

5 CIRCULATION ELEMENT

The purpose of the Circulation Element is to provide the policy framework for regulation and development of the transportation systems in Livermore. This Element balances the need to provide efficient ways to move people and goods from one place to another with the goals to revitalize the Downtown and to limit non-local cut-through traffic on City streets.

The Circulation Element must be correlated with the Land Use Element. As required by Government Code Section 65302(b), this Element contains information on the general location and extent of existing and proposed major thoroughfares, transportation routes, and terminals.

The Circulation Element in the City of Livermore is intended to do the following:

- ◆ Identify anticipated circulation needs through buildout of the General Plan as necessary to serve the City and its land uses;
- ◆ Indicate the general location and extent of existing and proposed circulation routes and facilities necessary to serve those needs;
- ◆ Provide clear policies and priorities for circulation system improvements for use by the City in preparing budgets for the Capital Improvement Program (CIP), and to determine the appropriate conditions for approval of future development proposals.

In addition, this Circulation Element has been formulated based on the following fundamental planning considerations:

- ◆ A city's circulation system is a principal determinant of its physical development pattern.
- ◆ The location, design, and component modes of a city's circulation system have significant implications for community appearance, air quality, noise, health, safety, vegetation, wildlife, and other environmental factors.
- ◆ Circulation element policies should relate adequately to the transportation system characteristics and plans of other jurisdictions in the region.
- ◆ A safe and efficient circulation system is necessary to support economic development, recreational opportunities, and quality of life in the community.

State law also requires that a Circulation Element contain data and policies related to the circulation of water, sewage, storm drainage, and other public utilities. These components are presented in the Infrastructure and Public Services Element.

A. Street Classifications

The City of Livermore is served by an existing network of freeways, highways, major roadways, collector streets and local streets. The City defines the highway/roadway system using the following classification system:

- ◆ Freeway
- ◆ Highway
- ◆ Major Street
- ◆ Collector Street
- ◆ Local Street
- ◆ Intercounty Route
- ◆ Special Rural Route

Roadway Classification Descriptions

Roadway classifications, as outlined above, are used to describe the function and character of streets and highways. Different types of streets are intended to handle different types of traffic. Traffic movements are channeled through a hierarchical system that progresses from a lower classification handling short, locally oriented trips to higher classifications that connect regional and inter-regional traffic generators, handling longer trips. The roadway classification system is used to generally describe the total volume of traffic on various types of roadways, as well as the trip length, trip type, local access (number and type of curb cuts and driveway access), posted speeds, parking, median type, traffic control and other characteristics. While the classification system describes the general functions of each type of roadway, there is often overlap between classifications for certain characteristics. For example, not every major street has the same number of curb cuts or carries the same traffic volume. In some cases, a lower classified street may even carry higher volume than a higher

classified street, but in the future it would be expected that the volume on the higher classified street will grow to meet the criteria for that street type. Similarly, the roadway classification system is designed to consider all user types including vehicles, pedestrians, bicyclists, persons with disabilities, motorists, movers of commercial goods, users and operators of public transportation, emergency responders, seniors, children, youth, and families. While the roadway system will not include exclusive element of all modes on every street, the system will work to balance needs and create safe and efficient travel through a comprehensive and integrated transportation network (Reso 2014-183). The paragraphs below describe the general characteristics of each of the street classifications in the City. However, the characteristics of some of the existing roadways within each classification may vary from the discussions below.

Freeways

Freeways are State-designated, high-speed, high-capacity routes (range of 50,000 to 250,000 vehicles per day) serving Statewide and interregional transportation needs. The only freeway in Livermore is I-580, which bisects the City as it traverses east-west through the northern portion of town. Direct access to the freeway is limited to the highway (State Route 84) and major streets, via freeway interchanges. No land uses adjacent to a freeway take access from it.

Highways

Highways are State-designated, relatively high-speed, high-capacity routes (range of 20,000 to 50,000 vehicles per day) serving needs for interregional through traffic movement and the interconnection of the Countywide road system. The only highway in Livermore is State Route (SR) 84. Highways also connect major streets with freeway interchanges. Direct access is limited to major streets via signal-controlled intersections. Access points to adjacent land uses, such as driveways, are prohibited, as is roadside parking.

Major Streets

Major streets are local medium-speed, high-capacity routes (ranging from 20,000 to 50,000 vehicles per day) for intracity, cross-town travel and local access to freeways, highways, and the subregional road system via interchanges and signal-controlled intersections. Major streets are typically four- to six-lane divided facilities. Major streets interconnect collector

and local streets at traffic signal and stop sign controlled intersections, respectively. These streets may include bike facilities and typically have sidewalks in each direction. Bus routes typically utilize major streets as a way to traverse through town with stops located at intersections with collector streets and near employment centers. Sidewalks with accessible ramps provide access for pedestrians of all abilities to traverse major streets and connect neighborhoods (Reso. 2014-183). The frequency of direct access to abutting properties is limited to essential driveway locations away from intersections to avoid interference with the through traffic flow of these streets. New single-family homes may not front on major streets. Roadside parking is generally prohibited.

Collectors

Collector streets are relatively low-speed, medium-capacity streets (ranging from 5,000 to 20,000 vehicles per day) that facilitate movement between local and major streets. Collector streets provide for multimodal circulation between neighborhoods, as well as divert through moving traffic from local streets. These streets typically include bike facilities and sidewalks in each direction which are used by local pedestrians and bicyclists for recreation purposes, to run errands, or to commute to/from school or work. Accessible ramps provide access for pedestrians of all ages and abilities to traverse collector streets and create an interconnected sidewalk network between neighborhoods. When there is a bus route on an adjacent major street, a bus stop is typically situated near the collector/major street intersection to allow for convenient neighborhood access (Reso. 2014-183). Direct vehicular access to abutting properties (driveway spacing) is sometimes limited. Prohibitions on curbside parking vary with roadway widths and traffic conditions. Typically, collector streets are two- to four-lanes wide.

Local Streets

Local streets are low-speed, low-capacity streets (up to 5,000 vehicles per day) that provide for multimodal circulation with direct access to abutting land uses. Local streets are typically two lanes wide with sidewalks in each direction. Due to the lower traffic speeds, local streets and sidewalks are used by people of all ages and abilities to walk or bike for recreation and are the start and end location of many pedestrian or bicyclist commutes to and from school or work. Accessible ramps provide access for pedestrians of all ages and abilities to traverse local streets within neighborhoods, and connect to sidewalks on collector streets (Reso.

2014-183). Street design standards and layouts are typically used to discourage cut-through traffic, avoid high travel speeds and amounts of traffic, and minimize neighborhood noise and safety impacts. Curbside parking is usually permitted.

Intercounty Routes

Intercounty routes are medium-speed, medium-capacity rural roads (up to 20,000 vehicles per day) on the City's urban edge that are components of the subregional road system. Generally, these routes are at Alameda County standards for two-lane rural routes and connect to Contra Costa or San Joaquin County roadways. These roads do not have curbs or gutters but typically include bicycle facilities used for commute and recreational purposes.

