



Article 3.0

CIRCULATION PLAN

Article 3.0 describes the existing circulation in the vicinity of the Plan Area, and illustrates the configuration of the surrounding roadway network. The proposed access and internal circulation system is also identified for the Plan Area. Proposed connectivity, traffic calming techniques, and design features are presented. A discussion of off-site circulation improvements currently underway and planned as a part of the Specific Plan is provided.

3.0

CIRCULATION PLAN

Article 3.0 of the Specific Plan describes the circulation system within the Plan Area, which facilitates a balanced, multimodal transportation network that meets the needs of users safely and efficiently, including pedestrian, bicycle, and vehicular modes of transportation. The circulation routes connect the Plan Area with the existing street network, neighborhoods, parks, and commercial areas.

Section 3.1 Circulation Plan Goals

The following goals for the Plan Area circulation network guide the design of the street, pedestrian and bicycle systems:

- Facilitate all forms of transportation in a manner that is safe and convenient, including pedestrian and bicycle access to and from the Plan Area;
- Provide safe and convenient access and connectivity within the Plan Area' mix of uses and surrounding land uses;
- Create a safe and convenient roadway circulation system through use of traffic calming design techniques;

- Create an environment that is conducive to pedestrian activity through design for low volumes of slow automobile traffic;
- Reduce internal vehicle trips through efficient streetscape design, that incorporates pedestrian and bicycle connections and promotes walkability; and
- Support public transportation by including appropriate facilities for transit service within the Plan, such as bus stops and shelters.

Section 3.2 Circulation Context and Setting

Existing Circulation

The Plan Area is located in the north eastern region of the City, between U.S. Highway 101 and 3rd Street, north of Apple Avenue, south of Cherry Avenue, and bisected by Walnut Avenue. The Plan Area is directly accessible from Walnut Avenue, 3rd Street, and Apple Avenue. Regional freeway access to and from the Plan Area is primarily obtained via the U.S. Highway 101/Walnut Avenue interchange and secondarily via the U.S. Highway 101/Oak

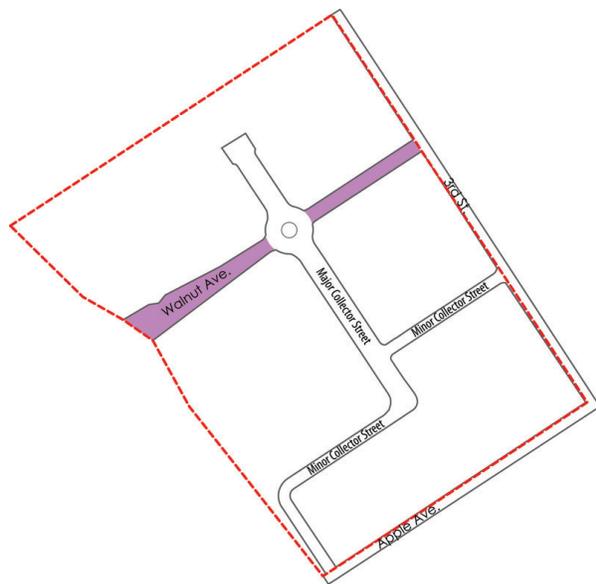
Avenue interchange. **Figure 6, Existing Circulation**, shows the Plan Area in context of the surrounding roadway network.

Greenfield’s history and past development patterns have been closely tied to the City’s location on U.S. Highway 101. U.S. Highway 101 serves as the principal inter-regional auto and truck travel route that connects Monterey County and other portions of the Central Coast with the San Francisco Bay Area to the north and the Los Angeles urban basin to the south. Within Monterey County, U.S. Highway 101 serves as an important commuter route, truck route, and recreational route, connecting the areas in the southern part of Monterey County to the City of Salinas and the North County. In the vicinity of the Plan Area, U.S. Highway 101 is a four-lane divided freeway.

Surrounding Roadways

Walnut Avenue

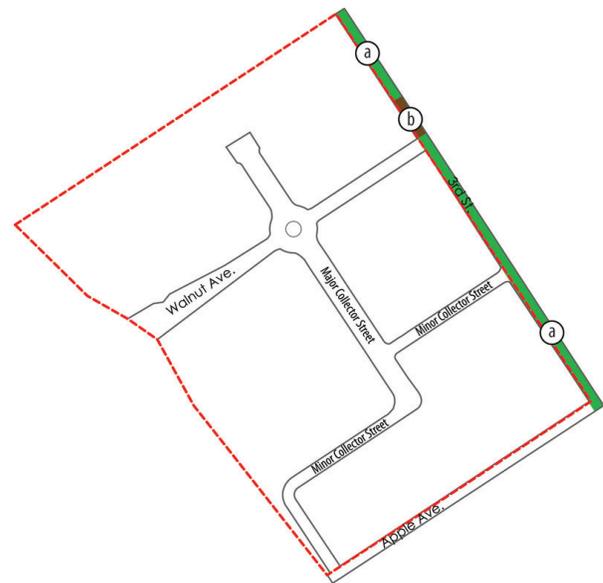
Walnut Avenue is an east-west roadway that serves the central portion of the City, which bisects and provides the main access to the Plan Area.



To influence development of the Plan Area, the City funded and completed roadway widening improvements to Walnut Avenue from the U.S. Highway 101 interchange to 3rd Street. This segment of Walnut Avenue is now a 100-foot right-of-way that includes four 12-foot through lanes, a 12 to 16-foot dedicated left-turn lane, 6-foot Class II bike lanes and 2-foot curbs, and 10-foot sidewalks/landscaped space. These improvements will help catalyze development of the Plan Area by accommodating increased traffic volumes in this portion of the City, and provide for better bicycle and pedestrian connections to residents on the west side of U.S. Highway 101. **Figure 7, Walnut Avenue Cross-Section**, illustrates the configuration of this roadway.

3rd Street

3rd Street is a north-south collector street that runs through the City of Greenfield, bordering the east side of the Plan Area.



In association with the Walnut Avenue widening project, the City funded and completed improvements to 3rd Street in various segments adjacent to the Plan Area. These improvements include



