many of these same streets are also included on the Transit Facilities Figure CCM-5 and serve local bus lines.

Based on the variety of mobility users that frequent this type of corridor and the City’s intentions to support Complete Streets design policies, the 88 foot arterial may be suitable for a modification that would shift some of the roadway space currently allocated for vehicles to provide a buffered bicycle lane.

The proposed re-distribution of roadway space would reduce vehicle lanes from four to three lanes which would maintain a single lane in each direction while allowing for a continuous center turn lane. A buffered bicycle lane would typically include a 6 foot bicycle lane with a 3 foot painted buffer between the parked car. If the City desires

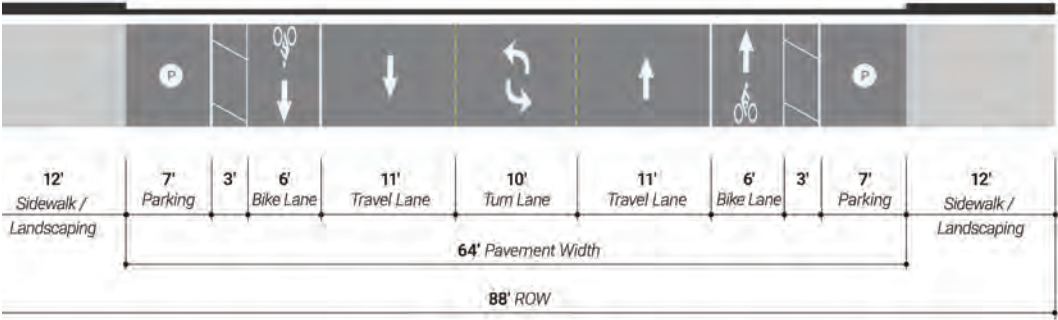
this lane can be inverted with the parking lane to provide a protected bicycle lane.

This concept was previously explored in the City’s Bicycle Plan. That plan also put forth an example that would retain the four lanes but replace the parking lane with a bicycle lane. The illustration below demonstrates the original street cross sections concepts from the Bicycle Plan. The approaches put forth here build on these ideas, but include further reductions in lane widths that have become more accepted in the years since the City’s Bicycle Plan was completed.

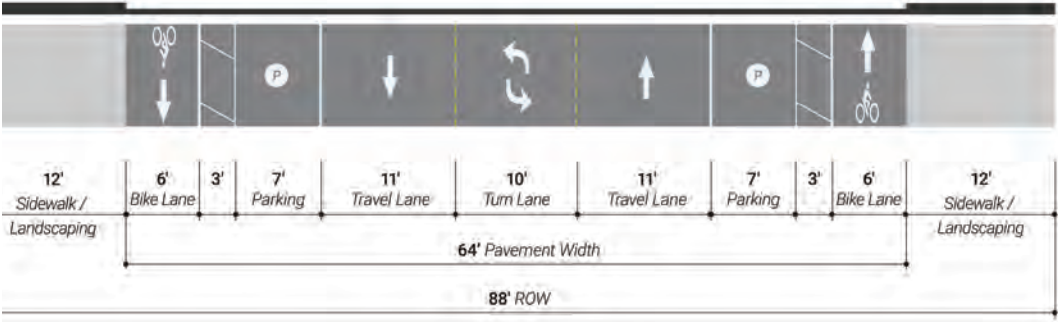


Sample Modifications to the Circulation Element Arterial Cross Section from City of Riverside Bicycle Master Plan.

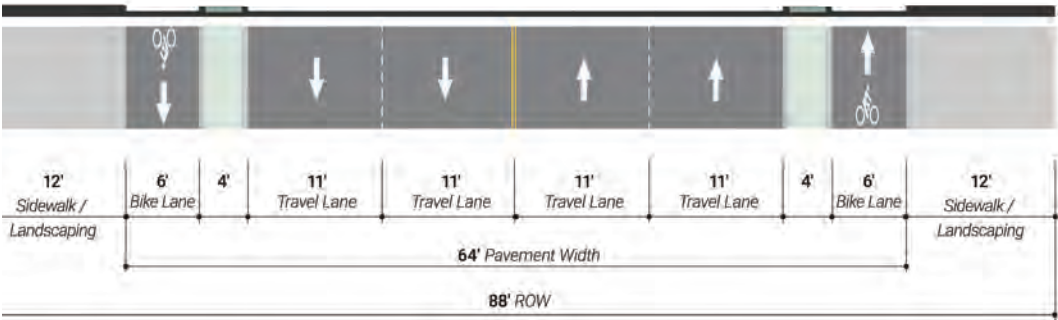
Note: Cross sections will be updated per the general plan update.



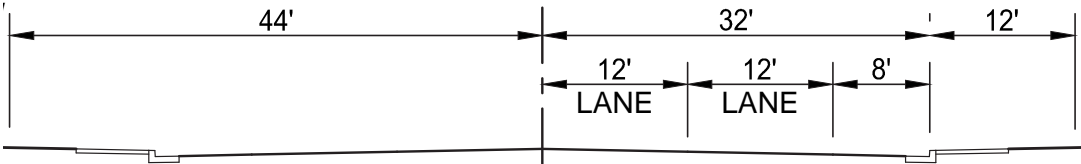
88' Arterial Lane Reduction with Bicycle Lane



88' Arterial Lane Reduction with Protected Bicycle Lane



88' Arterial with Buffered Bicycle Lane



88' Arterial - 2020 City of Riverside Std Drawings

100 FOOT ARTERIAL

The 100 Foot Arterial represents a roadway with two lanes in each direction. The typical cross-section also includes a parking lane and 10 foot sidewalks.

