7. Circulation and Transportation

This chapter outlines the existing street network in the Specific Plan area, addresses future transportation conditions, includes improvement strategies for the transportation network to support the types and amounts of new development allowed within the Specific Plan area, and provides design standards for proposed street improvements as well as new streets. Specific physical modifications are proposed to First Street that will result in changes in circulation patterns in the Specific Plan area. Those changes are also addressed in this chapter. Transportation facilities examined include roadways, intersections, transit services, pedestrian facilities and bicycle facilities.

Existing Transportation System

Existing Street Network

The existing street network in Downtown Livermore is based on a grid, which is oriented north-south in areas west of Livermore Avenue, and shifts slightly to align with First Street to the east of Livermore Avenue. This grid is based on a typical block size of three hundred feet in width by two hundred feet in depth, which expands to three hundred feet in width to three hundred feet in depth in areas east of Livermore Avenue and north of the railroad tracks.

However, the fine grain created by this grid network does not extend throughout all of Downtown. Large parcels un-subdivided by public roadways have severely limited the number of north-south connections through the Downtown area between S Street and Livermore Avenue. The railroad tracts also act as a barrier, limiting access to the Downtown from the north. These conditions are shown on Figure 7-1, Existing Street Network, on page 2.

Existing Roadway System

The Specific Plan area includes a number of key roadways for Downtown access and circulation,as well as key intersections, which have been examined. More detailed information on key study intersections that were analyzed as well as existing 2002 traffic flow and level of service information is contained in the Appendices of this document. Following is a list and description of the function of key roadways in the Downtown. Figure 7-2, Study Area and Study Intersections on page 4, illustrates further the Specific Plan area roadway and study intersections.

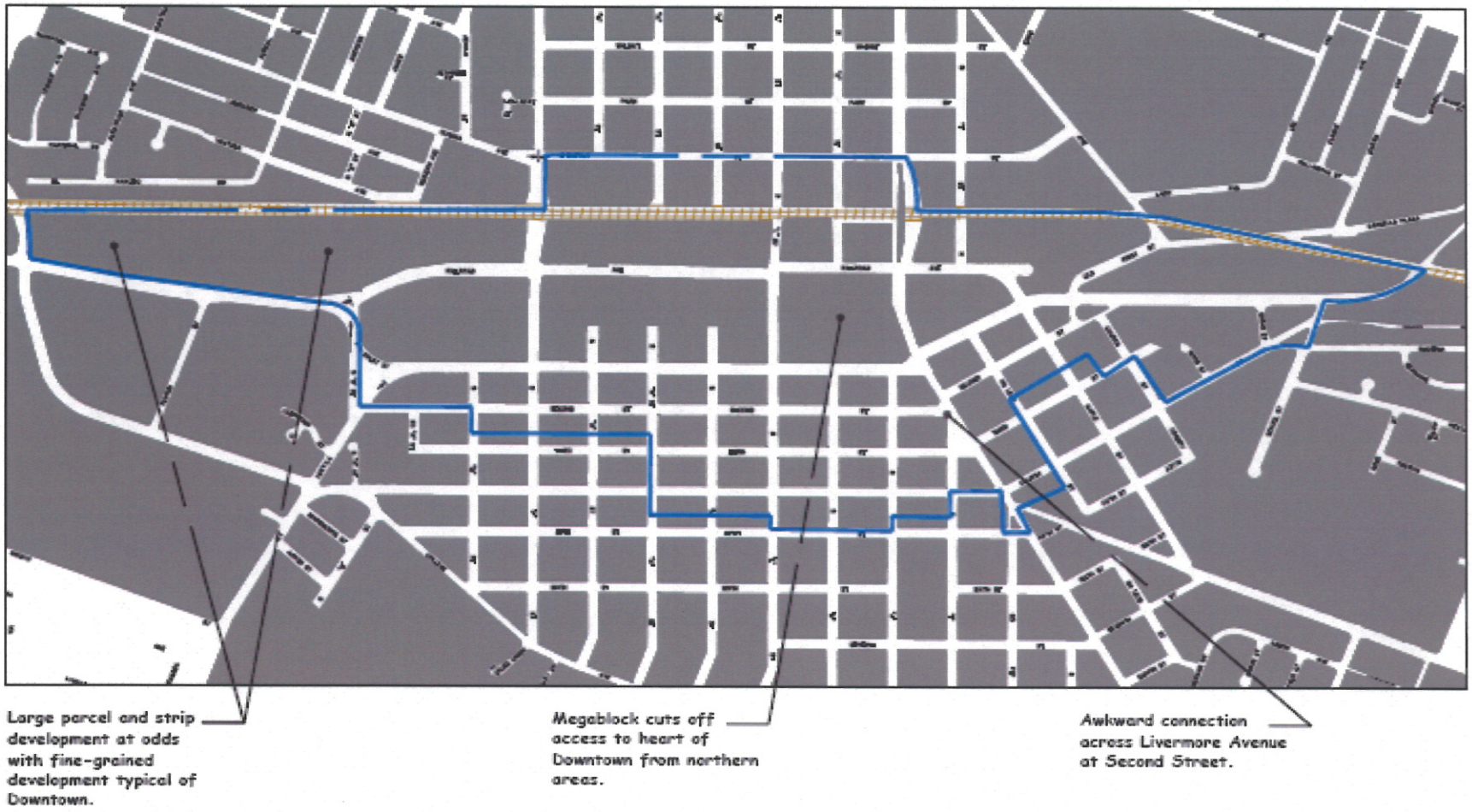


FIGURE 7-1:
EXISTING STREET NETWORK

City of Livermore

Livermore Downtown Specific Plan

Key Roadways include:

- First Street (State Route 84) is a four-lane State Highway that is designed as a major street in the adopted Circulation Element. It is the key commercial route in Downtown with fronting businesses, on-street parking and pedestrian activity. To the east it provides direct access to 1-580 with a full interchange. To the west, just outside of Downtown, it connects to Holmes Street and Vallecitos Road between Livermore and 1-680 in the Sunol/Fremont area.

- Fourth Street is a four-lane major street with a mix of commercial and residential frontage, which provides east/west access to and through Downtown.

- Railroad Avenue is a relatively short four-lane major street, which provides east/west access to and through Downtown. It connects to First Street east of Downtown and to Stanley Boulevard to the west of Downtown, thereby acting as a bypass route for First Street traffic.

- Livermore Avenue is a four-lane major street north of First Street and two lanes south of First Street that provides north/south access through the City. At the south end of the City, it connects to Tesla Road, which runs eastward into San Joaquin County. To the north, it connects to Manning Road, which provides access to Contra Costa County. Livermore Avenue is a key access route to Downtown and it provides direct access from Downtown to 1-580 via a diamond interchange.

- L Street is a two-lane collector street south of First Street and four lanes north of First Street, and provides access to Downtown from the north and south. North of Downtown, L Street intersects Portola Avenue, and to the south it becomes Arroyo Road.

- P Street is a four-lane street between Pine Street and Second Street, and a two-lane street north of Pine Street and south of Second Street; and provides access from north of Downtown to College Avenue south of Downtown. It is classified as a collector street from Portola Avenue to Fourth Street. South of Fourth Street it is designated as a local street.

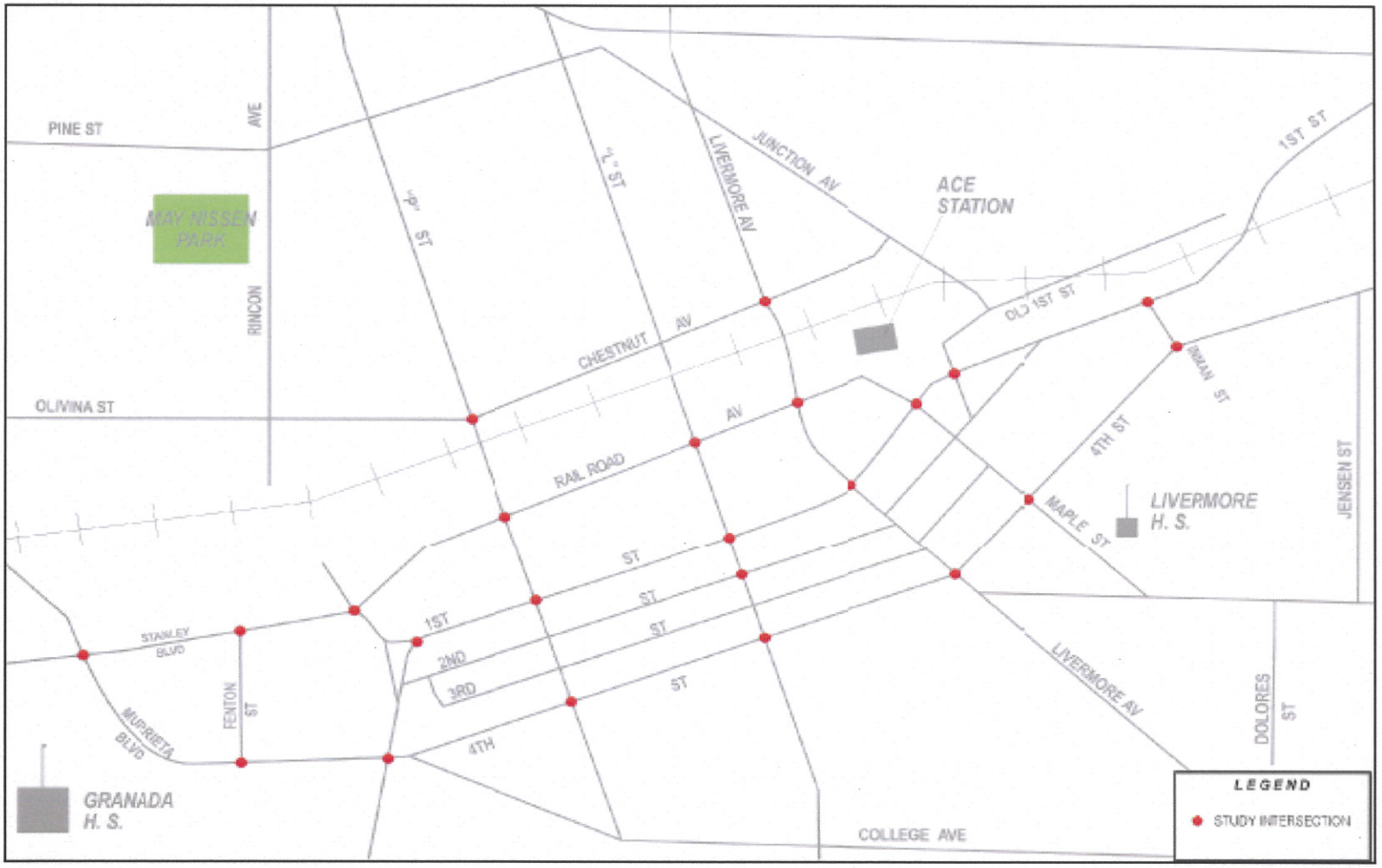


FIGURE 7-2: DOWNTOWN STUDY INTERSECTIONS

In addition, there are a number of other important local streets, which serve the Downtown area and provide access to and from the key roadways listed above. It should be noted that Isabel Avenue, although not within the Downtown Core area, is a very important facility with respect to Downtown circulation. This is because of the proposed shift of the State Route 84 designation from First Street to Isabel Avenue, and also the programmed improvements on Isabel Avenue. The shift of State Route 84 designation from First Street will allow the City greater control over the operations of First Street and will indicate the relative importance of Isabel Avenue as a more "regional" route as compared to First Street. In addition, the widening of Isabel Avenue and the associated improvements to First Street (see details below) would facilitate some shifting of future traffic (primarily "through" traffic which is not local to Downtown) from First Street to Isabel Avenue, and relocating the truck route out of Downtown. Therefore, although it is not physically located within Downtown, it is a critical route with respect to the success of Downtown access.