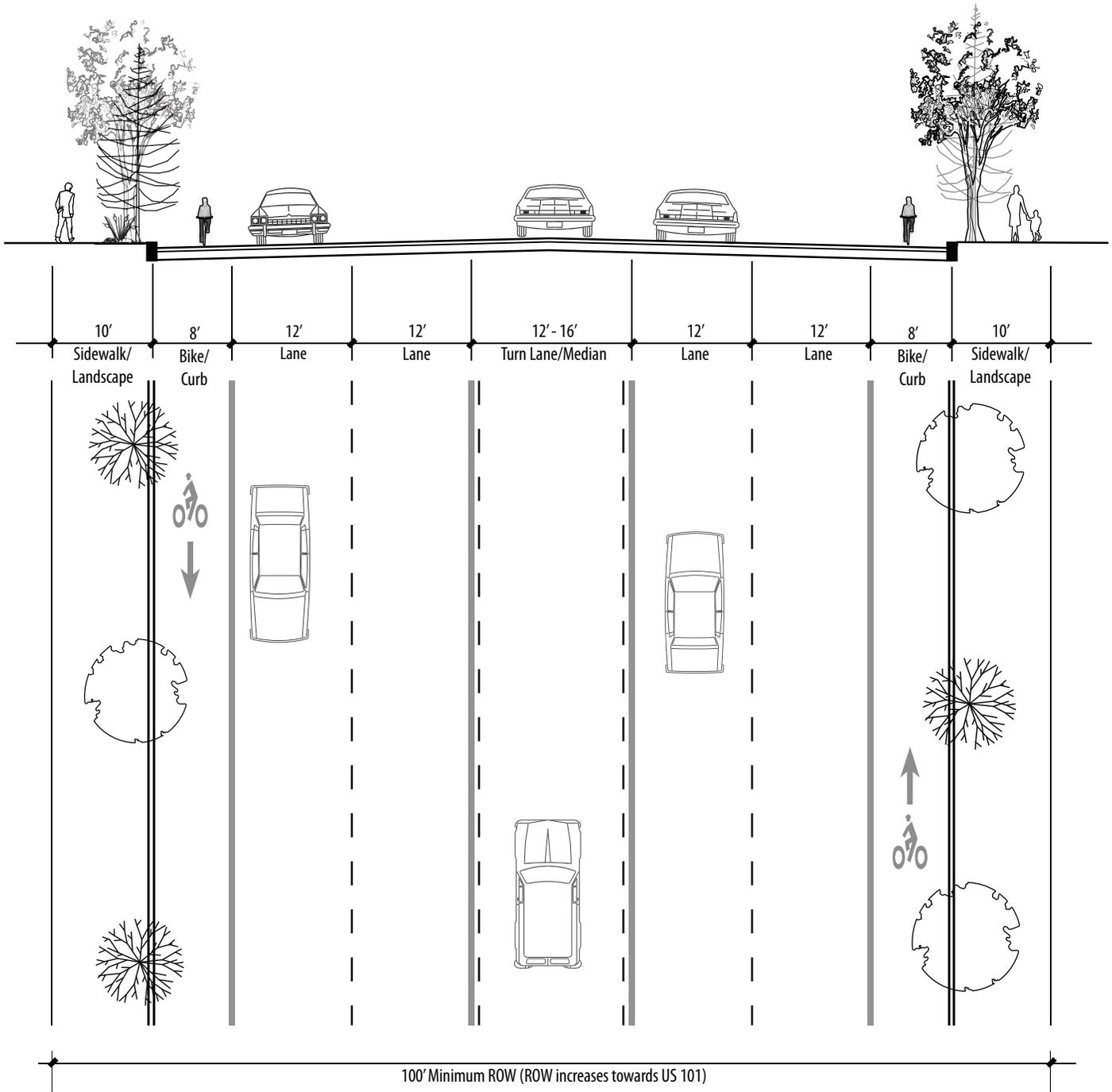
Source: Google Earth 2012, Ruggeri-Jensen-Azar 2010

Figure 6

Existing Circulation

Walnut Avenue Specific Plan

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Source EMC Planning Group 2012

Figure 7

Walnut Avenue Improvements Cross-Section

Walnut Avenue Specific Plan



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the expansion to a 68-foot right-of-way along the majority of 3rd Street north and south of Walnut Avenue between Cherry and Apple Streets (see [Figure 8a 3rd Street Cross-Section \[Majority Design\]](#)). A short segment of 3rd Street just north of Walnut Avenue was expanded to an 83-foot right-of-way to allow for additional left and right turn lanes (see [Figure 8b 3rd Street Cross-Section \[Expanded\]](#)). These improvements will include the addition of bicycle lanes and sidewalks along the segment of 3rd Street from Cherry Avenue to Apple Avenue.

Apple Avenue

Apple Avenue is an east-west, two-way collector street, bordering the Plan Area on the south and identified in the General Plan as ultimately having a 60-foot wide right-of-way. Apple Avenue currently has an approximately 50-foot right-of-way with two travel lanes, and roadway shoulders between U.S. Highway 101 and 2nd Street.

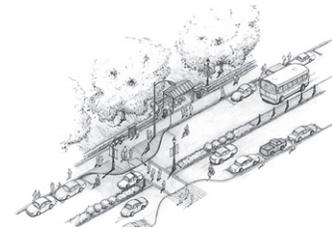
Section 3.3 Plan Area Circulation

Plan Area Access

Primary access to the Plan Area will be provided by Walnut Avenue. Walnut Avenue will provide a direct connection to the major collector street, which extends north-south through the middle of the Plan Area. A non-access easement along the south side of Walnut Avenue was the main variable for locating this internal street. The Walnut Avenue/major collector street intersection will operate as a traditional signaled intersection, however a roundabout controlled intersection may be considered in future design at this location.

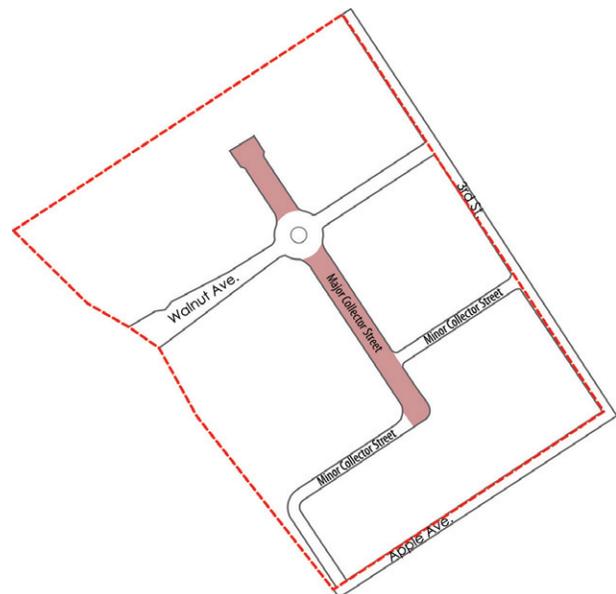
Internal Circulation

The Specific Plan includes two classes of public street design to provide internal access: a major collector street and a minor collector street. Each has a different character and function, while both provide simple and direct internal access within the Plan Area. [Figure 9, Circulation Plan](#), shows a conceptual circulation plan for the Plan Area and how internal roads would connect to the existing circulation system.



Major Collector Street

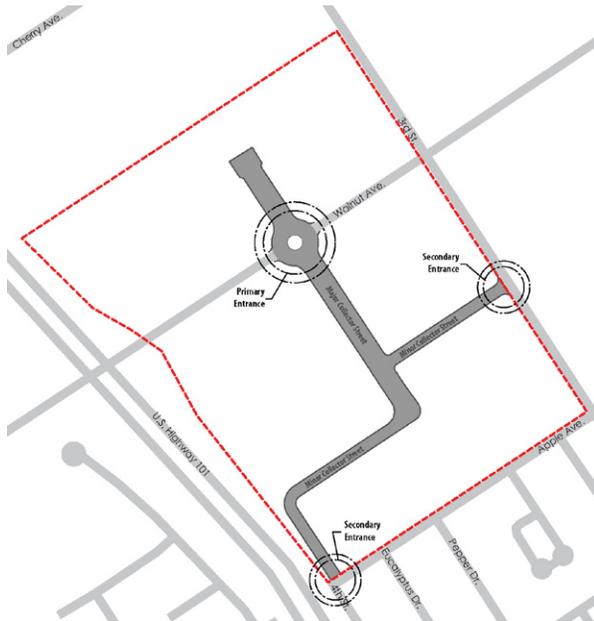
The major collector street will extend north-south from Walnut Avenue and connect to the internal minor collector street. The major collector street will operate as a public street with a 74-foot right-of-way to include 12-foot travel lanes in each direction, a 14-foot dedicated left-turn lane/landscaped median, 6-foot bike lanes, 6-foot sidewalks, and 6-foot landscaped strips (with swales). A right-of-way future extension is located at the



northern terminus of the major collector street, allowing for the possibility of a future connection north of the Plan Area. Emergency vehicle access is also assumed to be provided via the major collector street. [Figure 10, Major Collector Street Cross-Section](#) illustrates the design of this roadway.