Within the older, more urban portions of the City this 100 Foot Arterial include streets such as University Avenue, Mission Inn Avenue, Main Street, and portions of Columbia Avenue. Select segments of these streets are also proposed to receive Class II Bicycle Lane and the proposed cross-section reflects how the bicycle lane can be accommodated within the current cross-section. In these instances the existing travel lanes can easily be narrowed from 14 feet and 12 feet to 10 foot and 11 foot lanes respectively to achieve a savings of 5 feet. By reducing the parking lane to 7 feet from 8 feet, another 1 foot can be obtained to provide a 6 foot bicycle lane.

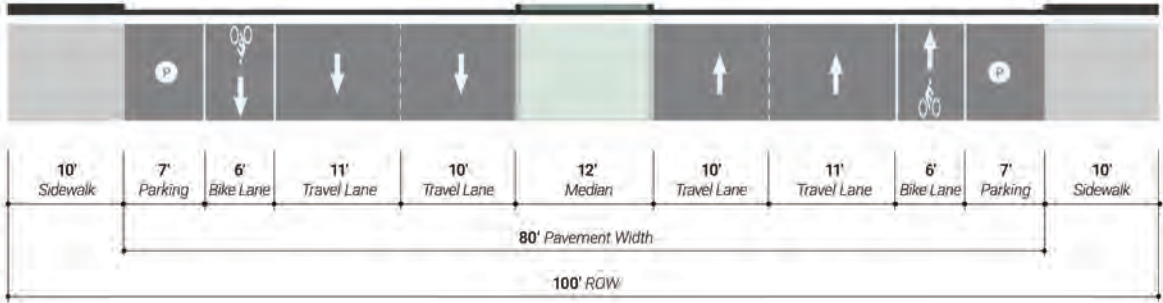
Some portions of these streets are also included on Figure CCM-5 Transit Facilities. In locations where bus stops are present, the City could consider the addition of bus boarding pads that essentially extend the sidewalk out to meet the travel lane. This offers additional waiting area for transit riders and reduces the amount of time that a bus spends pulling into and out of traffic. It also reduces the potential conflict between a bicyclist and the bus since the bus would no longer need to cross the bicycle lane.

The bicycle lane would ramp up to meet the bus pad and bicyclists would yield to transit riders when they are boarding or alighting from the bus.

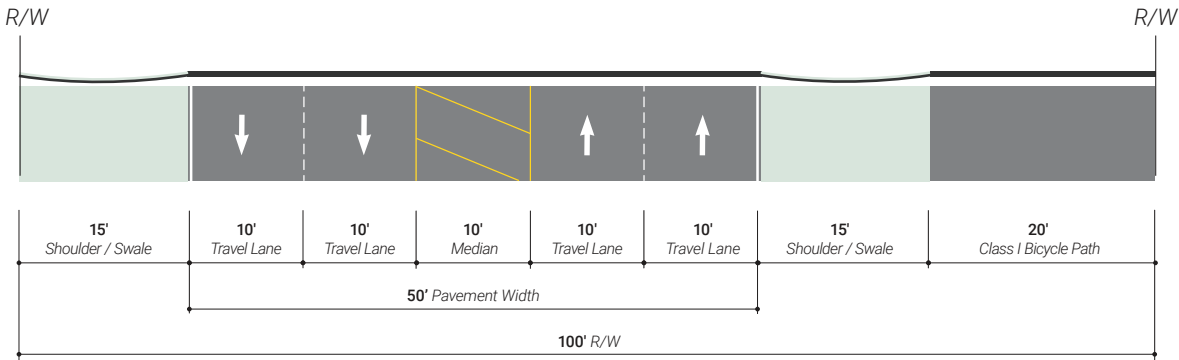
Additional opportunities to support complete streets include tree well bulb-outs that could be placed at regular intervals in the parking lane. Due to the relatively limited sidewalk dimension on this street type, the addition of tree well bulb-outs would offer increased opportunity to provide shade and habitat along these corridors increasing the overall comfort of walking or bicycling on the streets, while reducing the ambient temperature of the immediate area. Bulb-outs can also play a role in reducing vehicle speeds as they narrow the perceived roadway width.

Bicycle Path

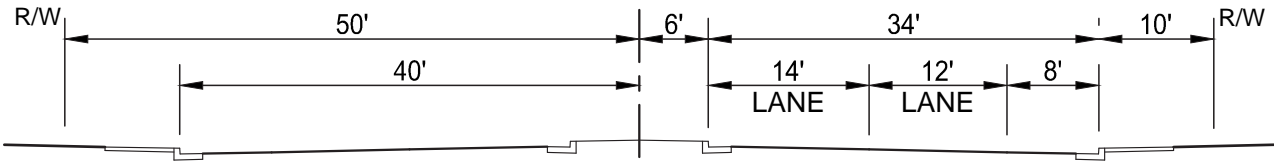
In the more rural, southern areas of the City there are some streets that have the 100 Foot Arterial street classification including Mockingbird Canyon Road, Nandina, Markham, El Sobrante and Cajaico Road. Sections of some of these streets are also included within the Riverside Country Trails system. In particular, Cajaico Road is identified for a Class I Bike Path and a couple of short sections of Markham and Nandina are listed as part of the Community Trail network.