Special Rural Routes

Special rural routes include highways, major streets, and intercounty routes that pass through or by areas designated as having special rural features that warrant protection and enhancement measures in the roadway design. Special rural routes are designated entering and traveling through City-identified vineyard lands. These routes are to incorporate special road design standards that serve to protect and complement the "wine county" character of these lands, including width restrictions, landscaping features, and special signs. Special rural routes are developed at two-lane rural standards (no curbs, gutters, or sidewalks), but do include combined bike, pedestrian, and equestrian trails, which are typically separated from the roadway and provide commute and recreation opportunities.

To protect the rural and agricultural character of the vineyard lands south of the City, all roads in this area are to remain two lanes. These roads are designated to have two paved travel lanes with paved left turn lanes, where required. In developed portions of South Livermore where future traffic volumes may exceed the capacity of a two-lane road, additional right-of-way to accommodate roadway capacity expansion is required. This extra right-of-way area not used for the functional, two paved lanes are to be landscaped and/or used for hiking, biking and equestrian trails.

Isabel Neighborhood Roadway Network

The Isabel Neighborhood Specific Plan establishes roadway network and street types for the Isabel Neighborhood area generally located in the northwest area of the city, north and

south of I580 and between the Airway Boulevard and Isabel Avenue interchanges (see Figure 3-3 for boundaries). Refer to the Isabel Neighborhood Specific Plan for the roadway network, street types, and transportation improvements and policies.

B. Existing Conditions of the Circulation System in 2003

The City of Livermore plans for, designs, funds, constructs, operates, and maintains a safe and efficient transportation system for all users. This section discusses the current conditions related to all types of circulation (Reso. 2014-183).

Vehicular Circulation System

Livermore's existing roadway system is radial, with major streets, including Livermore Avenue, First Street, East Stanley Boulevard, Holmes Street, Murrieta Boulevard, and East Avenue converging in the Downtown. Roads Downtown follow a traditional grid pattern, but the Downtown and the "lettered" streets northwest of it are not oriented on a north-south axis. The major streets and collectors in other areas of the City are on north-south or east-west axis, so these streets intersect with the Downtown grid at a diagonal. Most local neighborhood streets are curvilinear.

Regional Routes

The main regional routes through Livermore are Interstate 580 (I-580) and State Route 84 (SR 84). I-580 connects the Bay Area with San Joaquin County and is a major inter-regional route for commuting, truck commerce, and recreational travel. I-580 currently experiences severe congestion during the morning and evening peak traffic hours. The peak commute hour varies for each roadway segment. Generally, however, the morning (AM) peak hour typically occurs between 7:00 to 9:00 a.m. depending on the roadway segment. Similarly, the evening (PM) peak hour typically occurs between 4:00 to 6:00 p.m. depending on the roadway segment. Within the City limits, I-580 carries an average daily traffic (ADT) volume of 165,000 to 220,000 vehicles, according to the Caltrans I-580 High Occupancy Vehicle (HOV) Project Study Report (PSR), dated June 2001.

SR 84 is a two- to six-lane State highway that connects I-580 in Livermore with I-680 in Sunol, located to the southwest of the City. In 2003, SR 84 followed Vallecitos Road and Holmes Street north to Downtown, then traveled through Downtown east on First Street to its intersection with I-580. However, the City was working with Caltrans to transfer SR 84 to the Isabel Avenue corridor and relinquish Holmes Street, First Street, and a portion of Vallecitos Road to the City. Isabel Avenue is classified as a Highway. The Isabel Avenue corridor has been identified for the relocation of SR 84 in City and State planning documents since 1960. The re-routing of SR 84 is intended to facilitate the State's plan for a four to six lane expressway along the Isabel Avenue corridor and the City's desire to remove non-local truck traffic from the City's Downtown, enabling the City to alter the nature of the streetscape in Downtown to further revitalization efforts and recapture Downtown as a vibrant, pedestrian-oriented environment.

Major Streets

In 2003, major streets (the entire street may be classified as major, or portions of the street may be another classification) included: Collier Canyon Road, Murrieta Boulevard, P Street, Vallecitos Road/Holmes Street, Livermore Avenue, Mines Road, Vasco Road, Springtown Boulevard, and Greenville Road, which provide north-south access through the City. In addition, North Canyons Parkway, Northfront Road, Jack London Boulevard, East Stanley Boulevard, Las Positas Road, Patterson Pass Road, First Street, Railroad Avenue, East Avenue, Altamont Pass Road, Portola Avenue, Fourth Street, Tesla Road and Concannon Boulevard are major streets providing east-west access. All other facilities are classified as Collector Streets, Intercounty Routes, Special Rural Routes, or local streets.

Non-Local Cut-Through Traffic

Cut-through traffic consists of trips that pass entirely through the City without stopping to patronize local businesses or job centers. Livermore experiences a significant amount of non-local, "cut-through" traffic on arterial roads because large numbers of commuters use City streets to bypass the traffic congestion on I-580. Cut-through traffic primarily occurs in response to freeway congestion and affects major east-west routes throughout the City. Cut-through traffic can occur on arterial streets and also on local and collector streets. When it occurs, it can also be accompanied by problems of excessive speeding.

Congestion on I-580 is predicted to worsen as cities east of the Altamont Pass continue to urbanize. City streets with noted cut-through traffic include Livermore Avenue, Concannon Boulevard, First Street, Vasco Road, Greenville Road, Stanley Boulevard, Isabel Avenue, Northfront Road, Sunflower Court, Bluebell Drive, Southfront Road, and Las Positas Road. Growth in regional commuting, combined with increases in congestion on regional freeways and highways, such as I-580, is anticipated to increase the amount of cut-through traffic in Livermore as motorists seek routes other than the freeway to make regional trips. This issue is discussed in more detail in this Circulation Element with respect to future improvements. There must be a balance between providing additional capacity on City streets, and the resulting increase in regional through traffic that will use those improved streets to bypass the freeway.

Neighborhood Traffic Calming

The City experiences problems of excessive speeds and traffic volumes on some residential, collector and local streets. To address the issue of excessive traffic and speeds on local and collector streets, the City adopted the “Neighborhood Traffic Calming Program” (NTCP) in March 2002. The purpose of the Neighborhood Traffic Calming Program is to improve the livability and quality of life within residential neighborhoods through the deployment of traffic calming devices. The goal of the NTCP is to implement measures identified by a consensus of the neighborhood to effect driver behavior in such a way that improves safety and the quality of life for residents, pedestrians, bicyclists and motorists. This is balanced with the goal to provide quick response times for emergency vehicles including fire trucks, police and ambulances. The NTCP was designed in compliance with the goals, policies and programs of the General Plan Circulation Element.