Transportation System Strategy/Improvements

This section outlines transportation system strategies and improvements and physical changes to First Street necessary to support existing and intended new commercial, office and residential land uses within the Specific Plan Area. Proposed new land uses under the Specific Plan would generate a significant increase in people and vehicles destined to the Specific Plan area, and regional growth will continue to put pressure on east/west and north/south through movements. In addition, modifications to First Street will redirect traffic to other routes, requiring improvements to those routes to handle not only the added traffic due to development but also the rerouted traffic. The recommendations for new streets outlined in this section are intended to provide a street network that will enable maximum connections throughout the Study Area. The intersection and roadway improvements and design standards recommended in this section are intended to address all of the future changes to the local environment including local growth, regional growth, and local circulation system changes. In addition to policies regarding the physical roadway and intersection modifications, there are recommendations for other modes including transit, pedestrian and bicycle facilities.

Proposed Street Network

In order to create an improved street network throughout the Specific Plan area, the following improvements to the street network are proposed, and shown on Figure 7-3, Minimum Street Network, on page 7:

- New Streets in the Lucky's Megablock- To create better connections to the Downtown Core, redevelopment of the former Lucky's site at First Street, L Street, Railroad Avenue and Livermore Avenue will be required to provide an east-west street through the site connecting South L Street and South Livermore Avenue. A service road will be required behind the existing buildings on First Street, with access from South L Street.

- I Street Connection through the LVC Block- A new pedestrian or vehicular connection aligning with I Street should be provided through the site bounded by First Street, Livermore Avenue, Railroad Avenue and Maple Street (proposed for the Livermore Valley Center).This new connection will link new development on this site and throughout the Core to parking and transit connections along Railroad Avenue at I Street.

- Realigned Connection along Second Street at Livermore Avenue.

Additionally, new development will be required to provide streets that align with and connect to existing streets, to contribute to the fine-grained street network envisioned for Downtown. Developments will be required to match the typical block size of three-hundred feet in width by two-hundred feet in depth, or no larger than four-hundred feet in width by three-hundred feet in depth, where feasible. Recommendations for new streets to serve this new development are shown on Figure 7-4, Proposed Street Network, on page 8.

Major Planned and Programmed Roadway Improvements and Modifications

A key element of the Specific Plan for Downtown Livermore includes the narrowing of First Street from its current four-lane configuration to a two-lane configuration from P Street to Railroad/Maple Street with left-turn lanes at major intersections. Within the Downtown Core, between M Street and Livermore Avenue, this configuration will include one lane in each direction for moving traffic, left turn lanes at selected intersections and diagonal parking/flex zones adjacent to the traffic lane in the new two-lane section. This will significantly reduce the roadway capacity of that portion of First Street and will result in the redistribution of traffic volume to other parallel and connecting roadways. Some of the traffic that currently uses First Street will use Railroad, Second, Third and Fourth Streets, while some is expected to reroute entirely outside of Downtown to other facilities such as Isabel Avenue or even the 1-580 freeway.

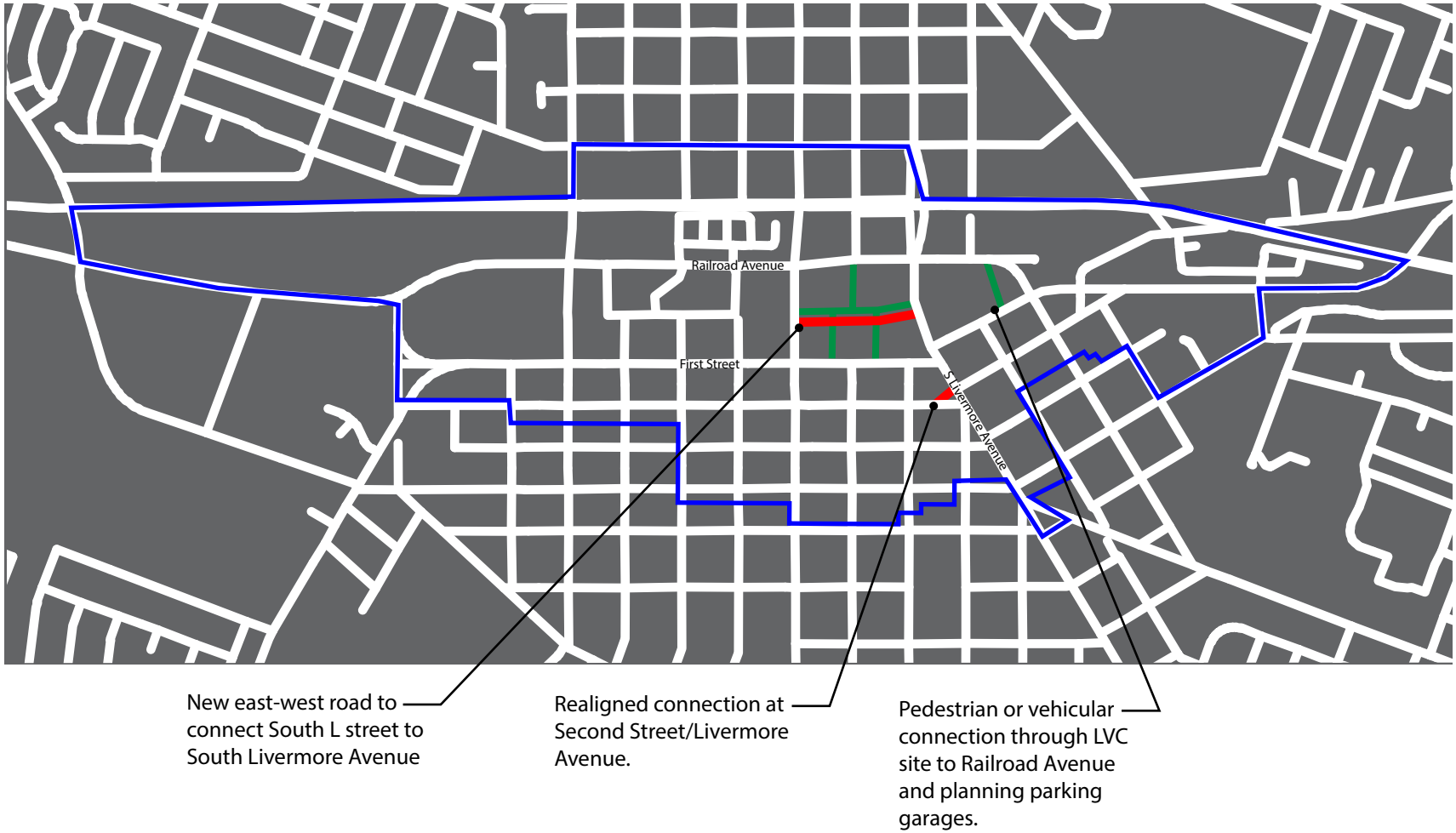


FIGURE 7-3: MINIMUM NEW STREET NETWORK

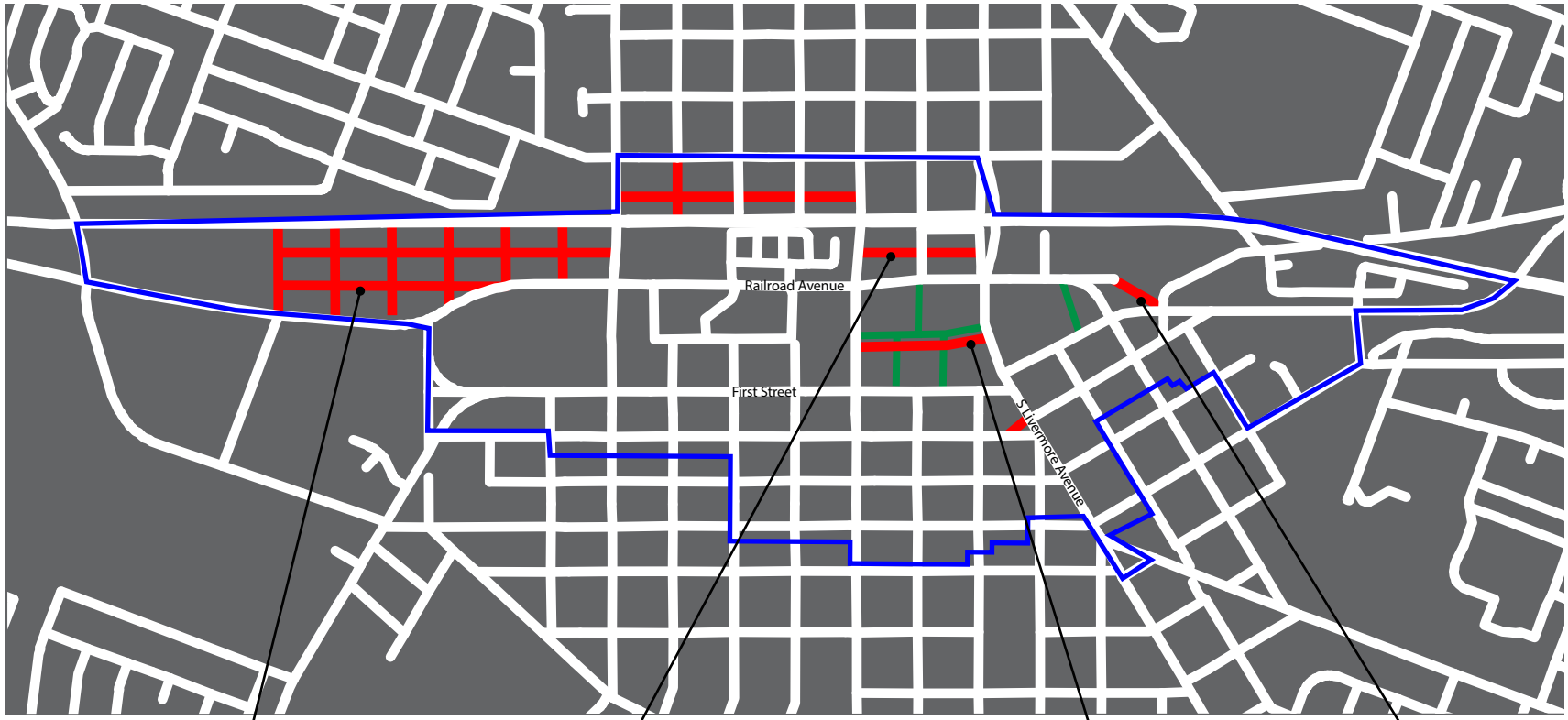


FIGURE 7-4: PROPOSED TYPICAL STREET NETWORK

In the Specific Plan area, recommended improvements include:

- First Street from S Street (west) to Inman Street (east)- Reorganize the street into three distinct segments along this length -the Downtown Core from M to Maple Streets, the Downtown Boulevard Gateway west of M Street, and the Downtown Transit Gateway east of Maple Street. Ensure each street creates a supportive environment for the envisioned transformation along its edges. From P Street to Railroad/Maple Street, reduce the number of through lanes from four to two and provide left-turn lanes at the signalized intersections. At the Downtown Core, provide "flexible zones" on the shoulders that could accommodate diagonal or parallel parking, or street side retail displays or restaurant use. Throughout the study area, provide bulb-outs at key intersections to reduce pedestrian crossing distance.

- Railroad Avenue from East Stanley Boulevard/S Street to First Street- Improve roadway to provide four through traffic lanes. Existing parking may need to be eliminated to accommodate improvements. In the longer term, Railroad Avenue may be widened further to accommodate on-street parking.