100' Arterial with Bicycle Lane



100' Arterial with Class I Bicycle Path



100' Arterial - 2020 City of Riverside Std Drawings

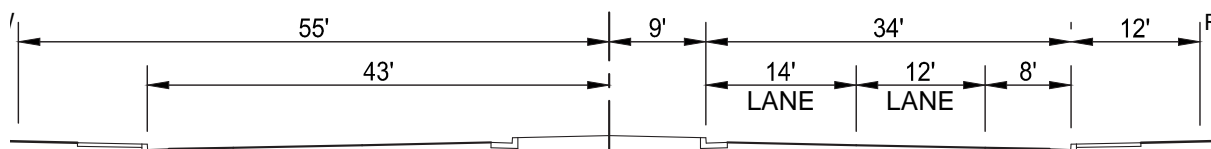
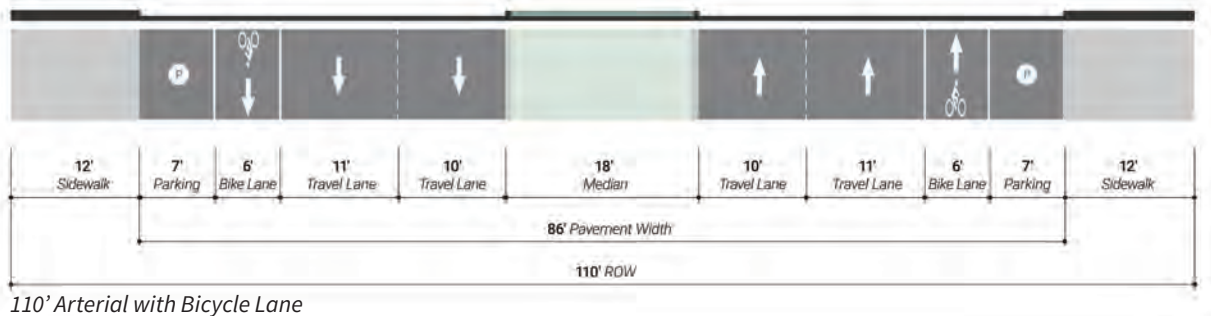
110 FOOT ARTERIAL

The 110 foot arterial represents a roadway with two lanes in each direction. The typical cross-section also includes an 18 foot median, a parking lane and 12 foot sidewalks. The majority of streets designated of this type are found within the original city limits, including Martin Luther King Boulevard (MLK), Alessandro Boulevard, Chicago Avenue and portions of Central Avenue, Tyler Street, Adams Street, and Washington Street. Most of these streets are currently proposed to receive Class II Bicycle Lane as described in the City’s Master Plan of Trails and Bikeways. Several of the streets, most notably Tyler Street, Alessandro Boulevard, and MLK Boulevard, are also included on Figure CCM-5/Transit Facilities.

Based upon the City’s intentions to support Complete Streets, the 110 foot arterial may be considered dependent on traffic volumes and other roadway characteristics

for a modification that would shift some of the roadway space currently allocated for vehicles to provide a Class II bicycle lane. The illustration here provides an example of how the new layout would be accomplished.

In locations where bus stops are present the City could consider the addition of bus boarding pads that essentially extend the sidewalk out to meet the travel lane. This offers additional waiting area for transit riders and reduces the amount of time that a bus spends pulling into and out of traffic. It also reduces the potential conflict between a bicyclist and the bus since the bus would no longer need to cross the bicycle lane. The bicycle lane would ramp up to meet the bus pad and bicyclists would yield to transit riders when they are boarding or alighting from the bus. Additional opportunities to support complete streets can include tree well bulb-outs that could be placed at some regular intervals in the parking lane.



120 FOOT ARTERIAL

The 120 foot arterial represents a roadway with three lanes in each direction, a 12 foot median and a 10 foot sidewalk area. The typical cross-section also includes a curb lane that varies between 6 foot to 8 foot in width. In many instances, this curb lane has already been used to incorporate a bicycle lane.

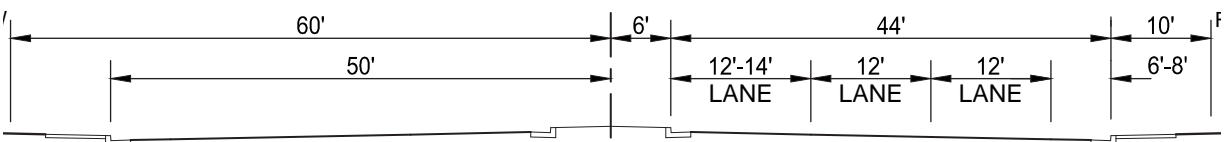
The majority of 120' Arterial streets are representative of the City's most prominent streets including Market Street/Magnolia Avenue, Van Buren Boulevard, and Arlington Avenue/Alessandro Bouldevard. Note that some streets / portions have only 2 lanes in each direction.