Level of Service

To measure and describe the operation of the roadway network, a grading system called Level of Service (LOS) is commonly used. The LOS grading system qualitatively characterizes motor vehicle traffic conditions during the AM and PM peak hours associated with varying levels of traffic, generally referred to as congestion. These levels range from LOS A, which indicates free-flow vehicular traffic conditions with little or no delay experienced by motorists, to LOS F which indicates congested conditions where vehicle flow exceeds the designed vehicular capacity of the roadway. When LOS falls below a

particular level (the grade lowers, i.e., from LOS D to LOS F), a road segment or intersection can be considered deficient and in need of expansion to increase capacity or other improvement to increase or improve traffic flow, such as adjustments to intersection signalization.

Intersections typically represent the most critical locations of bottlenecks and congestion because the roadway must be shared by opposing traffic. Table 5-1 outlines the LOS concept for signalized intersections. At signalized intersections in 2003, mid-level LOS D was the upper limit of acceptable level of service. The mid-level LOS D reflects the City's intent to maintain stable traffic flow throughout Livermore.

Goods Movement System

The efficient and safe movement of goods to destinations in the City is an important function of the circulation system. Regional goods movement occurs on I-580, SR 84 and rail lines. The goods movement system in the City primarily consists of the roadway system, which carries truck traffic, and the rail system, which carries freight rail movements. Truck movements can occur on any street if the truck is making a local delivery, however, "through" truck movements are limited to designated truck routes. Per State law, the City has the authority to designate truck routes for through trucks of a certain weight, or conversely, to designate certain routes as non-truck facilities. The City has an adopted truck route system, and modifications to that system are included in the Circulation Element.

Truck Routes

I-580 and SR 84 are major corridors for movement of goods and services to and through the area. These corridors extend both east-west and north-south through the City from the Bay Area to areas outside of Alameda County. According to Caltrans data, in 2001 truck volumes on I-580 ranged from 12,000 to 17,000 trucks per day, which is approximately ten percent of the traffic volume on this route. Truck volumes on SR 84 in 2001 ranged from 800 trucks per day near Stanley Boulevard to 1,300 trucks per day near I-580, which is approximately three-percent of the overall daily traffic volume at those locations.

TABLE 5-1 DEFINITION OF LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

LOS	Description	Average Total Stopped Delay per Vehicle (in Seconds)
A	Most vehicles do not stop.	Less than or equal to 10
B	Some vehicles stop.	Greater than 10 <i>and</i> less than or equal to 20
C	A significant number of vehicles stop. A few vehicles must wait more than one signal cycle.	Greater than 20 <i>and</i> less than or equal to 35
D	Most vehicles stop. A noticeable number of vehicles must wait more than one signal cycle.	Greater than 35 <i>and</i> less than or equal to 55 Mid-D = 45
E	Vehicles frequently wait more than one signal cycle.	Greater than 55 <i>and</i> less than or equal to 80
F	Extreme delays potentially affecting other traffic movements in the intersection.	Greater than 80

Source: *Highway Capacity Manual*, 2000; and, City of Livermore, 2002.

The City has an adopted truck route system that designates various streets for “through” truck traffic (referred to as “movements”). In 2003, these designated routes are Holmes Street, First Street, East Stanley Boulevard and Livermore Avenue south to First Street. Trucks over three-tons may legally travel on these routes even if they do not have a trip origin or destination along one of these routes. Trucks may not travel on any other City street unless that street is a direct route between a truck route and the truck’s origin or destination. Proposed modifications to the truck route system are described in Circulation Element Section D.

Rail

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 in the San Joaquin Valley.

Transit Services in 2003

There are several transit services in the Livermore area. The Livermore Transit Center (Transit Center), located on Railroad Avenue near First Street (east of Livermore Avenue), acts as a hub for many of the transit operations. Opened in January 1998, the Transit Center serves as the major transfer point for local buses, ACE trains, Amtrak motor coaches, and Greyhound buses. The transit services that operate within the City are described below.

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, as well as to the adjacent unincorporated areas of Alameda County. LAVTA was created in 1986 under a Joint Powers Agreement (JPA) between the three cities and the County. The service area is approximately a 40-square mile area that is home to almost 160,000 residents. LAVTA provides a variety of transportation services, including:

- ◆ Fixed Route: These are local and intercity transit services within the Tri-Valley communities. The fixed route service branches out from two primary locations: the Dublin/Pleasanton BART Station, and the Livermore Transit Center. These services operate seven days per week, between the hours of 4:30 am to 12:30 am.
- ◆ Direct Access Responsive Transit (DART): This service is provided in the northeastern Livermore area known as Springtown on Sundays and is available on holidays. DART buses use flexible routes, or “Flex Routing,” to extend local passenger pick-up 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 typical fixed route buses.
- ◆ Dial-A-Ride: This service provides an Americans with Disabilities Act (ADA) paratransit service for elderly riders and individuals with disabilities who are unable to use fixed route transportation systems. Dial-A-Ride service is available within three-

quarter miles of WHEELS fixed route service areas, and is available weekdays, weekends, and holidays. Weekday service is available from 5:00 am to 1:00 am.

- ◆ Prime Time: Prime Time provides express bus service for commuters traveling to job sites in the Santa Clara Valley, as well as a commuter express route to Walnut Creek. Bus service is provided on weekdays only.
- ◆ Shuttles: LAVTA provides shuttle service in its service area for various employers and special events. Shuttles typically serve the ACE Rail and BART stations, and they shuttle employees directly to their job site. There are currently no shuttles that serve employers within Livermore. Special event shuttles operate from the ACE Rail and/or BART stations directly to the events.

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 Transit Center. The Dublin/Pleasanton BART station is served on weekdays by nine of LAVTA's fixed routes. In 2003, DART service was provided from BART for Dublin and Pleasanton patrons.

The LAVTA Vision 2010 report outlined several potential service changes in mid- and long-term service. Potential service improvements for the mid-term (2001 to 2005) included an express service from South Livermore to BART via Jack London Boulevard, plus additional fixed bus routes in Pleasanton, Dublin, and Livermore. Long-term (2006 to 2010) projects include service from North Livermore, should development occur at the identified Greenville BART TOD site (*see Land Use Element, New Mixed-Use Neighborhoods*).

Altamont Commuter Express (ACE)

As of 2003, the Altamont Commuter Express (ACE) provides passenger rail service from Stockton to San Jose via the Altamont Pass. Three morning and three evening trips provide connections to the stations in Livermore and Pleasanton. Livermore has two ACE stations: one located on Vasco Road near Brisa Street, the other Downtown on Railroad Avenue adjacent to the Transit Center. Shuttles at several of the ACE train stations provide connections to surrounding employment centers and other transit systems. Four shuttles provide connections to ACE train stations in Livermore and Pleasanton. Downtown is served by six of LAVTA's fixed routes.