- Railroad Avenue/First Street/Old First Street- Realign Railroad Avenue to intersect First Street at Old First Street in order to help promote pedestrian activity as the primary mode of travel on First Street within the Downtown, as well as improve traffic operations along Railroad Avenue in the Transit Gateway.

- Intersection of First Street/Livermore Avenue- Narrow both streets at intersection to provide one through lane in each direction and a left turn lane. On-street parking may be provided midblock as road width transition allows.

Improvements to First Street

The streetscape improvements recommended for First Street are designed to stimulate near-term investment. It would do so by creating a public street environment that "sets the stage" for new investment by providing an attractive and supportive environment for the envisioned land uses and building types. These streetscape improvements may be advanced by the City where possible, in order to create a supportive environment for appropriate development in each segment, and to instigate more immediate change in the Plan Areas. The City may

also require these improvements to be provided by each developer along his or her property frontage as development occurs.

In order to make the most difference for the community, the first priority for Downtown is the revitalization of the Downtown Core. A significant piece of its revitalization depends on the provision of a proper public realm. Improvements to the First Street Core streetscape are essential for transforming the character of the roadway from a through-route with heavy traffic to a tree-lines pedestrian-oriented walking street and an outdoor plaza with frequent gathering spaces, outdoor cafes and seating areas, and unique design elements. The envisioned redesign of First Street in the Core will ensure a space that people and cars can share, making the streets of the Downtown Core a desirable place for community gathering and social interaction. This will not only provide a street that becomes a public space for the community, but will also set the stage for new investment along its edges. It will be an attractive location for all sorts of desirable establishments, furthering the economic revitalization of Downtown.

Street trees shall be planted according to specifications for each streetscape. Consistent tree types, regular spacing and consistency are used to reinforce a strong street identity and corridor structure,typically along the length of a street corridor. Along retail areas, such as along First Street in the Downtown Core, trees are planted in tree wells within the sidewalk at the back of curb, designating the sidewalk as the pedestrian realm of the street. To ensure visibility to retail establishments, trees with open branching structures have been specified. Along mixed-use and residential streets, such as along First Street in the Gateway Districts on either side of the Core, trees are planted in aligned rows centered within planting strips between sidewalks and curbs, creating a buffer between pedestrians and automobiles and ensuring a frontage environment that supports the mixed and residential uses that line these roads.

First Street Improvements in the Downtown Core (M Street to Maple Street)

The first phase of improvements to First Street will take place in the Downtown Core, from M to Maple Streets. Recommendations include the expansion of the pedestrian realm by creating a "flexible zone" planted with trees and paved with special materials. Additional pocket plazas approximately every 200' along the length of this street and wide bulb-outs at the intersection of First and North Livermore Avenue are also recommended. Sidewalks will be improved with amenities like public art installations, street furniture and pedestrian-scaled lighting. Street furniture should be selected and installed, providing more seating options and benches along the streetscape's length. The

development of a unique streetscape piece, for example the custom planter which appears on page 14, is recommended, as a memorable object that denotes the special character of the City and its Downtown.

The "flexible zone" concept allows the expansion of the pedestrian environment into the area typically reserved for auto parking at will and without reconstruction, increasing the options for use of this zone beyond just parking. Other use options include an expansion area for outdoor eating at restaurants and cafes, sidewalk vendor activities, and locations for vendors or kiosks during special events or parades, depending on the needs of the retail business immediately in front of the space and in coordination with City policies. These options are shown on Figure 7-5, Flexible Zone – Use Options diagram on page 12. Special design elements in the flexible parking zone to be provided along both sides of First Street will give this area a pedestrian character, and make it feel like an extension of the sidewalk. These include the planting of street trees, an enhanced paving material (e.g. colored unit pavers or scored concrete), and the continuation of other streetscape elements from the sidewalk into this parking area. A two-step curb condition provides the transition from this parking zone to the actual sidewalk, minimizing potential trip hazards and allowing easy movement between the two areas.

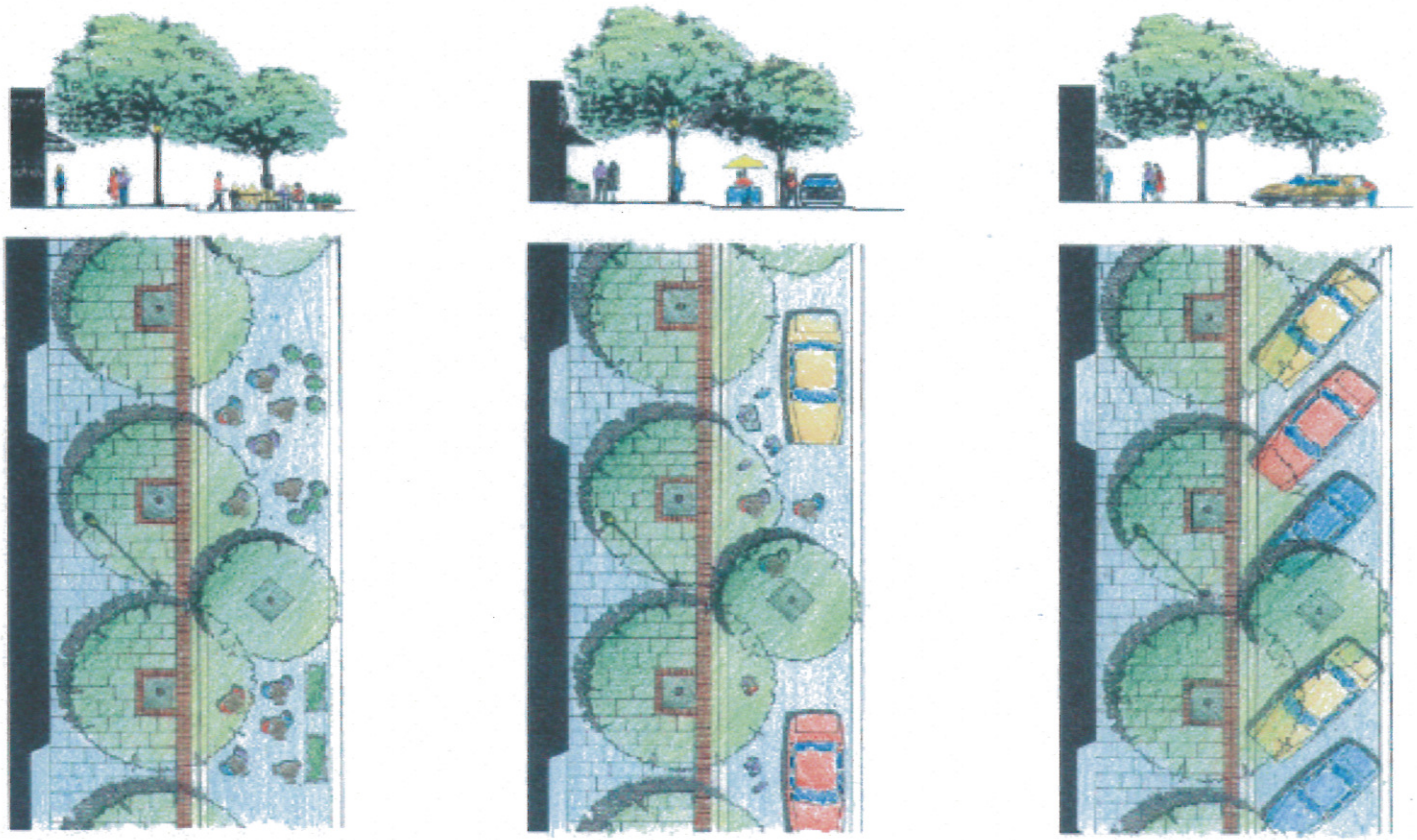
The design concept of this streetscape strategy is shown on Figure 7-6, page 13, with design details shown for a typical section of the streetscape (along First between Land K Streets) on Figure 7-7, on page 14. The standards for the street are as follows:

- Travel Lanes- One twelve (12) foot travel lane must be provided in each direction. East of Livermore Avenue, where the right-of-way allows, a ten (10) foot median planted with low flowering materials shall be provided between these two travel lanes. This median shall shift to a turn lane where required (i.e. westbound at Livermore Avenue, westbound at Mcleod, and eastbound at Maple/Railroad Avenue).

- Corner Curb Return Radius- Twenty (20) feet minimum, to be determined based on street geometry and fire department requirements.

- On-Street Parking -Angled on-street parking must be provided throughout the length of First Street in the Downtown Core. This parking area will be designated as a "flexible zone", paved with a decorative paving material with a button pattern on the diagonal to "mark" diagonal parking spaces in the zone, separated from the sidewalk by a two-step stair curb and separated from the street by a brick band.

FLEXIBLE ZONE

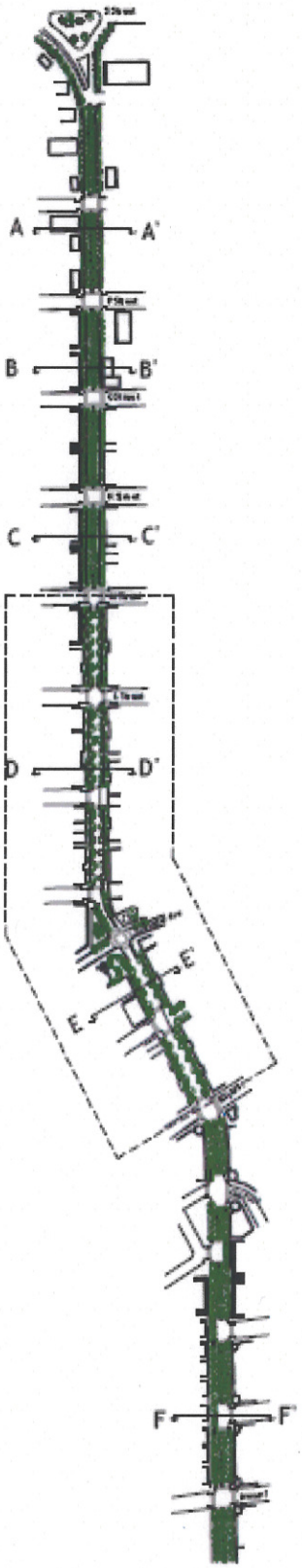


Flexible Zone as Commercial Extension
Flexible zone acts as space for outdoor dining, cafes and vendors.