As with many of the other arterial types, the existing travel lane widths on this arterial are particularly generous and therefore by slightly trimming the lane widths, the three lanes can be maintained while accommodating both a bicycle lane and

a parking lane where on-street parking is needed and recommended. This is beneficial for a number of reasons. One, the introduction of a parking lane would eliminate vehicles from stopping in the bicycle lane. Secondly, the reduction in lane width may reduce travel speeds on the street, which provides for an overall safer experience for all users. Lastly, the additional distance between the vehicle lane and the sidewalk area may create a more comfortable walking area. The parking space could also be interspersed with landscaping bulb-outs that would further improve the overall design and comfort level of the street for a wide variety of users. The landscaping bulb-outs can provide for additional habitat and stormflows that could be directed into the landscape areas and therefore increase opportunities for stormwater retention where determined appropriate by the Public Works Department.



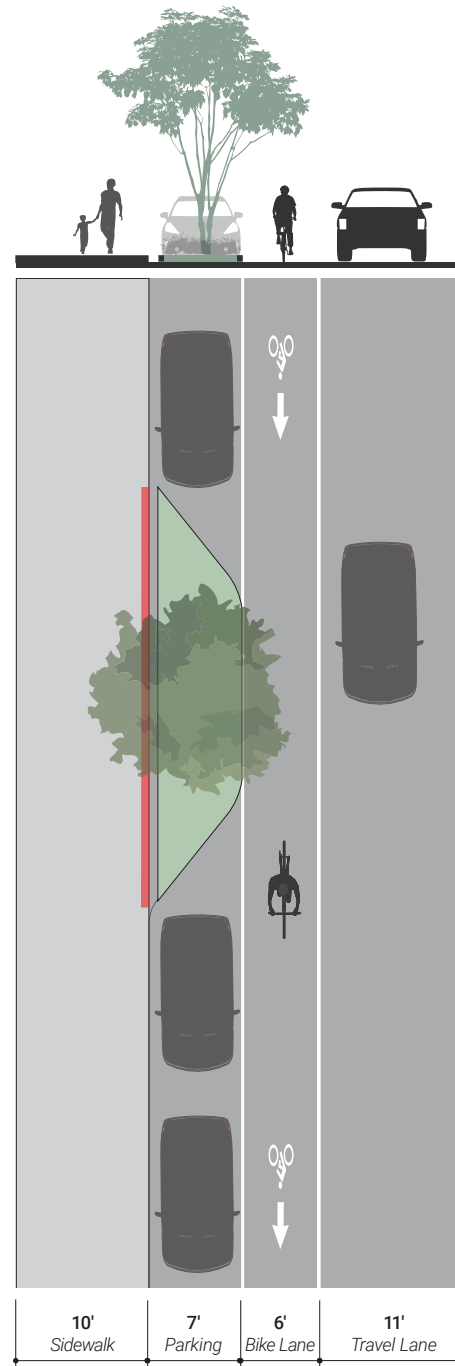
120' Arterial with Bicycle Lane



120' Arterial - 2020 City of Riverside Std Drawings

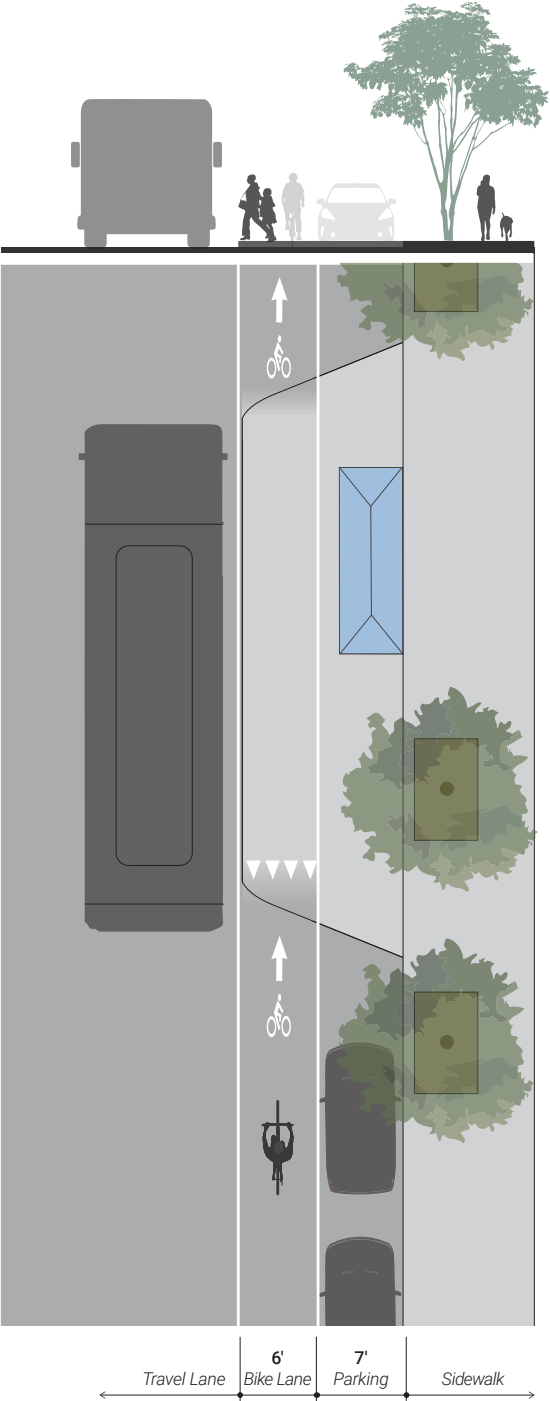
BUS PAD AND LANDSCAPE EXTENSIONS

Additional opportunities to support complete streets include tree well bulb-outs that could be placed at regular intervals in the parking lane where determined appropriate by the Public Works Department. Due to the relatively limited sidewalk dimension on this street type the addition of tree well bulb-outs would offer increased opportunity to provide shade and habitat along these corridors thereby increasing the overall comfort of walking or bicycling on the streets while also reducing the ambient temperature of the immediate area. Bulb-outs can also play a role in reducing vehicle speeds as they narrow the perceived roadway width.