Eastern Contra Costa Transit Authority (ECCTA Tri-Delta Transit)

The ECCTA's Tri Delta Transit primarily serves the communities of Bay Point, Pittsburgh, Antioch, Oakley, and Brentwood. Tri-Delta Transit has one existing commuter route serving the Livermore area. Delta Express is Tri Delta Transit's express commuter service, and provides service from East Contra Costa County to the Lawrence Livermore National Laboratory. This weekday service picks up passengers in Antioch, Oakley, Brentwood, and Bryon and transports them directly to the gates of the Livermore Labs.

San Joaquin Regional Transit District (SJRTD)

The San Joaquin Regional Transit District (SJRTD) provides public transit services (fixed and flexible route bus, shuttle, and dial-a-ride) in the Stockton area, as well as intercity, interregional, and rural transit services. These services include connections to Sacramento, Dublin/Pleasanton BART, and the Bay Area. The weekday Interregional Commuter Service serves passengers traveling to Livermore, Dublin, Pleasanton, San Ramon, Sunnyvale, San Jose, and Sacramento, including a connection service to BART for employees working in San Francisco and the East Bay.

The interregional service is designed to meet the needs of commuters who travel distances greater than 50-miles one-way. Eight SJRDT interregional routes connect to the Lawrence Livermore and Sandia Laboratories. Three SJRDT interregional routes connect to Dublin/Pleasanton BART.

Bay Area Rapid Transit (BART)

BART provides a system of grade-separated, electric heavy rail trains that, in 2003, operated as far east as Dublin/Pleasanton, approximately eight-miles west of Livermore. BART operates trains to the Dublin/Pleasanton station on a regular schedule, with service seven days per week from 4:00 am to midnight. WHEELS operates connecting shuttle services to the Dublin/Pleasanton BART station.

BART service is anticipated to extend to Livermore, possibly providing service in west Livermore near I-580/Isabel Avenue, and east Livermore at Greenville Road. BART has acquired land both north and south of I-580 in the vicinity of the Isabel/I-580 interchange. In addition, BART has also purchased land near the Greenville/I-580 interchange, where a terminal yard and/or station may be located. In 2012, the City was working with BART to identify the most appropriate alignment and technology for a rail extension to Livermore. Alternatives include standard BART and diesel multiple units (DMU) along the I-580 median.

Park and Ride Lots

BART has built an interim, 200-space park-and-ride facility near the corner of Airway Boulevard and Kitty Hawk Road. A 100-space Caltrans park and ride lot is available on Portola Avenue at Alviso Place.

Bicycle, Pedestrian, and Trails Network

The Livermore Area has a robust and varied bicycle and pedestrian and trails network, which provides opportunities for alternative transportation modes and recreation. Generally, Livermore's terrain and climate lends itself to pedestrian and bicycle activity. As of 2018, there were approximately 40 miles of trails, 66 miles of bicycle lanes, and over 550 miles of sidewalks in Livermore. However, Livermore's suburban street pattern, barriers such as high traffic streets, Interstate 580, and flood control channels, limit connectivity between neighborhoods. Although the bicycle and pedestrian network experiences minor deficiencies, a significant percentage of residents live and work in Livermore, which suggests an opportunity to increase walking and biking for commuting and other daily needs if these barriers and deficiencies are addressed. The Livermore Bicycle, Pedestrian, and Trails Active Transportation Plan identifies network improvements and programs to increase connectivity,

safety and comfort, and access to activity generators such as downtown, schools, employment, transit, and community facilities.

The Isabel Neighborhood Specific Plan establishes the planned trail, bike lane, and pedestrian networks for the Isabel Neighborhood (see Figure 3-3 for boundaries). The INSP implements and updates the Active Transportation Plan for this area.

Air Transportation

The Livermore Municipal Airport (Airport) is the only airport in the Tri-Valley area and is the fourth busiest airport in the Bay Area. As such, the Airport provides an important service to both residents and industries that extend beyond the Tri-Valley area. The location and availability of services at the Airport has assisted in facilitating the economic growth of the Tri-Valley area. As the Tri-Valley continues to experience industrial and residential growth, the Airport will provide much needed services to support this growth and a strong local economy.

As a general aviation airport, most aircraft served by the Airport are small, privately-owned, single and twin-engine propeller, and turbo prop aircraft (e.g., Cessna 182). In 2008, these smaller aircraft comprised approximately ninety-nine percent of all aircraft served by the Airport. The remaining one-percent of aircraft being served by the Airport were small and medium sized corporate jets (e.g., Challenger 601, Lear 35, Hawker 25, etc.) and helicopters. In 2008, the Airport experienced approximately 159,500 total aircraft flights. The Airport does not provide commercial airline service. (Reso. 2010-061)

C. Goals, Objectives, Policies and Actions

Goal CIR-1 Provide safe, efficient, comfortable, and convenient mobility for all users.

Objective CIR-1.1 Plan for Complete Streets that support all transportation systems throughout the City.

Policies

- P1. The City shall consider and balance the needs of all users when implementing Complete Streets, including pedestrians, bicyclists, persons with disabilities, motorists, movers of commercial goods, users and operators of public transportation, emergency responders, seniors, children, youth, and families.
- P2. The City shall cooperate and coordinate with all other transportation providers when implementing Complete Streets to ensure integration of facilities for all abilities.
- P3. The City shall evaluate the most efficient, effective, and sustainable way of providing mobility for all users.
- P4. The City shall consider all types of Complete Streets elements but will not necessarily include exclusive elements for all modes on every street.

Objective CIR-1.2 Implement Complete Streets that are context sensitive to local conditions and needs.

Policies

- P1. The City shall be context sensitive in accommodating different modes of travel in order to fit the public right-of-way and surrounding uses.
- P2. The City shall implement Complete Streets in such a way that the character of the project area and the values of the community are fully considered.
- P3. The City shall outreach to residents, merchants, and other stakeholders to assure Complete Streets implementation promotes a strong sense of place.

Actions

- A1. Consult stakeholders as early in the development process as possible to support implementation of the City's Complete Streets Policy.

- A2. Evaluate projects using the latest design standards and innovative design options with a goal of balancing user needs.

Objective CIR-1.3 Make Complete Streets practices a routine part of everyday operations.

Policies

- P1. The City shall incorporate Complete Streets into all planning, funding, design, approval, and implementation processes for any construction, reconstruction, retrofit, expansion, maintenance, operations, alteration, or repair of streets.
- P2. The City shall coordinate interdepartmentally to make Complete Streets practices a routine part of everyday operations and to maximize opportunities for Complete Streets practices.
- P3. The City shall approach transportation projects, programs, and practices as opportunities to improve streets and the transportation network for all categories of users.
- P4. The City shall cultivate relationships and actively participate in cross jurisdictional decision-making and policy work with other agencies, transit districts, and jurisdictions to facilitate multi-modal transportation infrastructure and increase connectivity across jurisdictional boundaries.
- P5. The City shall consider Complete Streets when adopting or amending the General Plan, Specific Plans, Zoning Ordinances, Master Plans, or the Capital Improvement Program.