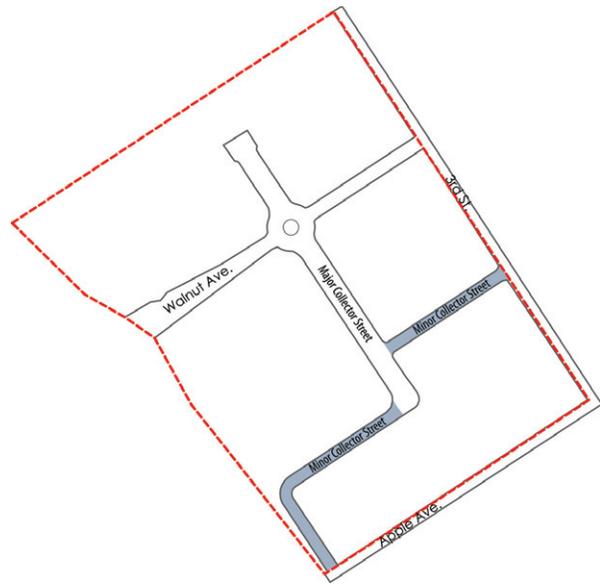
Minor Collector Street

The internal minor collector streets will connect to 3rd Street and Apple Avenue, providing two secondary access points to the Plan Area. These intersections will operate as traditional stop sign controlled intersections.



The minor collector street will extend east-west through the southern portion of the Plan Area and connect to Apple Avenue and 3rd Street. The minor collector street will operate as a public street with a 60-foot right-of-way to include 12-foot travel lanes in each direction, 6-foot bike lanes, 6-foot sidewalks, and 6-foot landscaped strips (with bio-swales). The minor collector street will also provide secondary

emergency vehicle access to and from 3rd Street. [Figure 11, Minor Collector Street Cross-Section](#), illustrates the design of this roadway.

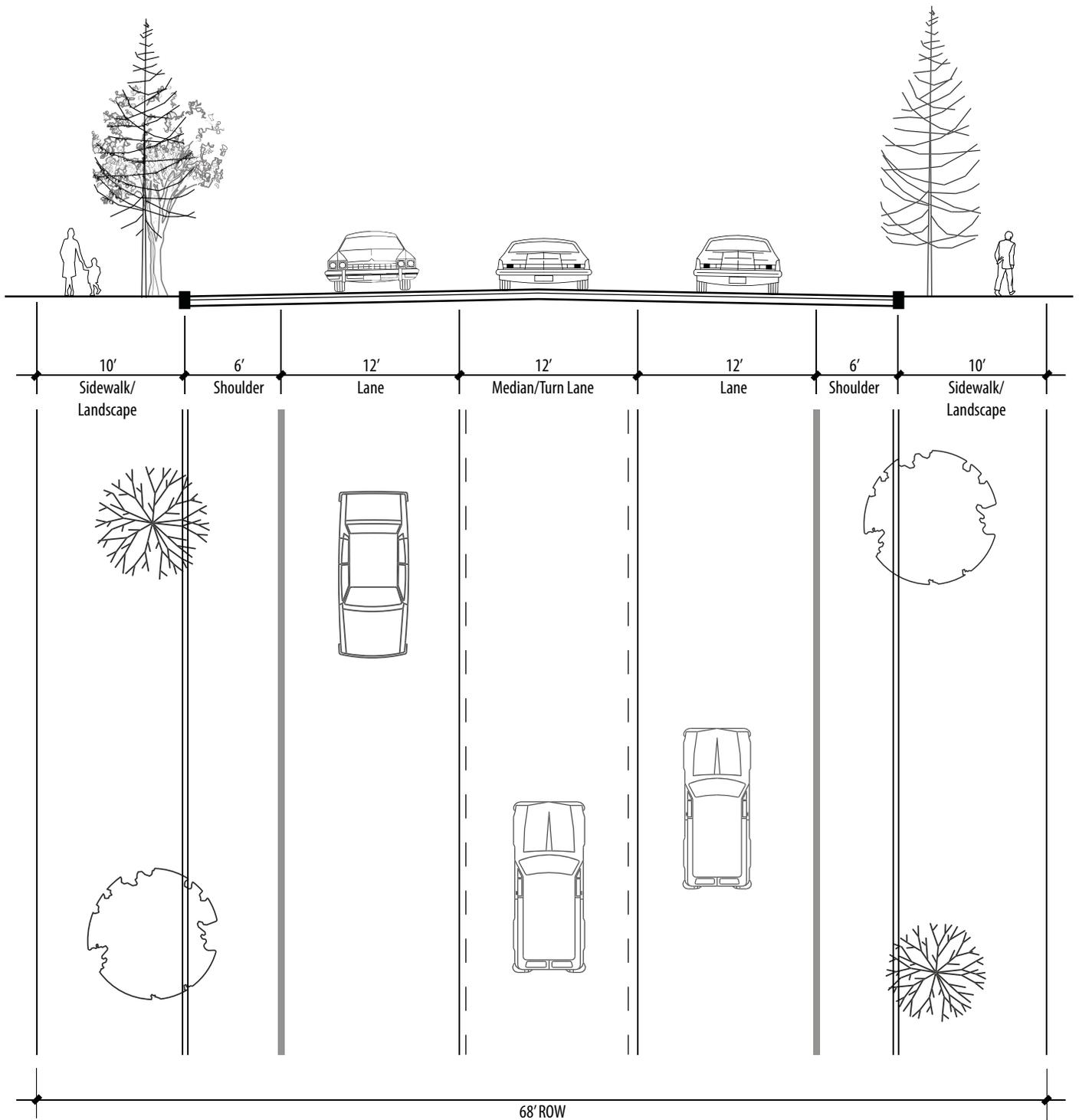


Roundabout

A roundabout could be considered at the major collector street/Walnut Avenue intersection. A roundabout at this location could help to reduce traffic speeds, improve traffic flow and air quality, and increase vehicular and pedestrian safety relative to a traditional four-way, stop controlled intersection.

The roundabout should be designed with the following considerations:

- Include pedestrian friendly features such as short crossing distances and mountable splitter islands, which provide shelter for pedestrians (including wheelchairs, bicycles, and baby strollers), assist in controlling speeds, guide traffic into the roundabout, physically separate entering and exiting traffic streams, and deter wrong-way movements. Additionally, splitter islands can be used as a place for mounting signs;