Landscaping Bulb-Outs

In locations where bus stops are present the City could contemplate the addition of bus boarding pads that essentially extend the sidewalk out to meet the travel lane. This offers additional waiting area for transit riders and reduces the amount of time that a bus spends pulling into and out of traffic. It also reduces the potential conflict between a bicyclist and the bus since the bus would no longer need to cross the bicycle lane. The bicycle lane would ramp up to meet the bus pad and bicyclists would yield to transit riders when they are boarding or alighting from the bus.



Bus Pad Extension

Section 7.5: Trails Standards

Section 7.5. Trails Standards

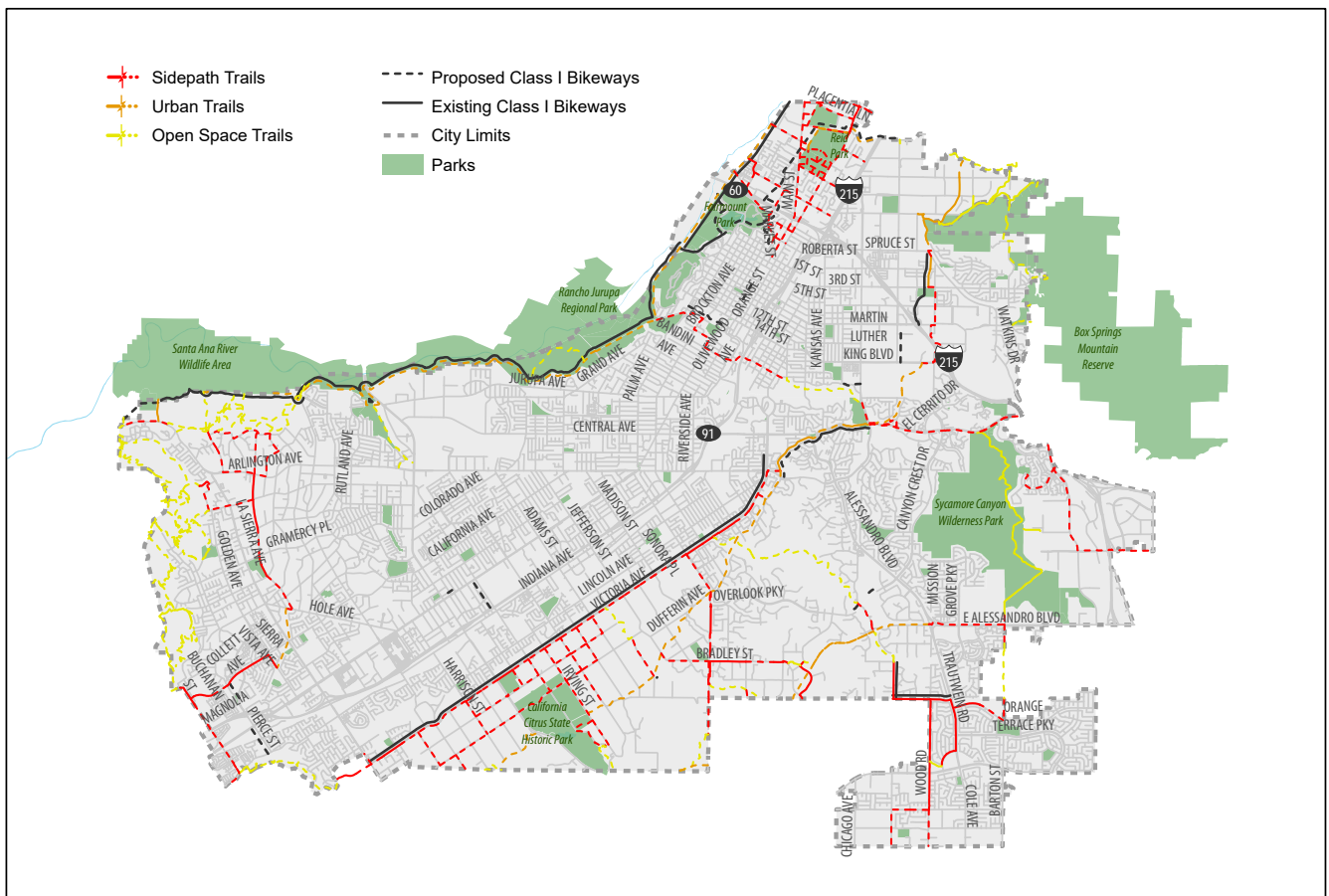
Several trails throughout the City are designated as roadway-adjacent multi-purpose trails. These generally run either parallel to or replace sidewalks on one side of the street, and are constructed from a firm, stabilized decomposed granite surface that is accessible and comfortable for equestrian use, walking, jogging, and bicycling. Design standards for these trails are on the following pages.