Actions

- A1. Review transportation capital improvement projects and development projects during the planning/design phase to determine appropriate Complete Streets implementation.

- A2. Establish performance measures and perform evaluations of how well the street and transportation networks are serving various users.
- A3. Exempt projects from Complete Streets analysis if the project is not a roadway improvement project, or is a routine maintenance activity that does not change the roadway geometry and is designed to keep assets in serviceable condition.
- A4. Except projects from Complete Streets analysis, with approval by the City Engineer and written findings which explain why accommodations for all users and modes were not included, if the use by a specific category of users is prohibited by law, construction is not feasible due to significant or adverse environmental impacts, there is an absence of current and future need by a user group now and in the future, and/or the cost of accommodation is excessively disproportionate to the need or probable use of the affected area. (Reso. 2014-183)

Goal CIR-2 Promote multi-modal transportation.

Objective CIR-2.1 Provide viable alternatives to single-occupant vehicle travel.

Actions

- A1. Promote increased local transit ridership as an alternative to driving by supporting LAVTA services.
- A2. Preserve options for future transit use when designing improvements for roadways and other land use approvals.
- A3. Continue to explore other rail transit options along the existing railroad right-of-way through the City. Preserve adequate right-of-way for this option.
- A4. Preserve right-of-way adjacent to I-580 to allow widening for HOV lanes, auxiliary lanes, and BART.

- A5. Advocate the expansion of the ACE passenger railroad service through Livermore.
- A6. Work with regional transit providers to situate transit stops and hubs at locations that are convenient for transit users and promote increased transit ridership through the provision of shelters, benches, and other amenities.
- A7. Advocate for a first-stage extension of BART along the I-580 freeway to a station at Isabel Avenue/I-580 with an eventual extension to a station at Greenville Road/I-580 as the City's preference. (Reso 2011-130)

Objective CIR-2.2 Encourage vehicle trip reduction.

Actions

- A1. Work with employers to encourage ridesharing (carpools and vanpools), public transit, bicycling, walking, flexible working hours, and preferential parking.
- A2. Coordinate with Caltrans and transit providers to identify and implement park and ride sites with convenient access to public transit.

Objective CIR-2.3 Provide a bicycle, pedestrian, and trails network.

Policies

- P1. Develop a comprehensive bikeway and trails system as a viable alternative to the automobile for all trip purposes in order to maximize the number of daily trips made by non-motorized means for residents of all abilities.
- P2. Consider bicycle, pedestrian, and equestrian access in all aspects of City Planning and coordinate with other agencies to improve non-motorized access within the City of Livermore and to surrounding regional areas and facilities.
- P3. Provide related facilities and services necessary to allow bicycle and pedestrian travel to assume a significant role as a local alternative mode of transportation.

- P4. Improve the safety of bicyclists and pedestrians by educating all Livermore residents about bicycle and pedestrian safety and by enforcing bicycle and motorist laws and regulations effecting bicycle and pedestrian safety. Increase bicycle and pedestrian mode share by increasing public awareness of benefits of bicycling and walking and of the available bike and trail facilities and programs.
- P5. Maintain all roadways and multi-use trails so that they provide safe and comfortable bicycling, walking, and equestrian conditions.
- P6. Implement a bikeway system with community input on the priorities and with a minimal impact on the environment.

Actions

- A1. Develop, periodically review, and update a master plan for a Citywide bicycle, pedestrian, and trails network.
- A2. Develop bicycle routes and multi-use trails in accordance with the City's adopted master plan for a bikeway and trails network, as shown in Figure 5-4.
- A3. Where other public works projects (roadways, buildings, or utilities) precede adopted trail development in an area, combine easement, property, or right-of-way acquisition, where feasible, to acquire necessary land for planned trails.
- A4. Special attention shall be made to make freeway interchanges, overpasses, and other grade separations safe for bicycles and pedestrians. (Reso. 2014-183)

Objective CIR-2.4 Provide a pedestrian network that encourages walking for transportation and recreation.

Policies

- P1. The City shall ensure the safe and convenient movement of pedestrians throughout the City and within neighborhoods.

- P2. The City's design guidelines for public and private facilities shall aid and encourage pedestrian activity.
- P3. The City shall require development to meet the requirements of the Americans with Disabilities Act to further facilitate the mobility of persons with accessibility needs.

Goal CIR-3 Identify and develop a circulation system consistent with the Land Use Element.

Objective CIR-3.1 Plan, manage, and develop the local circulation system to support the Land Use Element.

Policies

- P1. The City shall consider the impacts to the existing and proposed circulation system when considering changes in land use.
- P2. Development projects shall be reviewed for impacts on the adjacent circulation system. Identified impacts shall be addressed and mitigated to the greatest extent feasible.
- P3. High traffic-generating land uses shall be located along or close to major streets.
- P4. Mixed-use development shall be located near transit nodes and adjacent to residential neighborhoods, as identified in the Land Use Element.

Objective CIR-3.2 Minimize adverse impacts of regional cut-through traffic.

Policies

- P1. The City shall recognize that increasing capacity on major streets leading to I-580 could increase regional cut-through traffic and shall maintain a balance between serving local and regional needs.
- P2. The City shall not base roadway system improvements solely on the local effects of regional cut-through traffic. Other issues including facility improvement costs and desirability shall be determinants to improving the intracity roadway network.

Objective CIR-3.3 Minimize local cut-through traffic in residential neighborhoods.

Policies

- P1. The City shall provide adequate capacity to the extent possible on major and collector streets to prevent traffic diversion of local cut-through traffic onto neighborhood streets.
- P2. The City shall consider using traffic calming methods to reduce local cut-through traffic, where appropriate.

Goal CIR-4 Provide a local roadway system for the safe, efficient, and convenient movement of vehicular traffic.
--

Objective CIR-4.1 The City shall provide adequate road linkages throughout Livermore.

Policies

- P1. The City shall maximize the carrying capacity of major streets by providing a well-coordinated traffic/signal control system, controlling the number of intersections and driveways, limiting residential access points, and requiring sufficient off-street parking.

- P2. The City shall ensure that adequate roadway connections are provided between areas north of I-580 and areas south of I-580.
- P3. The City shall pursue and protect adequate right-of-way to accommodate future circulation system improvements.
- P4. The City shall provide neighborhoods and commercial areas with adequate freeway access.

Actions

- A1. Maintain, update and validate a Citywide traffic model, at a minimum five-year increment, for purposes of evaluating development-related and external traffic impacts on the City's existing and proposed circulation system.
- A2. Construct missing roadway links to complete the roadway system designated in the Circulation Element when warranted by roadway operating conditions.

Goal CIR-5 Maintain relatively free-flowing traffic, except where the City has identified intersections or areas of the City that are exempt from the Citywide standard.

Objective CIR-5.1 Maintain adequate levels of service for all areas of the City.