Source: EMC Planning Group 2012

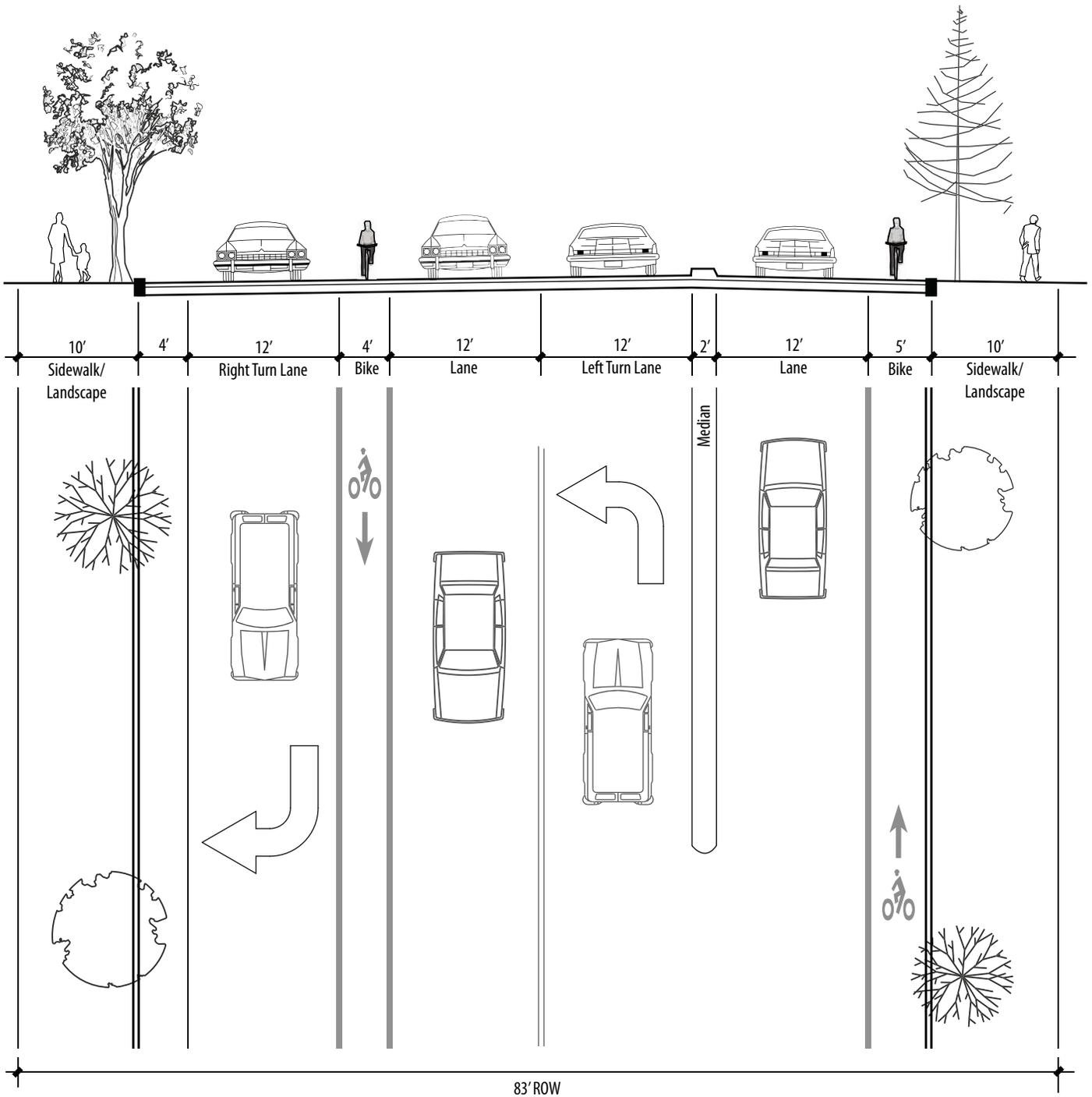
Figure 8a

3rd Street Improvements Cross-Section [Majority Design]

Walnut Avenue Specific Plan



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Source: EMC Planning Group 2012

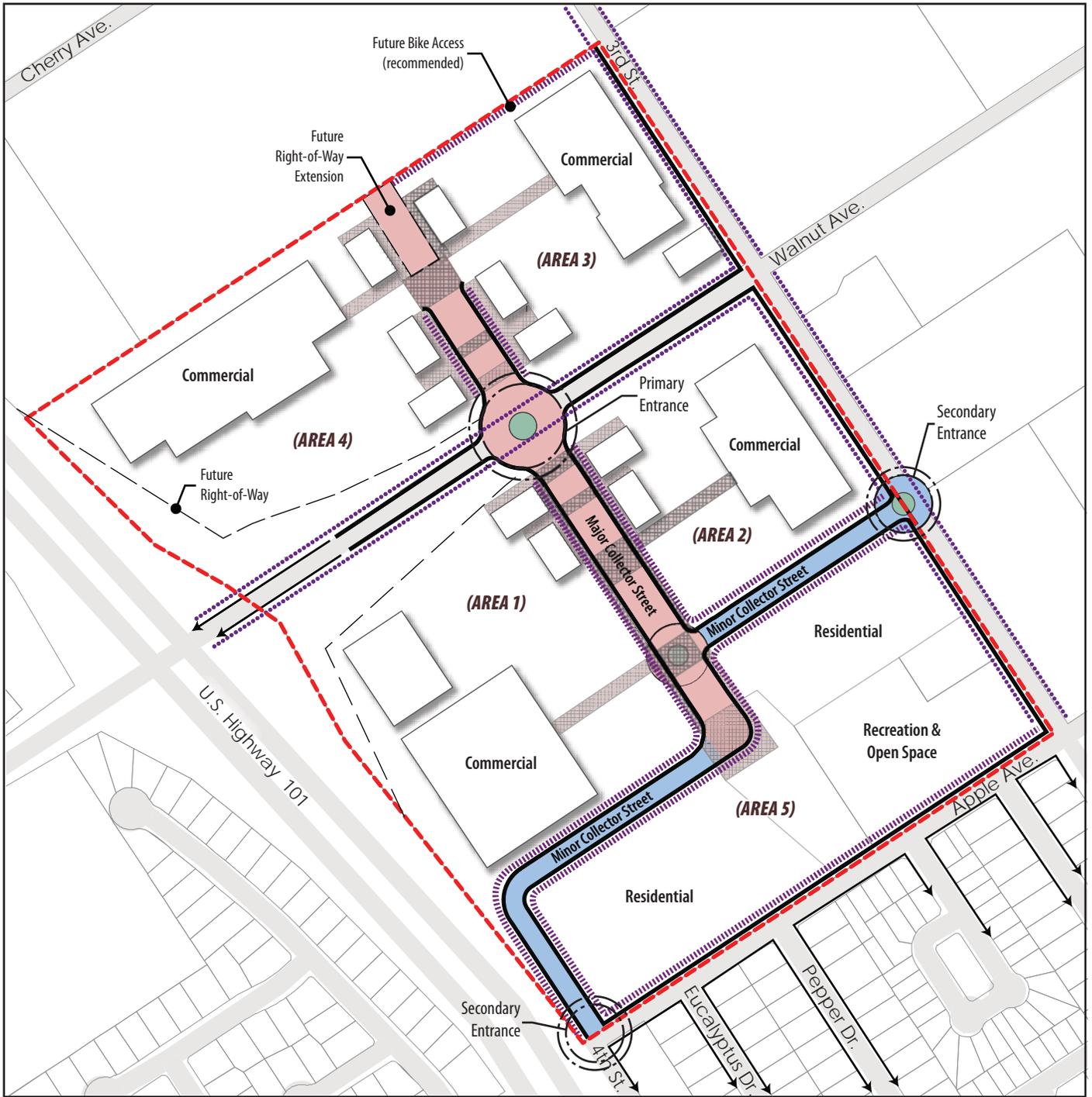
Figure 8b

3rd Street Improvements Cross-Section [Expanded]

Walnut Avenue Specific Plan



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- - - Plan Area Boundary
- Existing Street
- Existing Sidewalk
- ⋯⋯⋯ Existing Bicycle Route/Lane
- Major Collector Street
- Minor Collector Street
- Roundabout/Traffic Circle Opportunity
- Entrance/Access Point
- ⋯⋯⋯ Class II Bicycle Lane
- Sidewalk
- Plaza & Pedestrian Connections