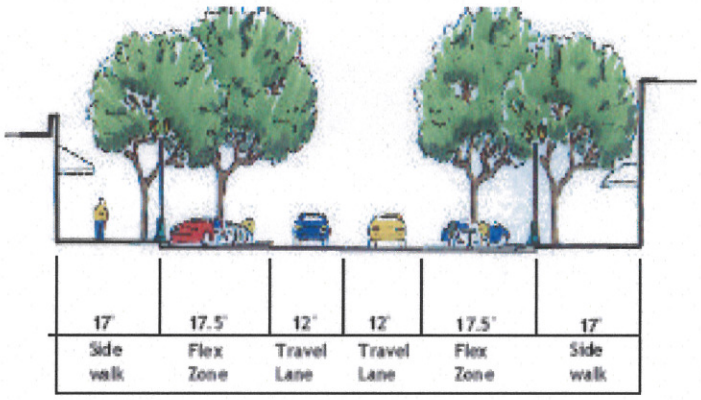
Flexible Zone as Shared Commercial/ Parking
Flexible zone acts as widened sidewalk, space for vendors as well as parallel parking

Flexible Zone as Parking
Flexible zone acts as space for angled parking

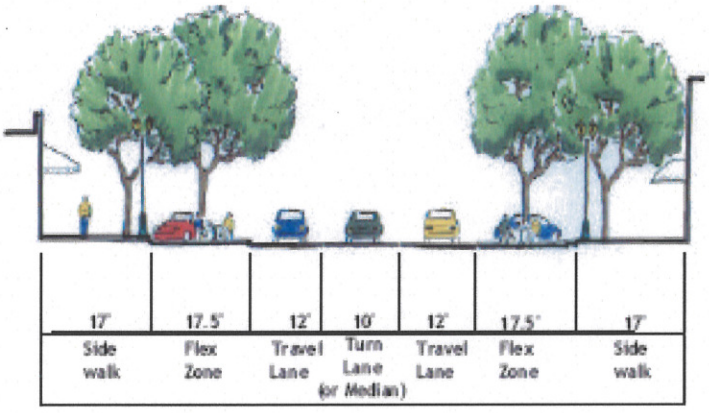
FIGURE 7-5: FIRST STREET - DESIGN CONCEPT



DOWNTOWN CORE



Proposed Section DD' (typical)



Proposed Section EE' (typical)

GURE 7-6: FIRST STREET - DESIGN CONCEPT

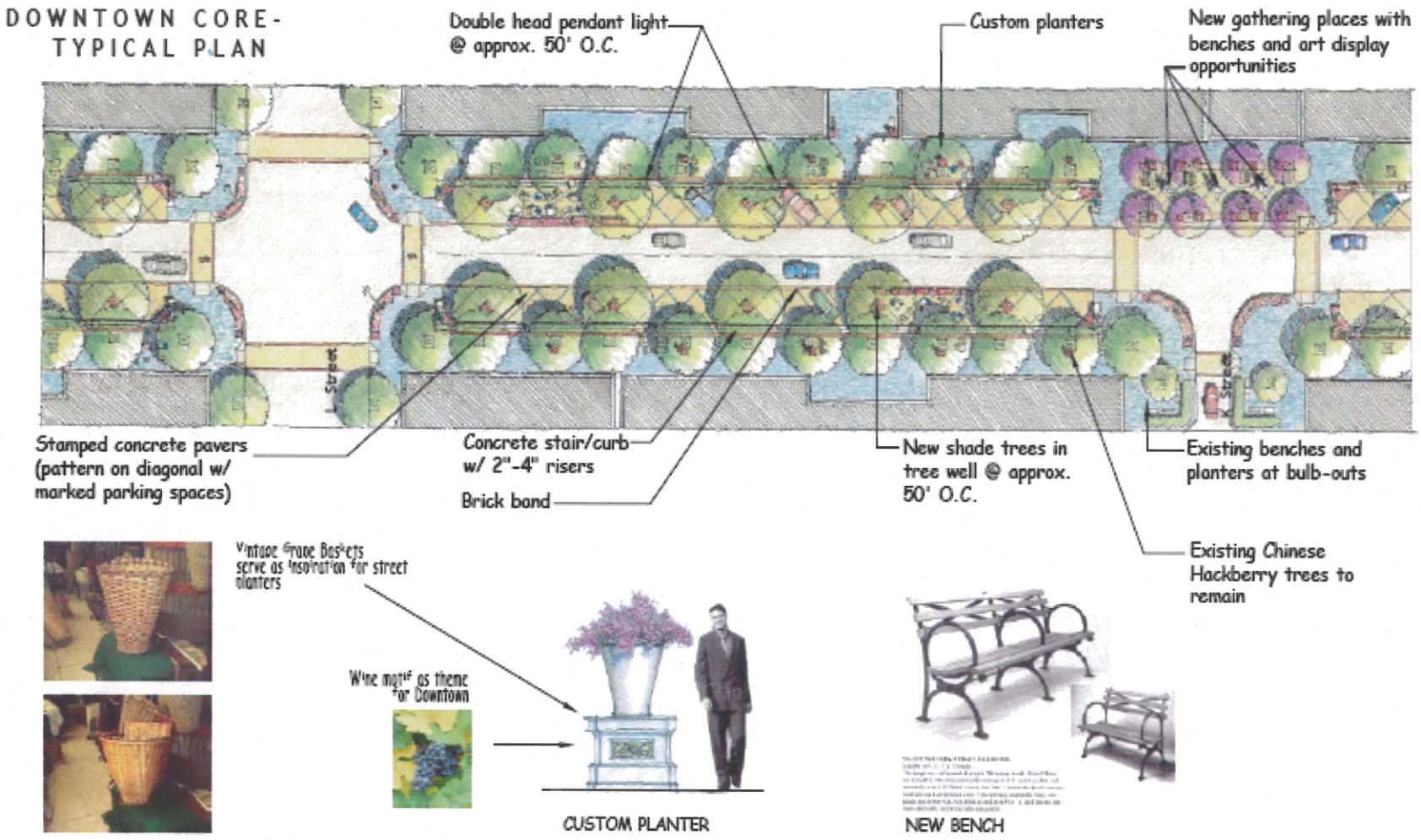


FIGURE 7-7: FIRST STREET - DESIGN CONCEPT

- Walks- Existing widths of sidewalks will be maintained. West of Livermore Avenue, sidewalks should maintain the existing width of approximately seventeen (17) feet. East of Livermore Avenue, sidewalks should maintain the existing width of approximately fifteen (15) feet. Sidewalk paving shall continue the use of the existing bluestone pavers, and extend the bluestone pavers on all sidewalks surfaces between M and Maple Streets.

- Street Trees -Along the public sidewalk, existing shade trees (Celtis Sinensus- Chinese hackberry) will remain. New shade trees with broad canopies shall be planted within the "flexible zone" at approximately fifty (50) feet on center. The minimum installed size of new street trees shall be a twenty-four (24) inch box size. Cast metal tree grates shall be used in the Downtown Core. Tree guards and grates shall be specified by the City for streetscape continuity.

- Street Lights- New pedestrian-scale light fixtures shall be installed to illuminate both the sidewalk area and the "flexible zone", at a spacing of approximately fifty (50) feet on center along the public right-of-way within the stair curb. Luminaires shall be approximately fifteen (15) feet in height.

- Street Furniture- Street furniture selections shall be made in coordination with the existing elements of the Downtown; recommended examples of benches and planter options are shown on page 14.

First Street Improvements at the Intersection of First Street/Livermore Avenue

Another key streetscape improvement in the Downtown Core is the improvement of the intersection at First Street/Livermore Avenue. Currently, the east and west sides of First Street are divided by Livermore Avenue which functions somewhat as a barrier in Downtown. Because of the great width of this crossing and the amount of traffic that is carried by it, crossing the street is perceived as difficult and hazardous, inhibiting movement between the two sides of First Street. This intersection is the linchpin of the Downtown Core. If the Core is to become a unified district across Livermore Avenue, these problems will have to be remedied.

Recommendations to modify the intersection are aimed at reducing both perceived and actual crossing distance for pedestrians. The Downtown Core will straddle both sides of Livermore Avenue along First Street, and it is imperative to Downtown's success that this crossing is made as easy and pleasant as possible. In order to reallocate street right-of-way width to pedestrian use, traffic will be reduced to one lane in each direction along both First Street and

FIGURE 7-8: FIRST STREET/ LIVERMORE INTERSECTION

Livermore Avenue, with an additional center turning lane provided on each street corridor within the Downtown Core. This will reduce curb-to-curb widths from approximately sixty-five feet across Livermore Avenue (and up to seventy feet across First Street) to a much more manageable thirty-four feet across. As a part of this improvement, the right turn lane on eastbound First Street that currently allows turning movement onto Livermore Avenue should also be closed. This will free up the space in front of the Masonic Temple and Schenone Building, one that historically belonged to the community for public purposes. The recommendation for an Intersection Plaza at this space is further described in Chapter 10: Implementation; as a part of the section devoted to Public Open Space.

First Street Improvements in the Downtown Boulevard Gateway (West of M Street)

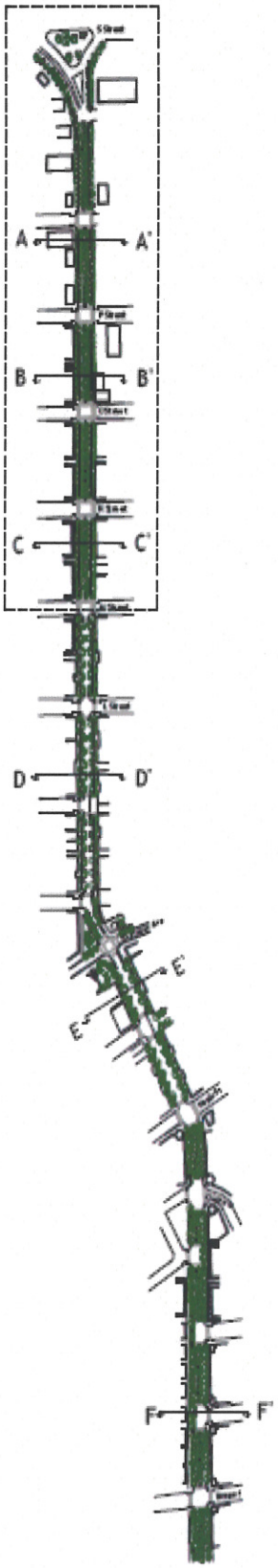
Street improvements will focus on the creation of a Gateway Boulevard leading towards the City's center in the Downtown Core and to support an environment for desired development. In this case, this would be a mix of uses including residential, office, lodging and support commercial uses. Large, round-headed deciduous shade trees will line the center median and the sides of the road. Roadside trees will be planted in the required planting strip. The design concept for this streetscape strategy occurs within the existing right-of-way as shown in section on Figure 7-9, page 18. The standards for the street are as follows:

- Travel Lanes- East of P Street, one twelve (12) foot travel lane must be provided in each direction; with a ten (10) foot turn lane at major intersections. West of P Street, two twelve (12) foot travel lanes must be provided in each direction.

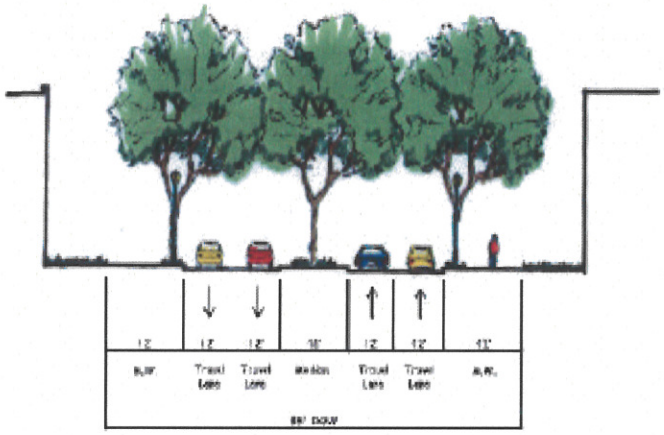
- Corner Curb Return Radius- Twenty (20) feet minimum, to be determined based on street geometry and fire department requirements.

- Median- A landscaped median that ranges from sixteen (16) to twenty-four (24) feet must be provided, depending on existing right-of-way. West of P Street, median will be sixteen (16) feet wide (based on an existing 88 foot right-of-way); from P Street to N Street, median will be twenty-four (24) feet wide (based on an existing 93 foot right-of-way), with appropriate transitions between each section.

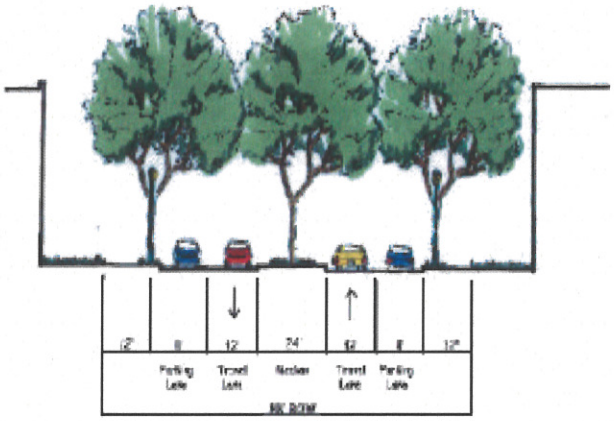
- On-Street Parking- East of P Street, parallel on-street parking will be provided. West of P Street, no on-street parking is required.