TRAILS

The overall location of roadway-adjacent trails are illustrated in Figure 7-1.

This section illustrates typical cross-sections of urban trail types found within the City of Riverside, as well as their relevant design guidelines related to surface material, width, slope, and other elements. These trail types include those that serve people of all ages and abilities, including pedestrians and hikers, bicyclists, and equestrians.

FIGURE 7-1 : TRAILS TYPES



TRAIL TYPES

For more information regarding trails standards, or to learn about open space and natural trail standards reference the Riverside PACT Trails Master Plan.

Design guidelines are primarily used to provide guidance to developers and to jurisdictions for new trail construction and future maintenance purposes. It is recognized that in certain situations due to physical constraints, it may not be feasible for the trails to be implemented according to the standards described. In such cases, variation from these standards may be allowed on a case-by-case basis subject to approval by the City's Parks and Recreation Commission, based upon staff review and recommendations. The Parks and Recreation Commission may choose to delegate this responsibility to a Trails Technical Advisory Committee.

Private, public, and school development shall install and maintain master planned trails within or adjacent to the proposed development, as well as connector trails within development.

For specific design details, refer to the trail grading and construction standards (Riverside PACT Trails Master Plan "Appendix 1: Trail Design Details"), which provide information needed to implement typical trails in Riverside. The City's adopted trail grading construction specifications and standard details are available on the City's website at https://riversideca.gov/park_rec/planning-projects/trails.