Source: RJ A 2012, EMC Planning Group 2012

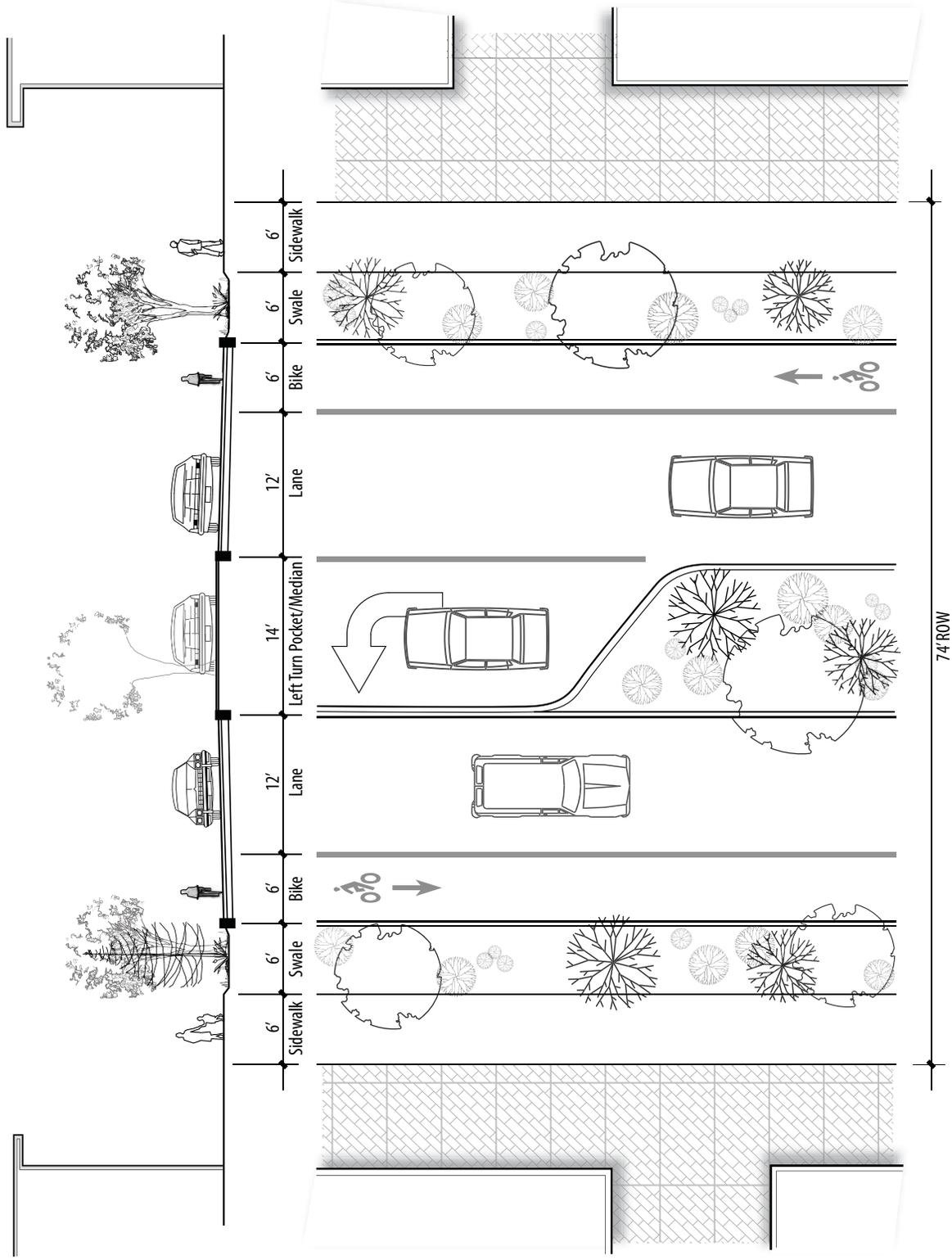
Figure 9

Circulation Plan

Walnut Avenue Specific Plan



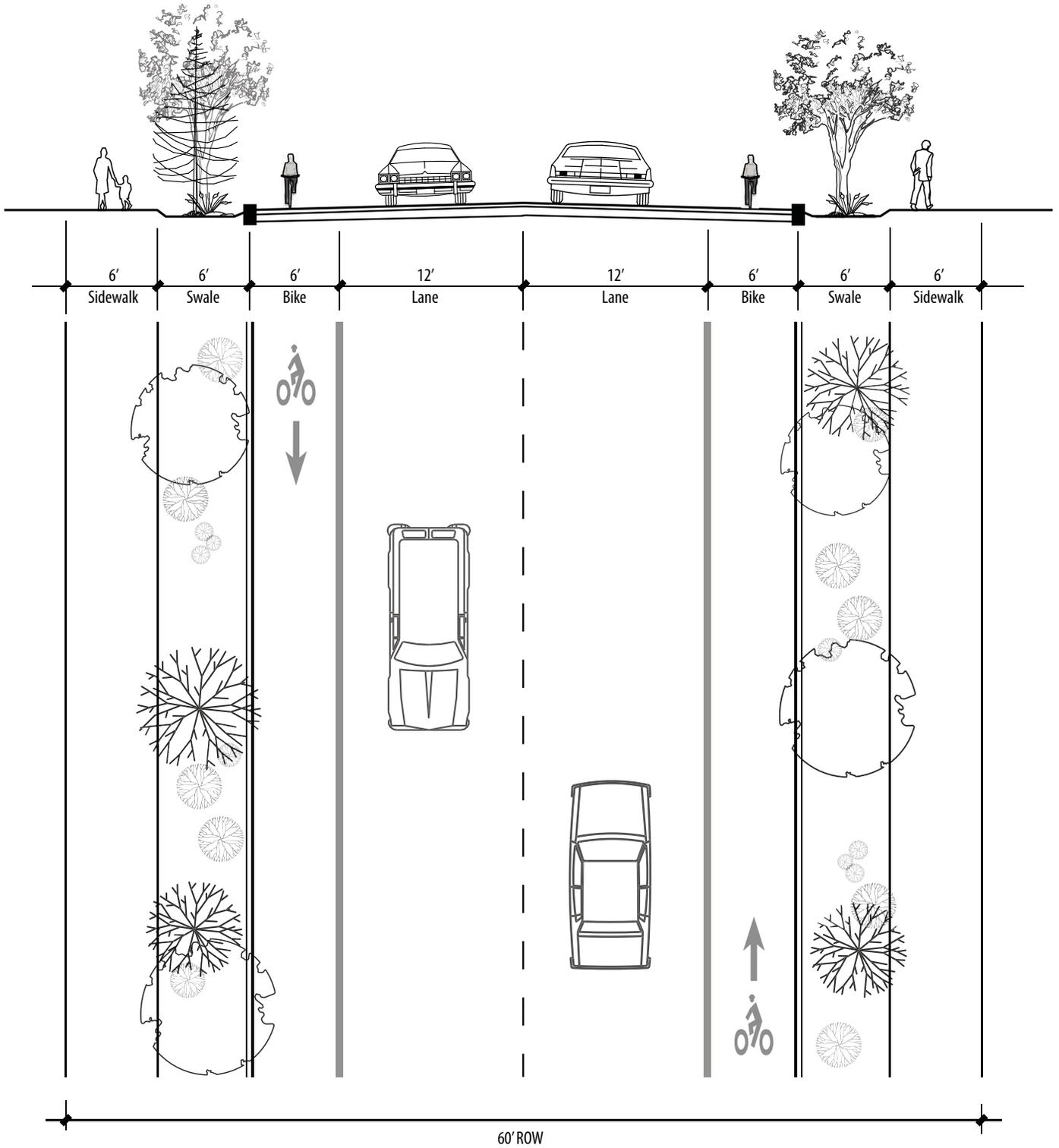
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Source: EMC Planning Group 2012