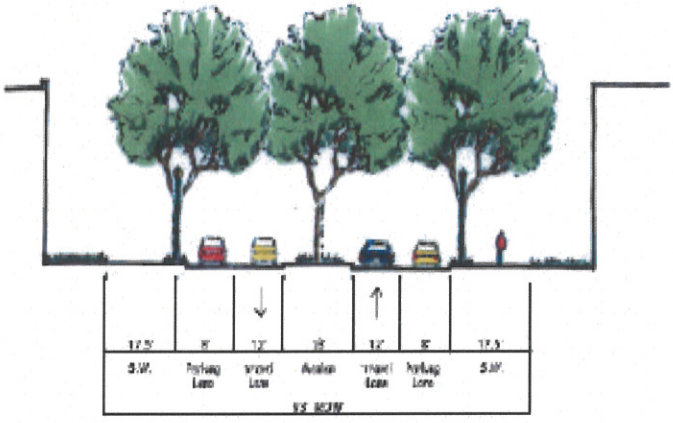
DOWNTOWN BOULEVARD GATEWAY



Proposed Section A-A' (typical)



Proposed Section B-B' (typical)



Proposed Section C-C' (typical)

FIGURE 7-9: FIRST STREET - DESIGN CONCEPT

- Walks -A minimum eight (8) foot wide level sidewalk must be provided and should be separated from the curb by a minimum four (4) foot planting strip.

- Street Trees – Large canopy trees shall be planted at a spacing of approximately twenty-five (25) feet on center within the planting strip. Within the median, canopy trees shall be aligned with the sidewalk trees and planted at a spacing of approximately twenty-five (25) feet on center within the median. The minimum installed size of new street trees shall be a twenty-four (24) inch box size.

- Street Lights- Pedestrian-scale decorative street lights, re-used from the Downtown Core or matching those lights in character and design, shall be installed in accordance with City Engineering "Standard Specifications" – see City Standard Detail ST-14C.Lights should be installed at a spacing of seventy (70) feet on center along the public right-of-way within the planting strip. Luminaires must be approximately fifteen (15) feet in height.

First Street Improvements in the Downtown Transit Gateway (East of Maple Street)

Street types should support the type of development on private properties that front upon them. Because of the width of First Street and the amount of daily traffic it carries, residential housing will need to be carefully planned to front on this street. However, carefully thought-out and implemented streetscape solutions can transform First Street into a desirable residential location. Whether these improvements to the street configuration are delivered incrementally by property developers or all at once by the City, they are fundamentally necessary to transform the roadway into a grand boulevard that can support a mix of uses and be an appropriate entryway to the City's heart.

To the east of the Downtown Core, east of Maple Street, improvements will focus on the creation of a residential boulevard character, to support the primarily residential uses envisioned for this segment of First Street. Large round-headed deciduous shade trees will line the center median. Along the side of the road, trees will be planted in the parking lane to reduce the apparent width of the roadway and to buffer pedestrians on sidewalks from moving vehicles. Planting strips will further separate pedestrians moving throughout the neighborhood from the traffic of the street. Additional street elements such as streetlights and furniture will serve to enclose the pedestrian realm, making it feel more intimately scaled. The design concept for this streetscape strategy occurs within the existing right-of-way; they are shown in section on Figure 7-10, page 20.

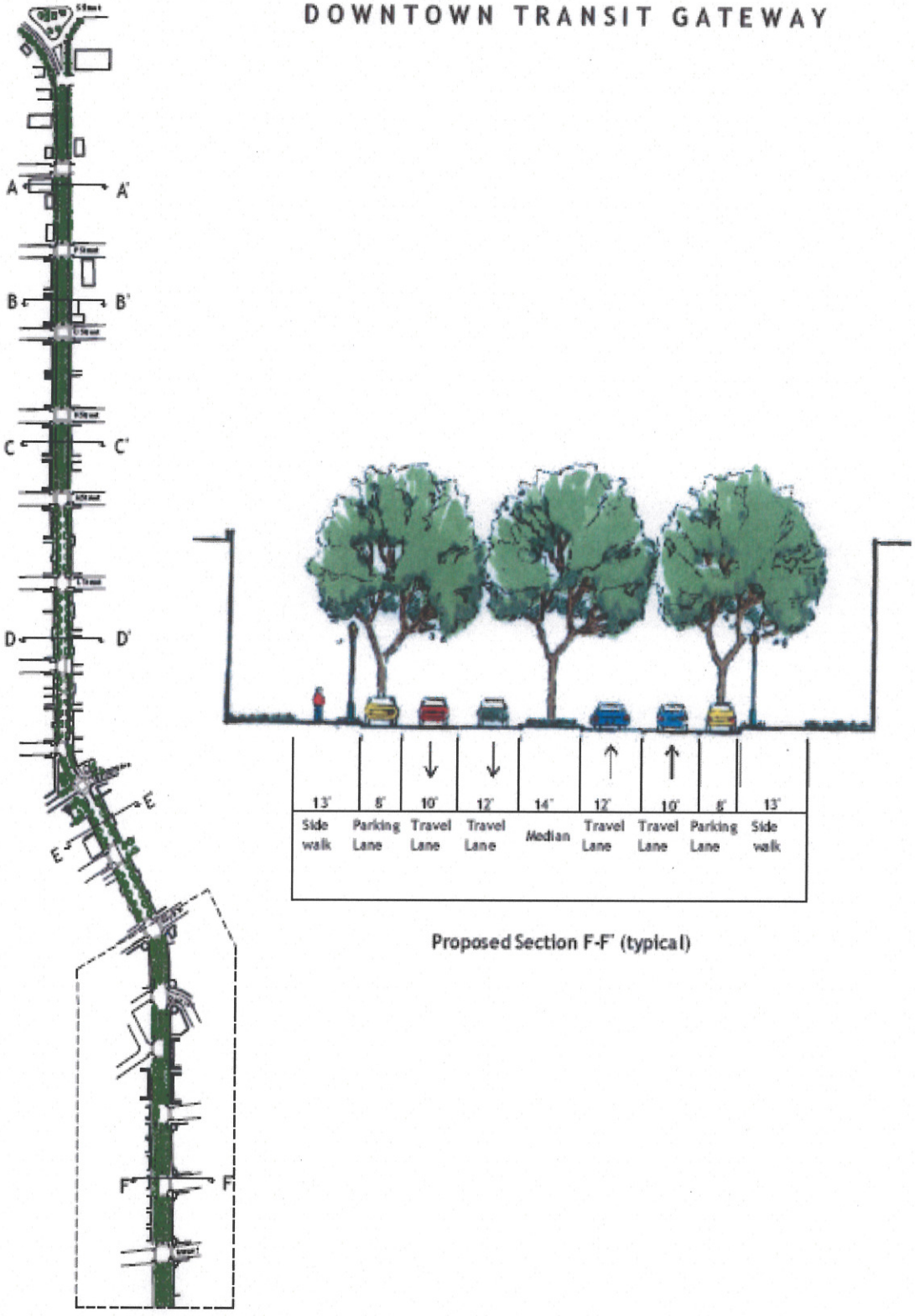


FIGURE 7-10: FIRST STREET - DESIGN CONCEPT

- Travel Lanes- One twelve (12) foot travel lane and one ten (10) foot travel lane will be provided in each direction with a twelve (12) foot turn lane at major intersections.

- Corner Curb Return Radius- Twenty (20) feet minimum, to be determined based on street geometry and fire department requirements.

- Median- A fourteen (14) foot wide landscaped median will be provided from Maple to Inman Street.

- On-Street Parking- Parallel on-street parking must be provided.

- Walks- An eight (8) to nine (9) foot wide sidewalk must be provided, separated from the curb by a minimum four (4) foot planting strip.

- Street Trees- Canopy trees shall be planted at a spacing of approximately twenty-five (25) feet on center within the parking lane. Within the median, trees shall be aligned with the parking lane trees and planted at a spacing of approximately twenty-five (25) feet on center. The minimum installed size of new street trees shall be a twenty-four (24) inch box size. Cast metal tree wells and tree guards shall be specified by the City for streetscape continuity.

- Street Lights- Pedestrian-scale decorative street lights, re-used from the Downtown Core or matching those lights in character and design, shall be installed in accordance with City Engineering "Standard Specifications"- see City Standard Detail ST-14C. Lights should be installed at a spacing of seventy (70) feet on center along the public right-of-way within the planting strip. Luminaires must be approximately fifteen (15) feet in height.

Improvements to Other Downtown Streets

As the Downtown revitalizes and becomes more of a draw for the City and for the region, several improvements should be made to ensure the streets of Downtown play an effective role in the overall street network of the City. Recommended improvements include:

- Consider realigning Railroad Avenue to intersect First Street at Old First Street in conjunction with major redevelopment activities, as shown on Figure 7-4, on page 8. These improvements will help promote pedestrian activity as the primary mode of travel on First Street within the Downtown, as well as improve traffic operations along Railroad Avenue in the Transit Gateway. The realignment will also create greater visibility and identity to the Downtown Transit Center and will create additional opportunity sites for First Street fronting mixed-use redevelopment near the intersection of First and Maple Streets. Sight lines should be taken into account in evaluating the realignment's effect on the visual character of the entryway into the Downtown. Planning Commission review and approval of the final design is required.

- Explore the feasibility of additional intersection improvements along Livermore Avenue, L Street, Railroad Avenue and Fourth Street in conjunction with major redevelopment activities that would balance vehicular traffic needs with Downtown pedestrian goals.

- Develop a Traffic System Management Program for the Downtown that may include trip reduction strategies, including transit, bicycle, and pedestrian system enhancements.

- Increase capacity and/or enhance traffic flow and minimize vehicle delay on parallel routes to First Street, primarily Railroad Avenue and Fourth Street, but also include improvements to Second Street and Chestnut Avenue as proposed in Table 7-1, page 24, and outlined in Figure 7-11, page 26.

- Enhance north/south roadways leading to Downtown, including consideration of a grade separation of the railroad at-grade crossing on L Street if frequent rail service significantly disrupts traffic flow.

- Enhance east/west circulation via improvements along First Street on the east side of Downtown and along Holmes Street west of Downtown. These improvements will facilitate traffic flow from First Street and Holmes Street to Railroad Avenue and Fourth Street.

- Add/modify traffic signals to facilitate the new traffic movements. This will be primarily on the east and west sides of Downtown where traffic movements are to be shifted from First Street to Railroad Avenue and Fourth Street.

As traffic is diverted from First Street, some of these trips will be diverted to nearby alternatives such as Fourth Street and Railroad Avenue. To ensure livability for those who live along these thoroughfares, the City should make efforts to improve these streets and enhance the buffering of homes from the impact of street traffic. Recommendations include dense plantings of street trees to increase the buffer between the buildings and the road.

Improvements to existing streets will be made as development occurs and as conditions require. Proposed changes will affect Railroad Avenue (Maple to Stanley), Third Street (east of M Street), Second Street (east of L Street), Fourth Street, Livermore Avenue at Railroad, and Livermore Avenue at First Street. Improvements to these Downtown City Streets, including the number of total travel lanes; right-of-way widths; travel way conditions including shoulders, on-street parking, bike lanes, lane dimensions and total travel way width; and requirements for a median or turn lane; are shown on Table 7-1, page 24.