Policies

- P1. For the purposes of development associated traffic studies, road improvement design, and capital improvement priorities, the upper limit of acceptable service at signalized intersections shall be mid-level D, except in the Downtown Area and near freeway interchanges.
- P2. There shall be no level of service standard for the Downtown Area (see General Plan Land Use Map for Downtown Area location).

P3. The upper limit of acceptable level of service at selected intersections near freeway interchanges shall be LOS E. These intersections include:

- (1) Airway Boulevard/North Canyons Parkway
- (2) Airway Boulevard/I-580 westbound ramps
- (3) Airway Boulevard/I-580 eastbound ramp-Kitty Hawk Road
- (4) Isabel Avenue/Portola Avenue
- (5) Isabel Avenue/I-580 westbound ramps
- (6) Isabel Avenue/I-580 eastbound ramps
- (7) Isabel Avenue/Airway Boulevard
- (8) North Livermore Avenue/I-580 westbound ramps
- (9) North Livermore Avenue/I-580 eastbound ramps
- (10) North Livermore Avenue/Arroyo Plaza
- (11) North Livermore Avenue/Las Positas Road
- (12) Springtown Boulevard/Bluebell Drive
- (13) Springtown Boulevard/I-580 westbound ramps
- (14) First Street/I-580 eastbound ramps
- (15) First Street/Southfront Road
- (16) First Street/Las Positas Road
- (17) Vasco Road/Northfront Road
- (18) Vasco Road/I-580 westbound ramps
- (19) Vasco Road/I-580 eastbound ramps
- (20) Vasco Road/Preston Avenue
- (21) Vasco Road/Industrial Drive
- (22) Greenville Road/Northfront Road-Altamont Pass Road
- (23) Greenville Road/I-580 westbound ramps
- (24) Greenville Road/I-580 eastbound ramps
- (25) Greenville Road/Southfront Road
- (26) Northfront Road/I-580 westbound ramps, (until I-580/Greenville Interchange Reconstruction Project is completed)
- (27) Southfront Road/I-580 eastbound ramps, (until I-580/Greenville Interchange Reconstruction Project is completed)

- P4. The City accepts the need to balance competing objectives, including providing a system for safe, efficient and convenient movement of traffic (Goal CIR-2); minimizing cut-through traffic (Obj. CIR-1.2) and preventing or minimizing physical or environmental constraints (Obj. CIR-5.2), and therefore recognizes that certain intersections, located at freeway ramps and along east/west major streets carrying a high percentage of regional cut-through traffic, may exceed the established LOS standard. These intersections include:
- (1) First Street/N. Mines Road
 - (2) Isabel Avenue/Airway Boulevard
 - (3) Isabel Avenue/Jack London Boulevard
 - (4) Vasco Road/Northfront Road
 - (5) Vasco Road/I-580 Eastbound Ramps
 - (6) Concannon Boulevard/S. Livermore Avenue
 - (7) Holmes Street/Fourth Street
 - (8) Stanley Boulevard/Murietta Boulevard (Reso. 2009-055)
- P5. The City shall place highest priority in City annual capital improvement planning and budgeting on feasible improvements to road components where existing traffic flows exceed the acceptable LOS standard.
- P6. The City shall improve traffic flow on the local roadway system to achieve these Citywide LOS policies.

Actions

- A1. Urge Caltrans to prioritize local freeway interchange improvements based on maintaining LOS E or better.
- A2. Improve intersections exceeding the City's established LOS, as established above in CIR-4.1.P4, to the extent feasible to minimize impacts and support the community character.

Goal CIR-6 Protect neighborhood quality and community character through circulation planning.
--

Objective CIR-6.1 Use circulation improvements to enhance Livermore's community character and maintain the quality of life in residential neighborhoods.

Policies

- P1. The City shall provide a street system that minimizes traffic on local streets in order to create and preserve a high-quality residential environment.
- P2. In designing and evaluating future improvements to designated special rural routes, the City shall endeavor to protect and enhance the "wine country" character of the area.

Actions

- A1. Use police enforcement to mitigate speeding and other traffic impacts in residential areas of the City.
- A2. Utilize traffic calming, as appropriate, to control the traffic volume and speed.

Objective CIR-6.2 Plan and maintain the circulation system to prevent or minimize environmental impacts.

Policies

- P1. Require local roadway improvements to minimize adverse land use, air quality, noise, community appearance, health, safety, vegetation and wildlife, drainage, and other environmental impacts.
- P2. The City shall evaluate the effects on transportation systems of public utility improvements, including extensions of underground pipelines and overhead transmission lines and associated utility rights-of-way.

- P3. Require all residential, commercial, and industrial areas to provide efficient and safe access for emergency vehicles.

Goal CIR-7 Develop a Downtown circulation system that is pedestrian-oriented and supports Downtown as a destination.

Objective CIR-7.1 Design and maintain a safe and interconnected pedestrian-oriented Downtown circulation system.

Policies

- P1. Promote pedestrian activity as the primary mode of travel on First Street in Downtown. (Reso. 2009-055)
- P2. Provide a roadway system that is subordinate to the pedestrian environment, except for Livermore Avenue, L Street, Railroad Avenue, and Fourth Street, where pedestrian, bicycle, and vehicular traffic needs are balanced to ensure adequate access to the Downtown for all modes of travel. (Reso. 2009-055)
- P3. Prohibit through trucks on First Street in the Downtown Area and divert truck traffic away from the Downtown Area.
- P4. Establish alternative routes for through truck traffic and for truck delivery.
- P5. Reduce the speed of roadway traffic moving through the Downtown Area to be more compatible with pedestrians.

Actions

- A1. Reduce the number of lanes along First Street to provide additional on-street parking, and to slow roadway traffic moving through the Downtown Area.
- A2. Encourage alternatives modes of travel to and within the Downtown Area, including transit and bicycles.

Goal CIR-8 Ensure a well-coordinated regional transportation system that serves Livermore and the surrounding region
--

Objective CIR-8.1 Coordinate Livermore's transportation policies and programs with other jurisdictions in the region.

Policies

- P1. Support State and regional efforts to improve I-580 within the Tri-Valley with HOV lanes, auxiliary lanes, and ramp metering.
- P2. Support State and regional efforts to improve State Route 84 (along Isabel Avenue) to expressway standards between I-580 and I-680.
- P3. *Cooperate and work with Alameda County in the planning of subregional arterial alignments. Also, cooperate and work with Contra Costa County in the planning of the Vasco Road alignment. (NLUGBI)*
- P4. Establish Plan Lines that identify the right-of-way along I-580 freeway to support regional transportation improvements, including Bay Area Rapid Transit (BART) extensions and high occupancy vehicle lanes. Infrastructure improvements (e.g., frontage road and utility relocations) necessary solely for the I-580 regional transportation improvements will be the responsibility of the implementing agency. Such improvements will be coordinated with adjacent development. (Reso. 2008-232)

Actions

- A1. Participate in programs to address regional traffic congestion.
- A2. In evaluating proposed developments and land use decisions, identify impacts on regional as well as local transportation facilities.