Figure 10
 Major Collector Street Cross-Section
 Walnut Avenue Specific Plan

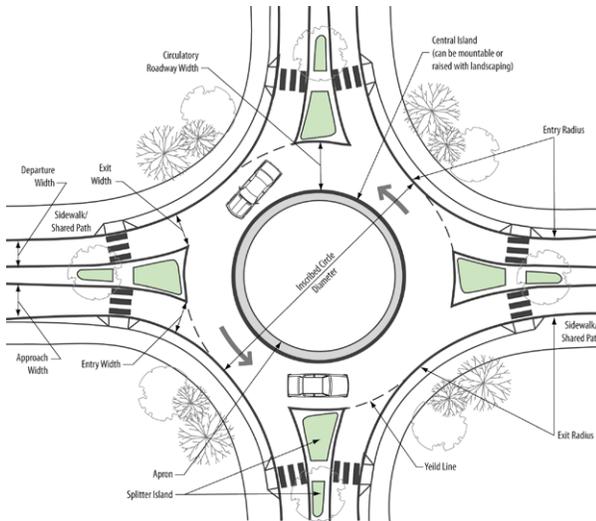
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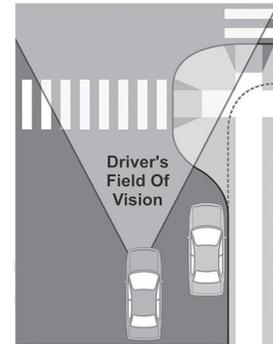
Source: EMC Planning Group 2012

Figure 11
 Minor Collector Street Cross-Section
 Walnut Avenue Specific Plan

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These objectives will be achieved in part by employing a range of traffic calming design features. Definitions of traffic calming vary, but they all share the goal of reducing vehicle speeds, improving safety, and enhancing quality of life. Implemented successfully, traffic calming can achieve reduced impacts of motor vehicles on local roads, create safe and attractive streets, and create a friendly environment for pedestrians and bicyclists.



- Include a central island (area encompassed by the circulatory roadway) that is either raised and nontraversable, or includes a traversable island; and
- Designed to accommodate passenger cars and facilitate large vehicles (i.e. delivery trucks, fire trucks, etc.).

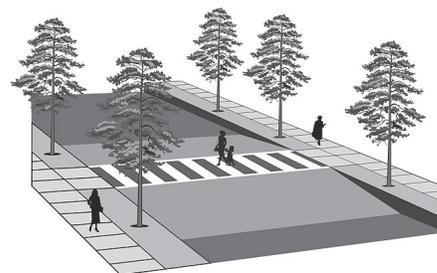
Of the many traffic calming techniques that exist, several are appropriate for the Plan Area. [Figure 12, Traffic Calming Diagram](#), illustrates the locations of the traffic calming elements within the Plan Area. The use of raised crosswalks and textured pavement for intersections and vehicular entries, and bulb-outs and neckdowns are appropriate approaches to traffic calming within the Plan Area. The following techniques aim to emphasize pedestrian crossings, making pedestrians and the possibility of pedestrian crossing more visible to approaching motorists:



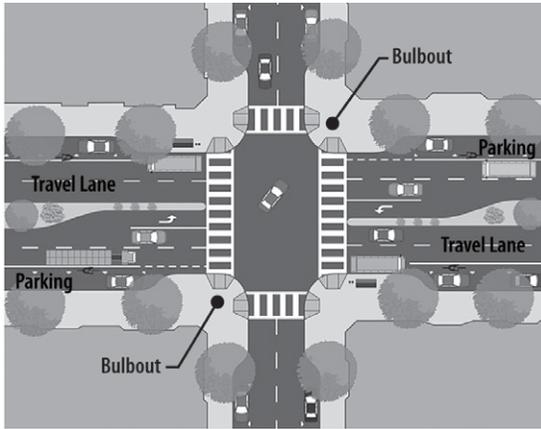
- Raised crosswalks and textured pavement can be used to emphasize either an entire intersection or a pedestrian crossing, and can have a positive aesthetic value.

Traffic Calming

The objectives of the circulation network is to maintain vehicle speeds that are safe for pedestrians and cyclists, provide convenient access between all land uses within the Plan Area, and reduce internal vehicular trips.



- Bulb-outs are another appropriate traffic calming tool, and shall be installed at each internal intersection and Plan Area entrance. Bulb-outs are curb extensions at intersections that reduce the roadway width from curb to curb.



Bulb-outs help “pedestrianize” intersections by shortening crossing distances for pedestrians and drawing attention to pedestrians via raised peninsulas. They also tighten the curb radii at the corners, reducing the speeds of turning vehicles.



- Neckdowns are also appropriate, and shall be installed at pedestrian mid-block crossing locations. Functioning similar to bulb-outs, neckdowns also shorten crossing distances for pedestrians, and are typically installed at mid-block crossing locations rather than intersections.



- Traffic circles, similar to roundabouts, can also be employed at each intersection. Traffic circles are an alternative to traditional 4-way stop intersections, and include raised islands placed in intersections, around which traffic circulates. Traffic circles are effective for calming intersections where large vehicle traffic is not a major concern, but speeds and safety are problems.

Bicycle and Pedestrian Circulation

Bicycle and pedestrian circulation facilities are found intermittently in and around the Plan Area. Oak Avenue and El Camino Real provide the only existing bicycle lanes in proximity to the Plan Area. Sidewalks are only provided along the north side of Walnut Avenue west of U.S. Highway 101, the north side of Oak Avenue, and along 3rd Street and Apple Avenue, only where residential development occurs. Public transportation services in Greenfield are provided primarily by the Monterey-Salinas Transit (MST) District. Within the City of Greenfield, MST Route 23 exits the freeway at Walnut Avenue adjacent to the Plan Area and proceeds to the bus stop located on El Camino Real.

As shown in [Figure 9, Circulation Plan](#), a network of bicycle and pedestrian facilities is proposed, including Class II bicycle lanes and sidewalks that



- Plan Area Boundary
- Raised Crosswalk/ Textured Pavement
- Plaza & Pedestrian Connections
- Landscaping
- Roundabout/ Traffic Circle Opportunity
- Entrance/ Access Point
- Bulb-out
- Neckdown
- Street Tree
- Monumentation/ Signage



Source: EMC Planning Group 2012

Figure 12
Traffic Calming Diagram
 Walnut Avenue Specific Plan



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connect to multiple destinations. These destinations include the existing surrounding streets, internal public spaces, and internal retail and residential uses. Sidewalks and Class II bicycle lanes would be included along the internal major and minor collector streets to ensure safe and convenient non-motorized travel. Additionally, a bicycle lane would be provided on



Apple Avenue. Future bicycle access is recommended along the north boundary of the Plan Area, which should be installed in

conjunction with future development of the parcel to the north.