Table 7-1
Improvements to Existing Streets

Street	Travel Lanes	Right-of-Way	Travel Way						Median/ Turn Lane
			Shoulder	Parking	Bike Lane	Lane 1	Lane 2	Total	
Railroad Avenue (Maple to Stanley)	4	104' (not Existing)	none	8' (adjacent to Residential)	none	14'	12'	34' median curb To curb	16'
Chestnut Avenue (Junction to P Street)	2	76'	none	8' parallel	5' striped	10'	10'	56' *fie* to *fie*	10'
Third Street (East of M Street)	2	80' existing	none	8' parallel	6' striped	14'	N/A	56' *fie* to *fie*	N/A
Second Street (East of L Street)	2	80' existing		14' diagonal		14'	N/A	56' *fie* to *fie*	N/A
Fourth Street	4	80'	none	8' parallel	none	10'	10'	56' *fie* to *fie*	possible *
Livermore Avenue (at Railroad Avenue)	4	TBD	TBD	not at intersection	TBD	14'	12'	36' median curb To curb	16'
Livermore Avenue (at First Street)	2	44'	none	not at intersection	none	12'	N/A	34' *fie* to *fie*	10'
Downtown Midblock Internal Streets ** ***	2	34' *w/o* Parking	none	8' as necessary each side	none	12'	N/A	24' *fie* to *fie*	N/A
Extensions of Letter Streets (North to South)	2	60'	none	8'	none	12'	N/A	40' *fie* to *fie*	N/A

* A median may be required in the future- parking may need to be eliminated at certain intersections

** Building setbacks can be less along these internal streets – possibly even zero (0) feet

*** See Standard Detail for more specifics

Key roadway and intersection improvements are as follows, and shown on Figure 7-11, page 26:

- First Street/Inman Street and Fourth Street/Inman Street- Modify and improve this intersection pair to better facilitate traffic flow from First Street to Fourth Street on the periphery of Downtown. At this location, additional capacity can be provided to help reroute some incoming traffic from First Street toward alternative routes, including Fourth Street. The concept is to eliminate on-street parking and restripe Inman Street to provide additional lanes, and provide traffic signals as required to allow for the easy movement of vehicles to Fourth Street. It is important to note that the decision to install a traffic signal depends on the analysis of traffic signal warrants per Caltrans guidelines, as well as the engineering judgment of the City. Therefore, the conceptual recommendation to install a traffic signal must be verified as Downtown develops and traffic patterns change, based on updated traffic studies and counts.

- First Street/Railroad Avenue/Maple Street- This is perhaps the most critical intersection to facilitate the likely redistribution of traffic due to the Specific Plan changes along First Street. Additional capacity for turning traffic must be provided at this location to allow vehicles to access both Railroad Avenue and Fourth Street (via Maple Street). Key short-term enhancements include adding a westbound left turn lane to allow left turn movements from First Street to Maple Street, providing a dual westbound right turn lane from First Street to Railroad Avenue, and modifying signal operations to reflect the revised traffic demand patterns. A long-term enhancement would be to realign Railroad Avenue to intersect First Street at Old First Street (as shown on Figure 7-4, on page 8) to improve traffic operations along Railroad Avenue and First Street.

- Railroad Avenue – Railroad Avenue will become a critical route in Downtown and will be expected to experience increased traffic flow as a result of growth and changes to First Street. Railroad Avenue is therefore recommended to be improved to provide two (2) through lanes in each direction from First Street westward to where there are currently four (4) through lanes. This will require intersection and mid-block modifications including restriping, removal of raised median islands, parking prohibitions and traffic signal modifications. Concept designs are included in the appendix to this report, which show the locations of those modifications to achieve the four (4) through-lane configuration. As redevelopment occurs along Railroad Avenue, move the curb to provide on-street parallel parking and four (4) through lanes.

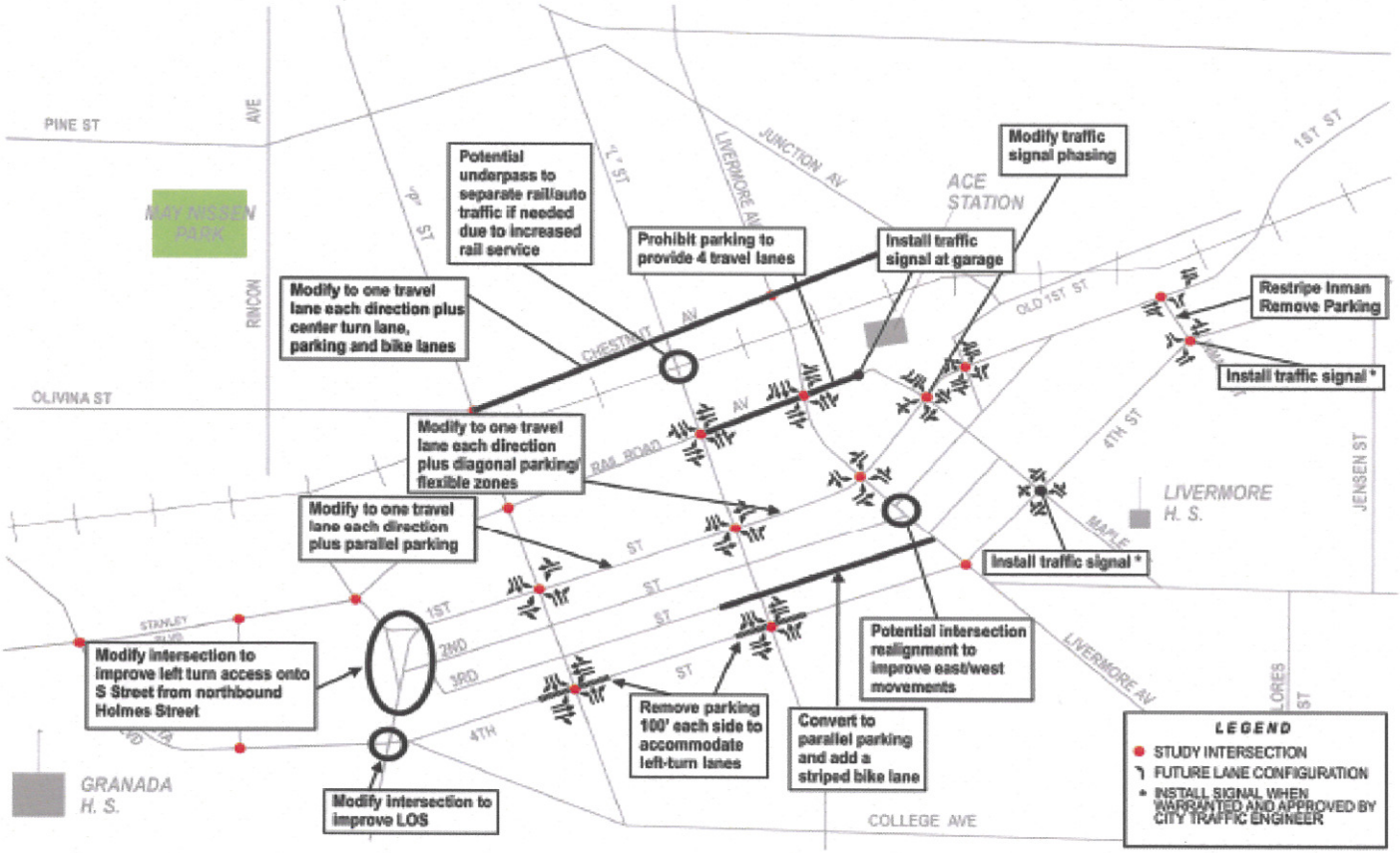


FIGURE 7-11: FUTURE PROPOSED LANE CONFIGURATION AND IMPROVEMENTS

- Fourth Street- Fourth Street currently has four (4) through lanes in Downtown, however, there are no separate left turn lanes at the key intersections of P and L Streets. With increased traffic demand on Fourth Street and potentially increased turning movements,separate left turn lanes will be required to facilitate east/west through traffic movements without blockage by left turning vehicles. This will require removal of on-street parking on Fourth Street neat the intersections at L Street and at P Street.

- First Street/Second Street- Second Street has one lane in each direction and diagonal parking in some parts of Downtown;and it provides a logical connection to First Street east of Downtown. An impediment to the use of Second Street as an alternative route is the skewed intersection at Second Street/Livermore Avenue. Realignment and possible signalization of this intersection would facilitate easier east/west traffic movements and make Second Street a more attractive east/west alternative to First Street. This would be a longer-term improvement.

- L Street at railroad crossing -The existing at-grade rail crossing on L Street south of Chestnut Avenue provides an impediment to the future use of L Street as an alternative north/south entrance/exit for Downtown. Grade separation of this crossing should be considered for implementation as development occurs and traffic volumes increase along L Street combined with significant increase in rail traffic.

- Holmes Street/Fourth Street- This intersection should be modified to extend the northbound right-turn lane to Fourth Street and to provide for (4) east/west through lanes through the intersection.

- Holmes Street/First Street/S Street- This intersection should be modified to improve left turn access onto S Street from northbound Holmes Street by providing dual northbound left turn lanes onto S Street from Holmes Street.

New Downtown Streets shall be provided with new development, as required by the maximum block sizes specified in the Development Standards for each Plan Area. Generally, there will by two types of new residential streets Downtown: new streets extending north/south and alleys (generally extending east/west). The new Downtown north/south streets will, most likely, be extensions of existing lettered streets. New residential streets within the Downtown Study Area should be designed as outlined below:

New North/South Downtown Streets

- Rights-of-Way- Right-of-way widths shall be sixty (60) feet.
- Curb-to-Curb- Curb-to-curb widths shall be forty (40) feet.
- Travel Lanes- One twelve (12) foot travel lane must be provided in each direction.
- Corner Curb Return Radius- Twenty (20) feet minimum, to be determined based on street geometry and Fire Department requirements.
- On-street Parking - Parallel on-street parking shall be provided.
- Walks- A minimum five (5) foot wide level sidewalk must be provided and should be separated from the curb by a minimum five (5) foot planting strip.
- Street Trees- Shade trees at a minimum spacing of fifty (50) feet on center within required curbside planting strip. Street tree selections must conform to those designated for particular City streets in the City of Livermore Street Tree Plan.
- Street Lights – Pedestrian-scale lighting shall be installed at a spacing of fifty (50) to eighty (80) feet on center along the public right-of-way. Luminaires must be approximately twelve (12) to fifteen (15) feet in height. All street furniture and lighting selections must conform to those designated by the City.

New Alleys (generally east/west streets)

Alleys should be used to provide access to parking lots, structures, and residential garages. New alleys shall be dedicated to the public and may be designed as one- or two-way streets, as follows:

- Rights-of-Way- Right-of-way widths shall be twenty-six (26) feet for one-way streets,and thirty-four (34) feet for two-way streets. This assumes no parking either side.

- Curb-to-Curb- Curb-to-curb widths shall be sixteen (16) feet for one-way streets, and twenty-four (24) feet for two-way streets. This assumes no parking either side.

- Travel Lanes- One twelve (12) foot travel lane must be provided in each direction.

- Corner Curb Return Radius- Twenty (20) feet minimum, to be determined based on street geometry and Fire Department requirements.

- Street Trees -The edge of the alley must be planted or landscaped with groundcover and low shrubs where possible. Adjacent to residential properties, trees are encouraged.

- Parking -Allowed with an additional eight (8) feet of right-of-way and paved width per side.

- Street Lights- Street lights comparable with those required on public rights-of-way must be provided, at a minimum of every one hundred (100) feet on center. Lighting fixtures may be freestanding or may be attached to garage structures.