- A3. Support regional air quality objectives through effective management of the City's transportation system.

Objective CIR-8.2 Implement measures to support and plan for the transfer of State Route 84 to the Isabel Avenue/I-580 Interchange.

Policies

- P1. Protect right-of-way for the Isabel/I-580 freeway interchange.
- P2. Protect right-of-way for the Portola Avenue extension.
- P3. Prevent new access points to Isabel Avenue/Kitty Hawk.
- P4. Provide for the eventual removal of existing driveways from SR 84, when feasible.
- P5. Preserve the integrity of Isabel Avenue as a future expressway by prohibiting the installation of additional longitudinal utilities and by partnering with State and regional agencies on developing future projects to relocate existing longitudinal utilities.
- P6. Relocate State Route 84 from Airway Boulevard to the Isabel Avenue/I-580 Interchange.

Goal CIR-9 Support and protect safe and efficient aviation operations at the Municipal Airport.

Objective CIR-9.1 Ensure that aviation operations, uses, and development are protected from incompatible adjacent land uses, as well as meet the needs of the local and regional economy.

Policies

- P1. Future development and operations at the Municipal Airport shall be in conformance with an approved Airport zoning district and the Livermore Airport

Land Use Compatibility Plan (“ALUCP”), dated August 2012. The overall scale of operations at the Municipal Airport shall not exceed the thresholds listed below. (Reso. 2013-113)

- (a) Livermore Municipal Airport is a general aviation airport. Scheduled passenger service flights shall be prohibited. (Reso. 2010-061)
 - (b) Annual aircraft operations are forecasted for 220,100 operations by year 2030. In the event that flight operations exceed forecasts, including itinerant and local operations, the City shall re-evaluate the environmental effect of increased operations. (Reso. 2010-061)
 - (c) To the greatest extent feasible, the total number of based aircraft to be stored/parked at the Municipal Airport shall not exceed 720, including hangar and apron space areas. In the event that demand for based aircraft exceeds the storage supply, the City shall re-evaluate the environmental effects of allowing additional based aircraft. (Reso. 2010-061)
 - (d) No more than 60-percent of the Airport area designated Community Facility-Airport (CF-AIR) shall be covered with impervious surfaces, including but not limited to, buildings, taxiways, runways, parking areas, fuel areas, and wash areas. (Reso. 2010-061)
 - (e) Night-time flights between 10:00 p.m. and 6:00 a.m. shall be discouraged to the greatest extent feasible. (Reso. 2010-061)
 - (f) Aircraft and airport operation noise levels shall be consistent with the thresholds established in the General Plan Noise Element. (Reso. 2010-061)
- P2. To protect the Municipal Airport from encroachment by incompatible uses, the City shall encourage development of property within the immediate vicinity of the Airport for light industrial and transportation uses to the extent that noise standards and flight clearance requirements are maintained, the ALUCP is adhered to, and environmental impacts are adequately mitigated. (Reso. 2013-113)
- P3. New residential land use designations or the intensification of existing residential land use designations shall be prohibited within the Airport Protection Area, as

shown on Land Use Element Figure 3-5, except residential is permitted within the Isabel Neighborhood overlay (see Figure 3-5.2) and with implementation of airport-awareness measures set forth in the Isabel Neighborhood Specific Plan, its 2018 Environmental Impact Report, and its 2020 Supplemental Environmental Impact Report.

Action

- A1. Develop and periodically update an Airport zoning district for the Airport to implement Policy CIR-8.1.P1. (Reso. 2010-061)

Goal CIR-10 Provide adequate safe and convenient short-and long-term vehicle and bicycle parking for all land uses in the City.
--

Objective CIR-10.1 Minimize spillover vehicle parking impacts by ensuring adequate parking enforcement and requiring sufficient parking for new development.

Policy

- P1. The City shall ensure that new developments provide adequate safe and convenient short-and long-term parking.

Action

- A1. Encourage, and where possible facilitate, the use of shared parking arrangements to ensure that existing parking is efficiently utilized, especially in the Downtown Area.

Objective CIR-10.2 Limit excess off-street parking development.

Action

- A1. Consider adoption of “maximum allowed” parking standards for various uses within the Livermore Development Code to limit development of impervious

surface and to limit undesirable open-land activities (i.e., product storage, temporary uses etc.)

Objective CIR-10.3 Strive to expand bicycle parking facilities throughout the City.

Policy

- P1. On- and off-street bicycle parking facilities should be provided near destinations for all bicycle users, including commuters, residents, shoppers, students, and others.
- P2. Encourage businesses in the Downtown Area to provide valet bicycle parking.

Action

- A1. Identify locations where more bike parking would be beneficial and install bicycle racks and bicycle storage facilities, as funding becomes available. (Reso. 2014-183)

Goal CIR-11 Support goods movement within the City.
--

Objective CIR-11.1 Provide adequate roadway and rail systems to accommodate the safe and efficient movement of goods.

Policy

- P1. The City shall encourage the expansion of rail transportation facilities and services to meet the needs of commerce as growth occurs.

Objective CIR-11.2 Minimize adverse impacts to residents or businesses from rail and truck traffic.

Policies

- P1. No through truck traffic shall be allowed in residential areas.

- P2. The City shall require and implement improvements at rail grade crossings as rail and vehicular traffic conditions warrant.

Action

- A1. Enforce the City's designated truck route system and ordinances.

D. Proposed Circulation Network

The Circulation Element recommendations are intended to result in a transportation system which supports the Land Use Element of the General Plan, without unnecessarily accommodating or encouraging non-local cut-through trips on the City's street system. This transportation plan includes recommendations for roadway widening improvements and for more specific improvements at intersections, such as added turn and through lanes and installation of traffic signals. Intersection improvements proposed in the Circulation Element are conceptual. The actual intersection turning movement volumes and levels of service upon buildout of the General Plan may differ from the forecasts identified in the Circulation Element. Therefore, intersection recommendations are intended as guidelines for future improvement. Further research and refinement of these improvements will occur through project-level environmental studies, specific plans, and other studies as development occurs and growth patterns emerge. This section describes the proposed system improvements, as well as locations where the City's level of service goals may not be achieved.

City Traffic Model

A City-specific traffic model was developed for the 2003-2025 General Plan to estimate and identify future traffic congestion levels, issues, and recommendations to ameliorate impacts from the buildout of the City's land use plan. The traffic model also estimated the level of future cut-through traffic on key roadways in the City. As indicated by the data, on critical arterial routes near the freeway, including Isabel Avenue, Livermore Avenue, First Street, Vasco Road, and Greenville Road, approximately 10 to 40 percent of traffic will be non-local, cut-through traffic. Most of the locations identified experience 15- to 25-percent cut-through traffic. Understanding the impacts of cut-through traffic is important when

considering the type and extent of transportation improvements to propose in the General Plan, as well as to prioritize implementation of these improvements in the future.