Public Transportation

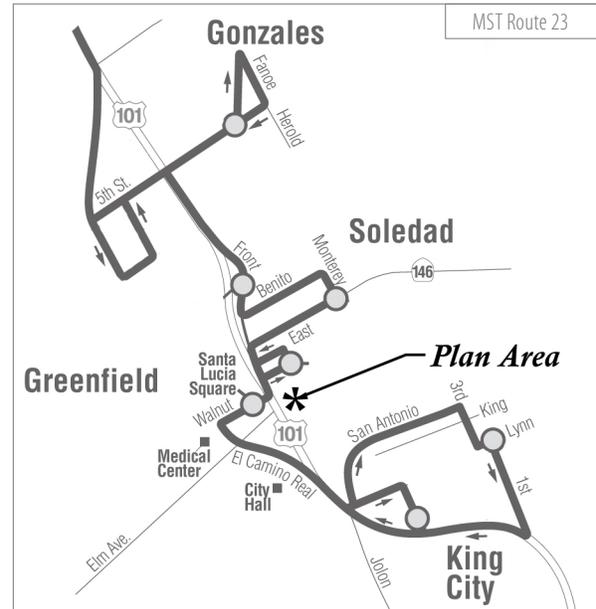
Public transportation is an integral part of the regional multi-modal transportation network, providing an alternative form of transportation that many people depend on to get to and from services and jobs. When implemented successfully, public transportation can be highly beneficial in alleviating traffic congestion and air pollution.

Currently, the Monterey Salinas Transit (MST) District provides transit services (Route 23) on Walnut Avenue west of U.S. Highway 101.



As development of the Plan Area will create a hub of activity, including services, jobs, and housing, an opportunity for an additional transit connection within the Plan Area will exist. The master developer, or individual developers, should coordinate with the MST District to explore opportunities for extending transit services to the

Plan Area, in order to serve the increase in transit demands. This would entail ensuring that new roads and development projects include appropriate facilities for transit service, such as bus stops and shelters.



Section 3.4 Off-Site Circulation Improvements

As construction and operation of the Plan Area will substantially increase off-site traffic volumes, a variety of off-site circulation improvements have been initiated by the City. It is anticipated that these improvements will help alleviate traffic impacts on adjacent streets and provide safe and efficient access to the Plan Area.

U.S. Highway 101/Walnut Avenue Interchange Improvements

The U.S. Highway 101/Walnut Avenue interchange is not designed with sufficient capacity to accommodate the increase in traffic volumes that would be generated with build out of the City per the General Plan, including build out of the Plan

Area. Consequently, in the long-term, significant interchange improvements will be needed for that purpose.

The interchange ramps are currently two-way stop controlled intersections with Walnut Avenue. The ramps currently operate at acceptable levels of service, but have insufficient capacity to accommodate traffic from more than several thousand square feet of new development within the Plan Area. However, with the implementation of improvements to the ramps, their capacity can be significantly increased, while recognizing that major capacity improvements to the interchange as a whole will still be needed in the future. With installation of interim four-way stop control improvements, the capacity of the ramps would increase such that significant new development within the Plan Area could be accommodated. Representative Plan Area development scenarios that would be possible with the interim ramp improvements include: 1) 220,000 square feet of commercial use (no residential); 2) 190,000 square feet of commercial use and 90 multi-family residential units; or 3) 170,000 square feet of commercial use and 160 multi-family units; or some variation thereof.

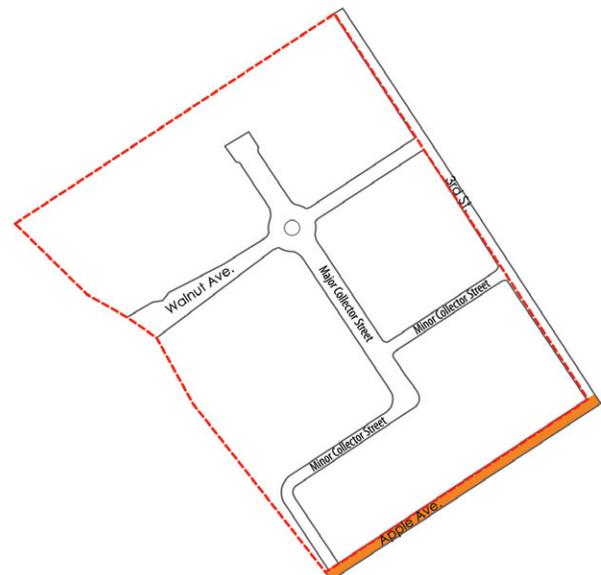
With the completion of full planned interchange improvements, interchange capacity would not be a constraint to developing the remainder of the Plan Area up to its full build out capacity.

As of the date of the draft Specific Plan, the City’s traffic consultants have completed the planning and design activities for the interim ramp improvements and are nearing completion of planning and design activities for the full interchange improvements. Funding for the interim improvements would be obtained through the City’s Traffic Improvement Fee Program. The interim improvements are expected to be completed in 2013 to 2014. Consequently, existing constraints to enabling

partial development of the Plan Area as described above would be removed after that time. The time-frame for obtaining funding for completing the full interchange improvements is uncertain. However, based on information known as of the date of this draft Specific Plan, it is estimated that full interchange improvements could be completed about 10 years after the interim improvements are completed. If supplemental funding provided through a new funding mechanism for the Plan Area, with funds contributed by new development were to become available, it is conceivable that the full interchange construction timeframe could be reduced. Future developer(s) of the Plan Area will be required to participate in funding the improvements to this interchange through the City’s Traffic Impact Fee Ordinance. For more information regarding Plan Area development phasing and financing, refer to Article 5.0, Plan Implementation.

Apple Avenue Improvements

Discontinuous sections of sidewalks are located along the south side of the street. As part of the circulation improvement plan included in the Specific Plan, Apple Avenue would be improved. These improvements include expanding Apple Avenue to a 60-foot right-of-way with the road



cross-section designed to include two 12-foot travel lanes, two 6-foot bicycle lanes, an 8-foot on-street parking shoulder on the south side of the street, a 6-foot landscape strip (bio-swale) on the north side of the street, and a 5-foot sidewalk on the north side of the street. [Figure 13, Apple Avenue Expansion Cross-Section](#), illustrates the design of these improvements.

Section 3.5 Objectives, Policies, and Implementation Measures

The following circulation plan objectives, policies, and implementation actions shall guide the design and development of the Plan Area circulation system.

Objective CP-1: Provide a circulation system that facilitates mobility.

Policy CP-1.1. Provide a complete system of roadways that facilitates internal circulation.

Implementation Measures:

1. The master developer and/or individual project developer(s) will construct internal roadways as shown in the typical major collector and minor collector street sections (Figures 10 and 11). Final improvement plans shall be subject to review and approval of the Public Works Department.
2. Inclusion of a roundabout at the main Plan Area entry from Walnut Avenue is encouraged.
3. Alternative street configurations within the Plan Area may be considered, subject to review and approval of the Public Works Department.

Objective CP-2: Provide adequate access to the Plan Area.

Policy CP-2.1. The master developer and/or individual developer shall be responsible for a proportional fair share funding of circulation improvements included in the Circulation Plan.

Implementation Measures:

1. The Plan Area master developer and/or individual developer(s) shall be responsible for contributing a proportional fair share to the U.S. Highway 101/Walnut Avenue Interchange improvements, and necessary improvements and traffic signalization along Walnut Avenue in the vicinity of the project.
2. The Plan Area master developer and/or individual developer(s) shall be responsible for construction of improvements along the Plan Area frontage on Walnut Avenue, 3rd Street, and Apple Avenue.
3. The Plan Area master developer and/or individual developer(s) shall be responsible for contributing a proportional fair share to the Walnut Avenue shared entry road to the Plan Area.

Objective CP-3: Provide connections to adjoining areas and uses.

Policy CP-3.1. Provide street, pathway, and emergency vehicle connections to adjacent areas.

Implementation Measures:

1. Integrate circulation within the Plan Area to adjacent land uses and circulation networks. Lots and streets shall be arranged to facilitate convenient pedestrian circulation within the Plan Area and adjacent locations.