The east-west street through the Lucky's site should have one approximately eleven (11) foot travel lane in each direction with diagonal parking on the north side of the street. Trees shall be planted between the diagonal parking stalls at a minimum frequency of one tree every four stalls.

Pedestrian Connections/Open Space

The Downtown Core is intended to be a center for the community, a kind of "living room" for Livermore. It should be accessible to the whole community, from all modes of transportation, including pedestrian movement, cycling, public transit and private automobile.

The pedestrian realm is a critical element of this accessibility. The sidewalks and streets of Downtown make up the public domain of Downtown, welcoming pedestrians to the center of their City. Downtown should offer a pedestrian-friendly environment with streets that are safe, welcoming, and pleasant to walk along. People should be able to move throughout the City center, from destination to destination, freely and easily. The pedestrian realm should be

continuous throughout Downtown's heart of the City, providing connections that are clearly marked, along clearly defined sidewalks and pathways with adequate lighting.

The pedestrian realm should be connected to all major destination points in the Downtown, including transit nodes, civic buildings and major entertainment facilities. It should connect to the existing and newly created open spaces of the Downtown, to create an overall pedestrian zone made up of streets, sidewalks, public pathways and parks (the diagram of this planned network is shown on the Open Space and Access diagram on page 14 in Chapter 4).

Key actions to improve the pedestrian realm of Downtown include:

- Expand the pedestrian realm in the Downtown Core along First Street by creating a "flexible zone" as described above in First Street Improvements in the Downtown Core. Make the sidewalks of First Street a wonderful environment for pedestrian activity of all kinds, with more shade trees and seating; pocket plazas to stop, rest and gather; outdoor areas for eating; and public places for art and special events.

- Provide pedestrian connections at a minimum of every 400 feet. Standards for development (see Development Standards for the appropriate Plan Area) require that new development match the typical block increment of 300 by 200 feet, or no greater than a maximum of 400 x 300 feet, where feasible. Where unique site constraints prevent this, blocks may be required to be subdivided by pedestrian pathways.

- Maximize connections to and from major destinations such as the Livermore Valley Center, the Downtown retail core, and the new Cineplex to Downtown transit facilities by providing clear pedestrian ways.

Bikeway and Trail Network

In 2001, the City of Livermore adopted a master plan for bikeways and trails which outlines a comprehensive network of existing and proposed Class 1, Multi-Use Trails, Class II, Bike Lanes, and Class III, Bike Routes throughout the City, including the Downtown.

Class 1 facilities are trails that have a completely separated right-of-way exclusively for bicycles and pedestrians and with cross-flow minimized. Class II facilities are striped lanes for one-way bike travel on a street or highway. Class III facilities are typical signed routes, which are for shared use with pedestrian or motor vehicle traffic.

An overall goal for the Community outlined within the master plan for bikeways and trails is the "development of a comprehensive bikeway and trail system as a viable alternative to the automobile for all trip purposes..."

Specific policies and actions included within the master plan directly pertaining to the Downtown include:

- Solicit public input, especially from downtown merchants and business owners, prior to constructing bikeway and pedestrian facilities in the Downtown area.

- Provide connections to the proposed bike and trail system from all existing and future transit facilities, stations and terminals in Livermore.

Proposed Regional Multi-Use Trail, Class I

The City's 2001 master plan for bikeways and trails incorporated a proposed multi-use trail, the Iron Horse Trail. This is a proposed County Regional trail extending from the boundary of Livermore/Pleasanton to the San Joaquin County Line. The trail is also included on the East Bay Regional Park District's (EBRPD) 1997 Master Trail Plan. EBRPD is proposing to extend the trail from the existing Stanley Boulevard trail east t along the railroad right-of-way through Downtown Livermore. While the County owns much of the right-of-way for this trail elsewhere in the City, it does not own the right-of-way through Downtown Livermore.

This trail, when complete, will provide an important regional and local connection from the outskirts of and through the Downtown to residential, cultural and open space uses. It will also provide a connection to existing and future transit facilities in the Downtown. Construction of the trail should be consistent with the specifications found in the Livermore Iron Horse Trail Feasibility Study prepared in 2009.

Existing Bike Lanes, Class II

As of 2002, there are on-street bike lanes within the Downtown Project Area on Maple Street (from East Avenue to Third Street), on Third Street (from South Livermore Avenue to Maple Street and from R Street to M Street), on Church Street (from Fourth Street to Second Street), and on First Street extending out of the Downtown Project Area from Inman Street east. As of 2002,there were no existing signed bike routes or bike lanes connecting the west side to the east side through the Downtown Core Area.

Proposed Bike Lanes, Class II

The General Plan proposes to connect the segments of the bike lane on Third Street (from M Street east to South Livermore Avenue), provide bike lanes on P Street (from College Avenue north through the project area to Pine Street), and on the perimeter of the project area on Chestnut Street (from Rincon east to Junction Avenue.

Proposed Bike Routes, Class III

The General Plan also proposes providing bike routes on First Street from Holmes Street, west of Downtown, continuing north through the Downtown and ultimately connecting on the east end with the existing bike lanes starting at Inman Street. Additional bike routes are planned for Railroad Avenue from Murrieta Boulevard to Maple Street and on L Street, from Chestnut Street to Fifth Street (see attached Figure 7-12, on page 33, for Existing and Proposed Bikeways and Trails in the Downtown Project Area).

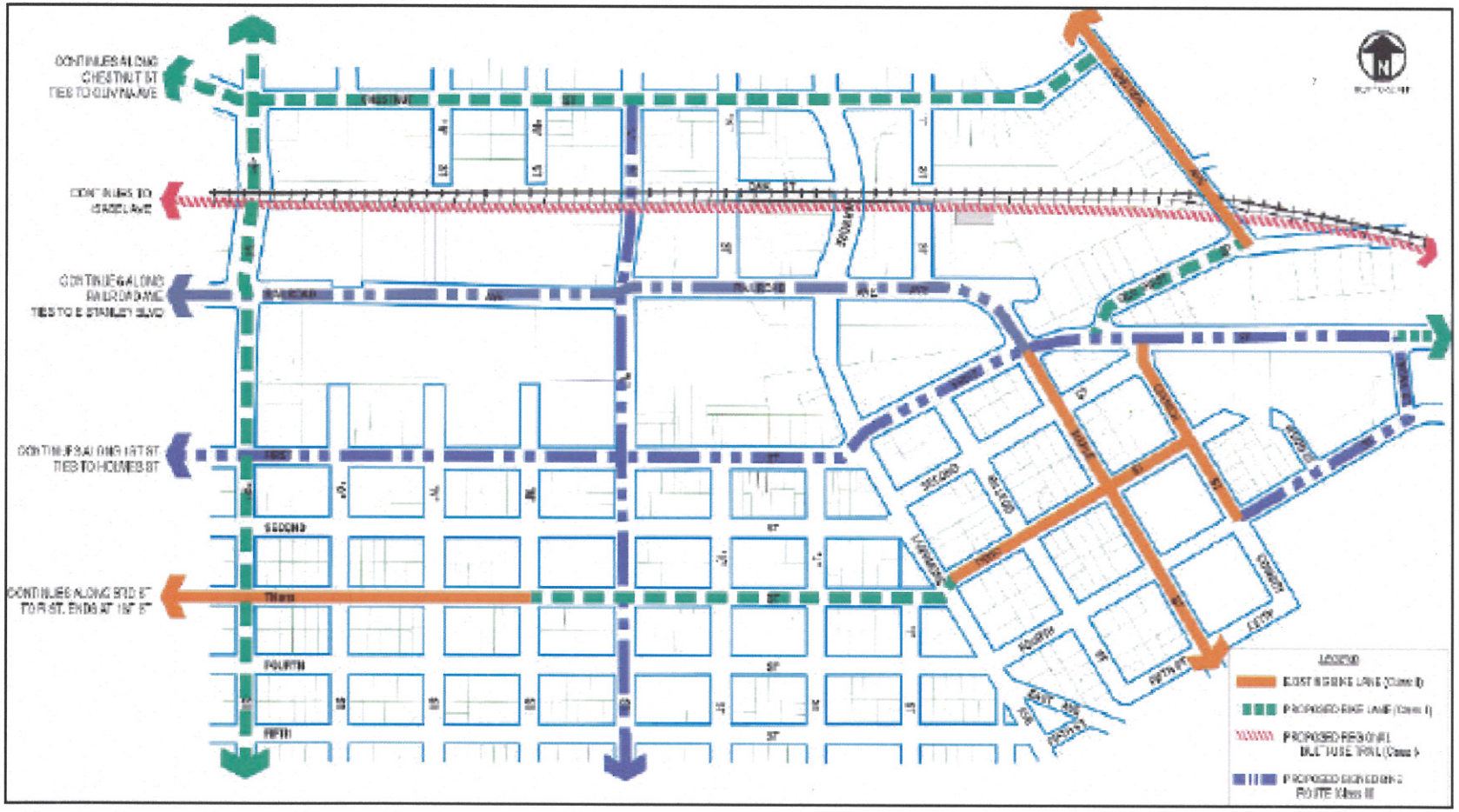


FIGURE 7-12: BIKEWAYS AND TRAILS

Truck/Goods Movement

Truck Routes

The large volume of through truck traffic in the Downtown is an obstacle to creating a pedestrian-friendly environment, primarily due to excessive noise, vibration and emissions. It is essential to the success of the Downtown revitalization effort to relocate through truck traffic to other roadways outside of the Downtown.

The City's Municipal Code designates certain roadways as truck routes for through truck movements. These routes are: Holmes Street, First Street, East Stanley Boulevard, North Livermore Avenue and South Livermore Avenue,as far south as First Street, within the corporate limits of the city. On these routes, trucks over three tons may legally travel even if they do not have a trip origin or destination along that route. On all other streets, trucks may only travel on them if they are on a direct route between a truck route and the truck's origin or destination. In addition, First Street, Holmes Street and Vallecitos Road are designated as State truck routes, because these roadways are part of State Route 84.

The 2003 General Plan includes a circulation objective to support and plan for the transfer of State Route 84 from First Street, Holmes Street, and Vallecitos Road to the Isabel Corridor (Isabel Avenue and Kittyhawk Road). Once this transfer occurs, it is recommended that the City amend its Municipal Code to remove the truck route designation from First Street, Holmes Street and a portion of Vallecitos Road, and in their place designate Isabel Avenue, Kittyhawk Road and Airway Boulevard as truck routes and to prohibit through trucks from First Street within the Downtown Core Plan Area. The Municipal Code should also be amended to restrict truck deliveries, loading and unloading activities from First Street in the Downtown Core. The other truck routes leading to the Downtown, such as North Livermore Avenue and portions of South Livermore Avenue and Stanley Boulevard, should also be amended in the Municipal Code so they are no longer designated truck routes. The future success of the ongoing effort by the City and the State to transfer the State Route 84 designation to the Isabel Avenue corridor is crucial to removing the State truck route designation on First Street through Downtown Livermore.

Truck Deliveries

The City's Municipal Code combines with the posting of signs can regulate the hours and location from truck pickup and drop off of goods and material. Many businesses, particularly service-oriented businesses, rely on timely delivery of goods

in order to run their companies. Restrictions on large trucks may cause deliveries to be split into smaller trucks, which would add more traffic to the streets. It is recommended that the City consider an amendment to its Municipal Code that would restrict deliveries in areas that would impact traffic, while ensuring that alternative loading/unloading zones be made available for deliveries to the downtown area.

Rail Freight

Rail freight through Livermore is served by the Union Pacific railroad. The east-west route originates in Oakland and ties to two major north-south routes; one is the "Coast Line" that runs between Oakland and Los Angeles, and another, the "1-5 Corridor", that runs along the agricultural central valley and runs north into Oregon and Washington, and south to southern California.