URBAN (TRAIL WITH CLASS I) SECTION

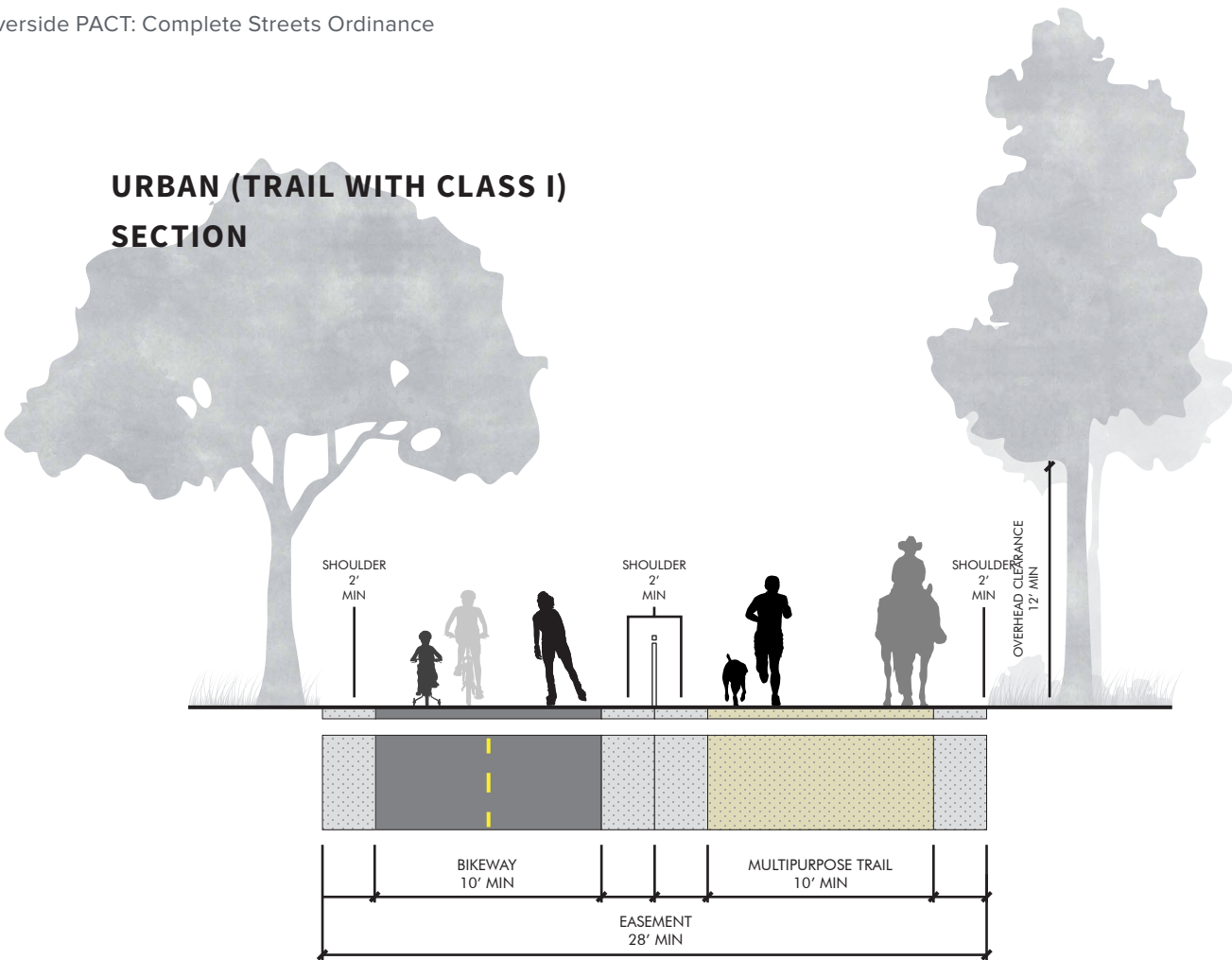


FIGURE 7-2

- Minimum Overall Width:** 28'; an additional 3' buffer is required between trail and roadway when roadway is present.
- Bikeway Surface:** Asphalt Concrete or Portland Cement/Aggregate Mixture
- Bikeway Width:** 10' Min.
- Bikeway/Trail Separation:** 2' Min. Paved or All-Weather Surface
- Multipurpose Trail Surface:** Stabilized Decomposed Granite
- Multipurpose Trail Width:** 10' Min.
- Fencing:** As required. See Riverside PACT Trails Master Plan.
- Maximum Running Slope:** 12%; Slope to match roadway where present.
- Cross Slope:** 2% Min., 5% Max.
- Use Type:** Open to all non-motorized modes.
- ADA Compliance:** Access to trailheads and facilities at trailheads shall be ADA compliant. Trails themselves shall be constructed for ADA compliance as site conditions allow.

SIDEPATH (SECONDARY/COLLECTOR STREET TREATMENT) SECTION

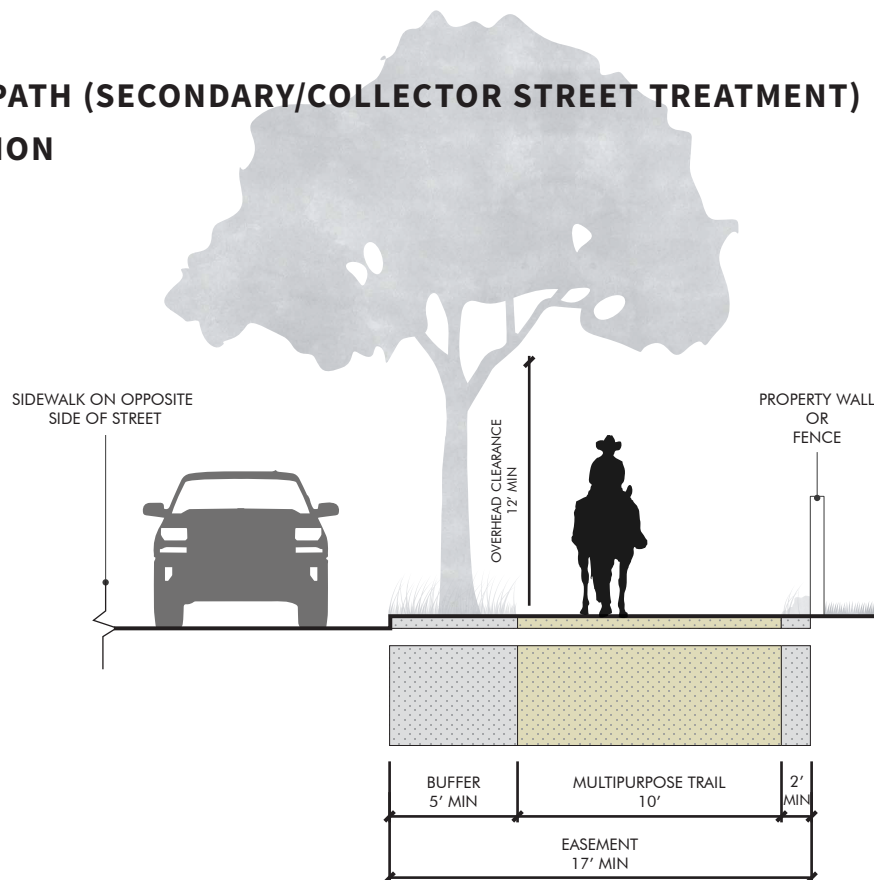


FIGURE 7-3

Minimum Overall Width: 17'

Multipurpose Trail Surface: Stabilized Decomposed Granite

Multipurpose Trail Width: 10' unless otherwise approved by City.

Property/Trail Separation: 2' flat shoulder at residential front yard fence, 3' bench when trail is at toe of manufactured slope, 4' when next to walls/fences at the top of a manufactured slope, and 3' when next to any fence/wall over 4' in height.

Road/Trail Separation: 5' Min.; 8' Min. in Greenbelt

Fencing: As required. See fencing standards and guidelines, page 48.

Maximum Running Slope: Slope to match roadway

Cross Slope: 2% if roadway grade is < 5%, 5% Max.

Use Type: Open to all non-motorized modes. Some Segments are designated non-equestrian.

ADA Compliance: Trails shall comply with ADA-for-trails guidelines wherever possible, contingent upon existing roadway grades.