2. Design an integrated pedestrian circulation system throughout the commercial center (with raised or stamped concrete or similar material), early in development plans, which is dictated by pedestrian convenience and a friendly environment independent of parking and vehicle traffic needs and requirements.
3. Provide bicycle and pedestrian connections to adjoining properties along Apple Avenue, and along the north Plan Area boundary.
4. Ensure that internal roadways are designed to accommodate emergency vehicle turning movements.
5. Include an emergency vehicle access between the Plan Area and Walnut Avenue.

Objective CP-4: Provide quiet and safe streets.

Policy CP-4.1. Promote a pleasant and conducive travel environment through implementation of traffic calming techniques.

Implementation Measures:

1. Amenities to enhance the travel environment, including entry features (landscaping, monumentation, and signing, etc.), traffic calming,



street trees, and low-impact design features (see Article 2.0) shall be included on the improvement plans.

2. Install traffic calming techniques to slow traffic, such as bulb-outs and neckdowns, as illustrated in Figure 12, Traffic Calming Diagram. Use of traffic calming techniques shall be considered on all cross streets where they intersect with Walnut Avenue and Apple Avenue.
3. Radii of street corners (with face of curb measurement) at intersections shall not exceed 25 feet. Provide roll-over curbs, if necessary, to meet emergency vehicle turning requirements.
4. Streets shall have nighttime lighting that meets the minimum illumination standards contained in Article 2.0 Land Use Plan, Development Standards, and Design Guidelines.

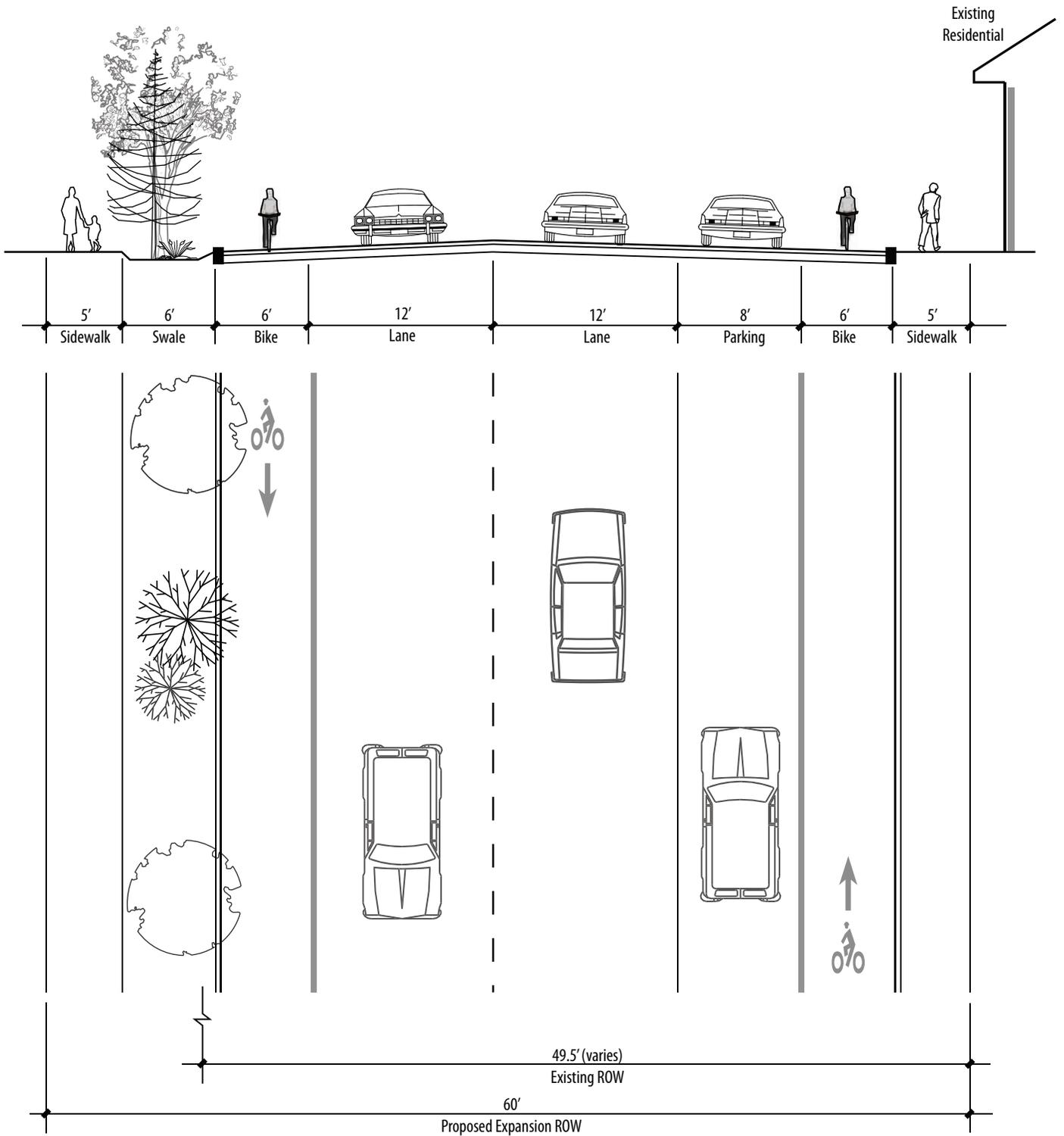
Objective CP-5: Provide safe and convenient non-motorized transportation.

Policy CP-5.1. Design the circulation system to provide appropriate bicycle facilities.

Implementation Measures:

1. Bicycle paths and lanes shall be constructed according to standards set forth in the Bikeway Planning and Design Section of the California Department of Transportation Highway Design Manual and consistent with Article 2.0, Land Use Plan, Development Standards, and Design Guidelines.
2. Bicycle path or lane improvements shall be provided as a part of the frontage improvements to Walnut Avenue, 3rd Street, and Apple





Source: EMC Planning Group 2012

Figure 13

Apple Avenue Expansion Cross-Section

Walnut Avenue Specific Plan



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Avenue along the Plan Area frontage, and shall be designed to connect to regional bikeways. Bicycle travel improvements along the north boundary are recommended, but not required.

Policy CP-5.2. Facilitate pedestrian circulation by providing clearly identifiable pedestrian circulation routes that connect neighborhoods, parks, commercial areas, and transit stops.

Implementation Measures:

1. Pedestrian circulation routes shall be in the form of sidewalks or pedestrian paths consistent with the cross-section specifications shown in the major collector and minor collector street sections (Figures 10 and 11).



2. A continuous pedestrian system shall be provided along all streets and shall be consistent with Article 2.0, Land Use Plan, Development Standards, and Design Guidelines.
3. The appropriate City staff shall review the master developer’s circulation improvement plans to ensure traffic calming features are included, such as enhanced crosswalks (e.g. bulb-outs, raised crosswalks, stamped concrete, etc.) and/or road (speed) bumps.
4. Handicap accessible routes shall be provided. At minimum, at least one handicap accessible route shall be provided to connect the residential area to the retail uses, and Plan Area parks.

Objective CP-6: Provide access to public transit.

Policy CP-6.1. Facilitate future transit service at or adjacent to the Plan Area.

Implementation Measures:

1. The master developer and/or individual project developer(s) shall work with **MST** MONTEREY-SALINAS TRANSIT District to develop, implement and maintain public transit services for the Plan Area.
2. The master developer and/or individual project developer(s) shall ensure that new roads and development projects include appropriate facilities for transit service, such as bus stops and shelters.

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