Transit Systems

There are several transit services in the Livermore area. The Livermore Transit Center, located on Railroad Avenue near First Street, acts as a hub for many of the transit options. Opened in January 1998, the Transit Center serves as the major transfer point for local bus (Wheels), ACE trains, Amtrak Motor Coaches, and Greyhound buses. The transit services that operate within the City include:

Livermore Amador Valley Transit Authority (LAVTA)

The Livermore Amador Valley Transit Authority (LAVTA) operates the WHEELS service, which provides local public transit to the cities of Dublin, Livermore, and Pleasanton and to the adjacent unincorporated areas of Alameda County. The service area is approximately 40 square miles and is home to almost 160,000 residents. LAVTA was created in 1986 under a Joint Powers Agreement between the three cities and Alameda County. LAVTA provides a variety of transportation services including:

- Fixed Route- Provides local and intercity transit service for the Tri-Valley. The fixed-route service originates from two primary locations, the Dublin/Pleasanton BART Station and the Livermore Transit Center. The bus lines branch out from these locations and serve the local community. Service operates seven days per week, from approximately 4:30am to 12:30 am.

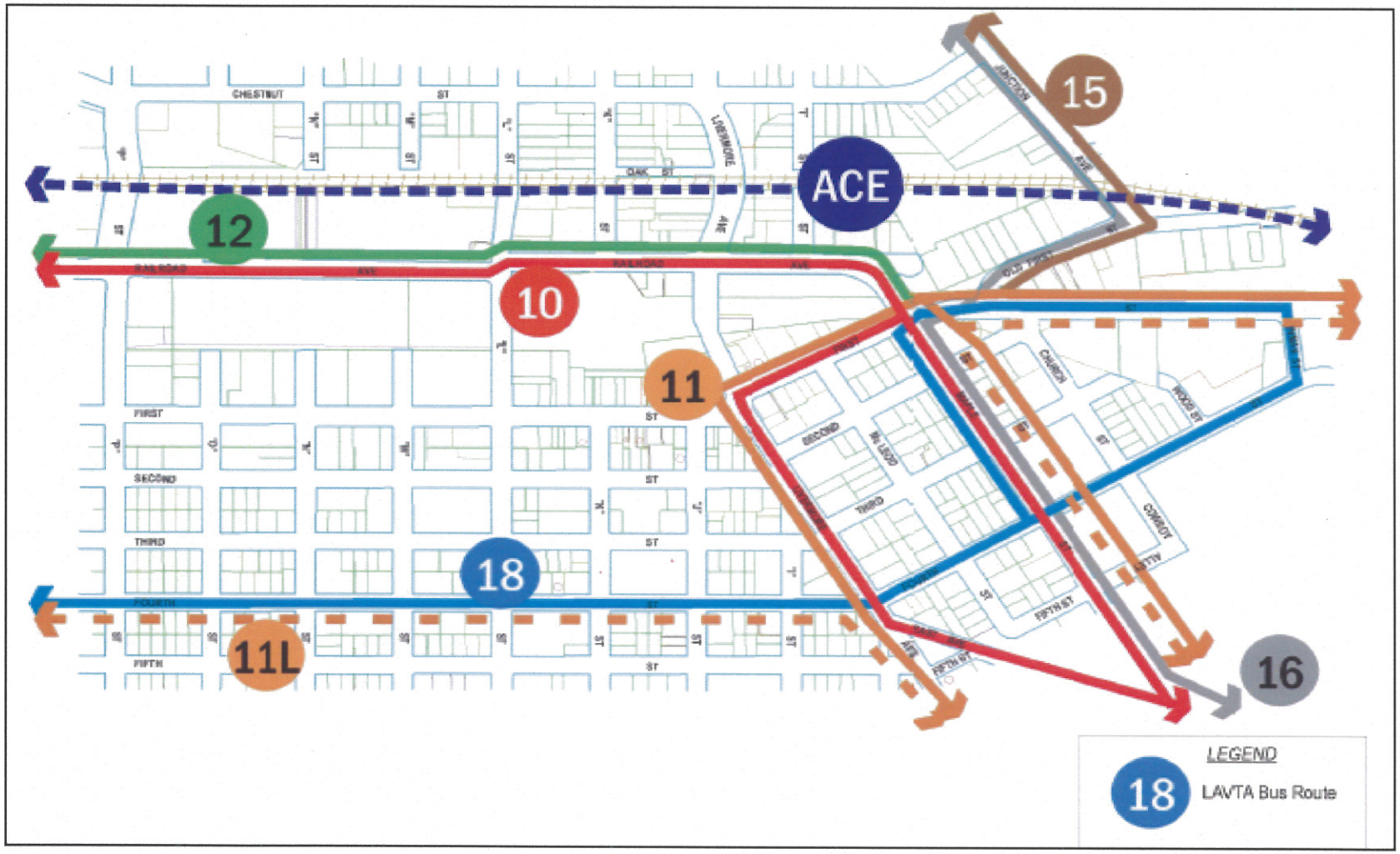


FIGURE 7-13: EXISTING TRANSIT ROUTES

Livermore Downtown Specific Plan

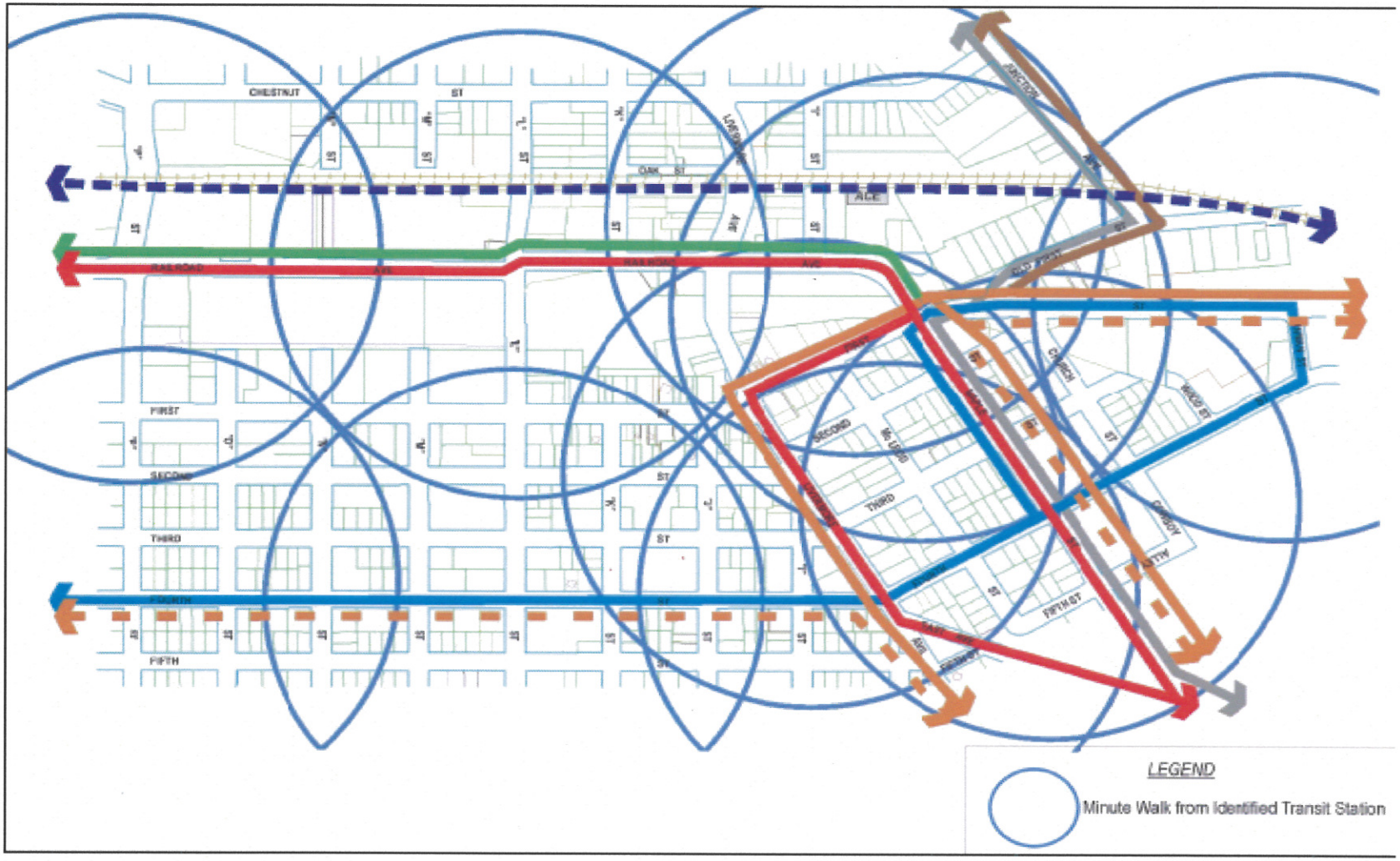


FIGURE 7-14: EXISTING TRANSIT COVERAGE

- DART (Direct Access Responsive Transit) – Provides service in limited areas of Livermore on Sundays. Limited service is available on holidays. DART buses use flexible or "flex routing" to extend local passenger pickup and drop off to areas not served by WHEELS. In general, "flex routing" allows DART buses to follow routes that are more direct and make fewer stops than fixed route buses.

- Dial-A-Ride – Wheels Dial-A-Ride provides all day paratransit service in Livermore, on both weekdays and weekends. Paratransit is a specialized transportation service for persons who are unable to independently use regular buses, streetcars, or BART, due to a disability or health related condition some or all of the time. Paratransit is provided by public transportation systems as part of the requirements of the Americans with Disabilities Act (ADA).

- Shuttles – Provide servicing to the ACE Rail and BART Stations and major employment centers. These shuttles are available weekdays only.

Altamont Commuter Express (ACE)

The ACE train provides commuter rail service between Stockton and San Jose with a stop in downtown Livermore. In 2003, Ace runs three weekday morning and evening trains.There are plans to expand ACE service to as many as five trains per day.

Future Passenger Rail Service

The City's General Plan has a policy to preserve a rail corridor through the downtown for potential use by a future passenger rail service. The Bay Area Rapid Transit District (BART) and the Alameda County Congestion Management Agency have been sponsoring the 1-580 Corridor/BART to Livermore study, which considers passenger rail service through Livermore, including a full BART extension. Alignment options being considered include, but are not limited to, the 1-580 median, and the Union Pacific rail corridor through downtown Livermore. Passenger rail service through downtown Livermore could have a positive impact to the Downtown revitalization effort by providing transit options for downtown residents, office employees, and retail customers. However, significant issues would need to be addressed such as noise and vibration impacts, station locations, traffic and parking impacts including the

potential need to provide grade separated crossings or enhanced grade crossing systems at L Street and at Junction Avenue.

Improvements and Modifications

Many transit connections can be made at the two main transit centers in the LAVTA system: the Livermore Transit Center and the Dublin/Pleasanton BART Station Transit Center. The Livermore Transit Center should remain the focus of transit activity in the Downtown Core. Future development adjacent and near to this center should ensure clear, easily accessible connections from all major destination points to transit.

As can be seen in Figure 7-13 on page 36, Transit Routes, the existing transit routing does not place buses on First Street west of Livermore Avenue, and instead uses Railroad Avenue and Fourth Street. The reduction of lanes on First Street and the addition of diagonal on-street parking would make First Street less desirable as a transit route. Analysis of the distance to transit stops within the Downtown area is shown on Figure 7-14 on page 37, Existing Transit Route Coverage. The routes are sufficiently close to cover all of Downtown within a two-block walk. Therefore, it is recommended that the existing transit pattern in Downtown continue on Railroad Avenue and Fourth Street.