SIDEPATH (MAJOR STREET TREATMENT) SECTION

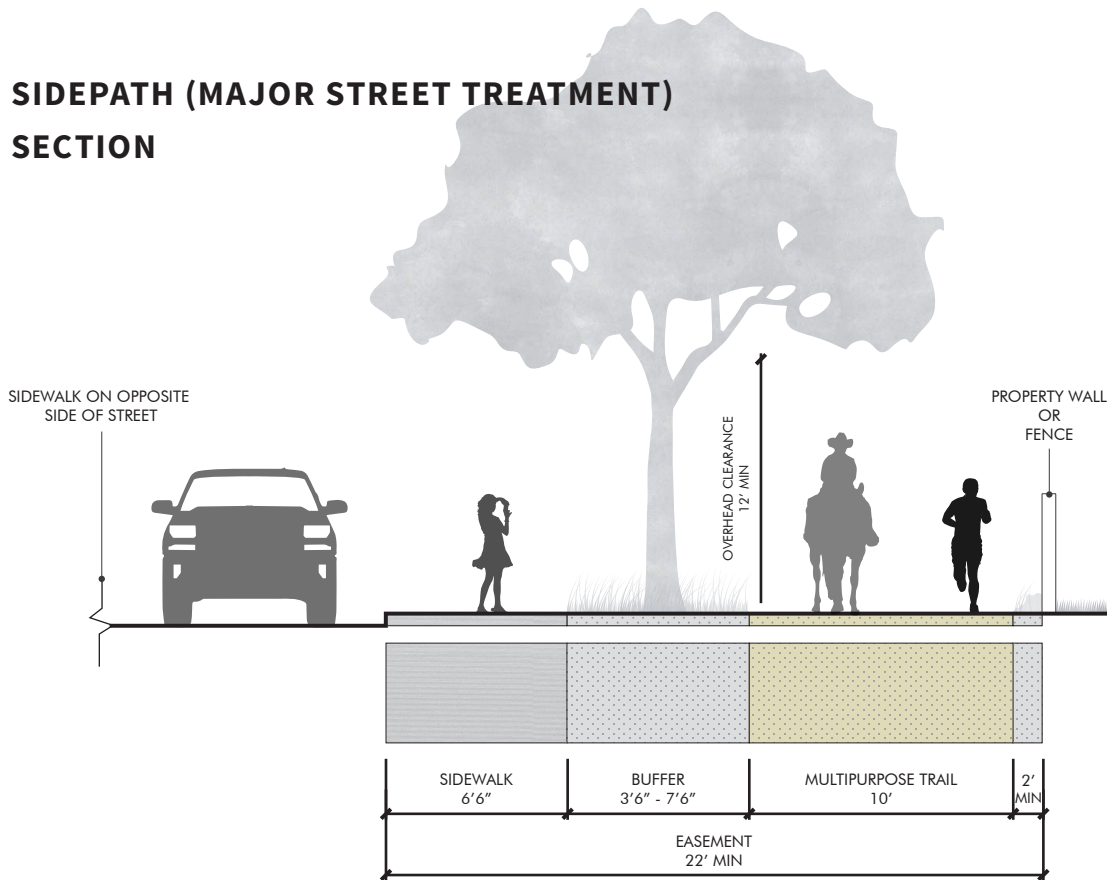


FIGURE 7-4

Minimum Overall Width: 22'

Multipurpose Trail Surface: Stabilized Decomposed Granite

Multipurpose Trail Width: 10'

Property/Trail Separation: 2' flat shoulder at residential front yard fence, 3' bench when trail is at toe of manufactured slope, 4' when next to walls/fences at the top of a manufactured slope, and 3' when next to any fence/wall over 4' in height.

Sidewalk/Trail Separation: 3'6" - 7'6"

Sidewalk Width: 6'6"

Maximum Running Slope: Slope to match roadway

Cross Slope: 2% if roadway grade is < 5%, 5% Max.

Use Type: Open to all non-motorized modes. Some Segments are designated non-equestrian.

ADA Compliance: Trails shall comply with ADA-for-trails guidelines wherever possible, contingent upon existing roadway grades.

SIDEPATH (MINOR STREET TREATMENT) SECTION

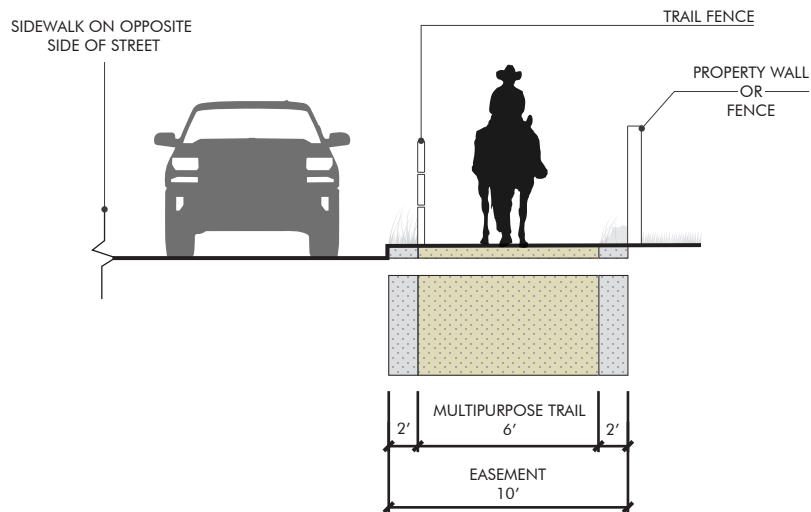


FIGURE 7-5

Minimum Overall Width:	10'
Trail Surface:	Stabilized Decomposed Granite
Trail Width:	6'
Road/Trail Separation:	2'
Property/Trail Separation:	2'
Maximum Running Slope:	Slope to match roadway
Cross Slope:	2% if roadway grade is < 5%, 5% Max.
Use Type:	Open to all non-motorized modes. Some Segments are designated non equestrian.
ADA Compliance:	Trails shall comply with ADA-for-trails guidelines wherever possible, contingent upon existing roadway grades.