Roadway Functional Classifications

As described earlier in this section, the City of Livermore is served by an existing network of freeways, highway, major roadways, collector streets, local streets, intercounty routes, and special rural routes.

The traffic model analysis results have been used to determine the appropriate functional classification for each roadway in the City. The classification is based on future projected travel demand, as well as the character of the street, adjacent land uses, and other factors. Figure 5-1 illustrates the proposed functional classification system, and Table 5-3 summarizes the roadway classifications.

Table 5-3 ROADWAY FUNCTIONAL CLASSIFICATIONS

Roadway Segment	From	To
<i>Freeway</i>		
I-580	El Charro Road	Greenville Road
<i>Highway</i>		
SR 84 (Isabel Avenue)	I-580	Vallecitos Road
Vallecitos Road	Isabel Avenue	Southern City Limit
<i>Major Streets</i>		
Airway Boulevard	North Canyons Parkway	Portola Avenue
Collier Canyon Road	North Canyons Parkway	Los Positas College Entrance
Concannon Boulevard	Isabel Avenue	S. Livermore Avenue
East Avenue	S. Livermore Avenue	Vasco Road
East Stanley Boulevard	Western City Limits	First Street
El Charro Road	I-580	Jack London Boulevard
First Street	Holmes Street	I-580
Fourth Street	Holmes Street	Inman Street
Greenville Road	Altamont Pass Road	East Avenue
Inman Street	Fourth Street	First Street
Isabel Avenue	North Canyons Parkway	I-580
Jack London Boulevard	El Charro Road	Murrieta Boulevard
Las Positas Road	Livermore Avenue	Greenville Road
Livermore Avenue	I-580	Southeastern City Limit
Mines Road	First Street	East Avenue
Murrieta Boulevard	Portola Avenue	Holmes Street
North Canyons Parkway	Dublin Boulevard	Collier Canyon Road
Northfront Road	Vasco Road	Greenville Road
Patterson Pass Road	Mines Road	Greenville Road
Portola Avenue	Collier Canyon Road	First Street
Railroad Avenue	Stanley Boulevard	First Street
Springtown Boulevard	I-580	Bluebell Drive

Roadway Segment	From	To
Vallecitos Road/Holmes Street	First Street	Southern City Limit
Vasco Road	Northern City Limit	Tesla Road
<i>Collector Streets</i>		
Alden Lane	Murdell Lane	Holmes Street
Arlene Way	Patterson Pass Road	Charlotte Way
Bluebell Drive	Hartford Avenue	Springtown Boulevard
Brisa Street-National Drive	Vasco Road	Greenville Road
Broadmoor Street	Dalton Avenue	Scenic Avenue
Catalina Drive	El Caminito	Holmes Street
Central Avenue	Northfront Road	Scenic Avenue
Charlotte Way	Mines Road	S. Vasco Road
Chestnut Avenue	P Street	Junction Avenue
College Avenue	Fourth Street	S. Livermore Avenue
Daphne Drive	Arlene Way	Vasco Road
El Caminito	East Stanley Boulevard	Holmes Street
Encino Drive	Murdell Lane	El Caminito
Franklin Lane	Southfront Road	Preston Avenue
Galloway Street	Springtown Boulevard	Bluebell Drive
Garaventa Ranch Road	Vasco Road	Scenic Avenue
Hagemann Drive	Jack London Boulevard	Daisyfield Drive
Herman Avenue	Scenic Avenue	Northfront Road
Hillcrest Avenue	Fordham Way	Devon Place
Isabel Avenue	Portola Avenue	Las Positas College
Jensen Street	Madiera Way	East Avenue
Junction Avenue	Pine Street	Old First Street
L Street-Arroyo Road	Portola Avenue	Southern City Limit
Las Colinas Road-Redwood Rd.	Las Positas Road	Springtown Boulevard
Laughlin Road	Northern City Limits	Northfront Road

Roadway Segment	From	To
Lexington Way	Trinity Hills Lane	Superior Drive
Madeira Street	Jenson Street	Fourth Street
Maple Street	First Street	East Avenue
Mines Road	Las Positas Road	First Street
Murdell Lane	Stanley Boulevard	Alden Lane
Northfront Road-Sunflower Ct.	Vasco Road	Bluebell Drive
Old First Street	First Street	Junction Avenue
Olivina Avenue	Hagemann Drive	P Street
P Street	Portola Avenue	Fourth Street
Pine Street	Murrieta Boulevard	Junction Avenue
Preston Avenue	Franklin Lane	Southfront Road (east)
Rincon Avenue	Portola Avenue	Olivina Avenue
Scenic Avenue	Bluebell Drive	Laughlin Road
Southfront Road	First Street	Franklin Lane
Southfront Road	Preston Avenue	Greenville Road
Springtown Boulevard	Galloway Street	Bluebell Drive
Superior Drive	Arroyo Road	Lexington Way
Vancouver Way	Holmes Street	Arroyo Road
Wall Street	East Stanley Boulevard	El Caminito
Wetmore Road	Arroyo Road	Vallecitos Road
Wisteria Way	Central Avenue	Bluebell Drive

Roadway Segment	From	To
<i>Rural Routes</i>		
Arroyo Road	Marina Avenue	Southern City Limits
Concannon Boulevard	Normandy Way	S. Livermore Avenue
Greenville Road	East Avenue	Tesla Road
Marina Avenue-Wente Street	Arroyo Road	S. Livermore Avenue
Mines Road	Tesla Road	South
S. Livermore Avenue	Concannon Boulevard	Tesla Road
S. Vasco Road	East Avenue	Tesla Road
Tesla Road	S. Livermore Avenue	East
Vallecitos Road	Wetmore Road	Isabel Avenue
Vineyard Avenue	Vallecitos Road	Western City Limit
Wetmore Road	Arroyo Road	Vallecitos Road

Non-local Cut-Through Traffic

The City currently experiences cut-through traffic on key major streets as a result of freeway congestion. This problem will worsen over time due to increasing pressure on the regional system and increasing travel and congestion on I-580. Analysis of future cut-through traffic indicates that several key routes near the freeway will experience significant percentages of cut-through traffic. In addition, east-west routes in and near the City will experience significant cut-through traffic volumes as commuters continue to seek ways to avoid freeway congestion. Affected routes near the freeway will include Isabel Avenue, Livermore Avenue, First Street, Vasco Road and Greenville Road. Affected streets in other parts of the City (not directly adjacent to I-580) include Vallecitos Road, Tesla Road, Stanley Boulevard and Vasco Road (portion north of the freeway). Studies indicate cut-through traffic percentages (the percent of total traffic that is not locally oriented and merely passes through the City without stopping) on key affected routes will range from approximately 10 to 40 percent near the freeway and potentially higher on certain other facilities.

Based on traffic modeling results, the forecasted traffic volumes at buildout of the General Plan at several locations indicate the need for eight lanes of traffic (four in each direction) on

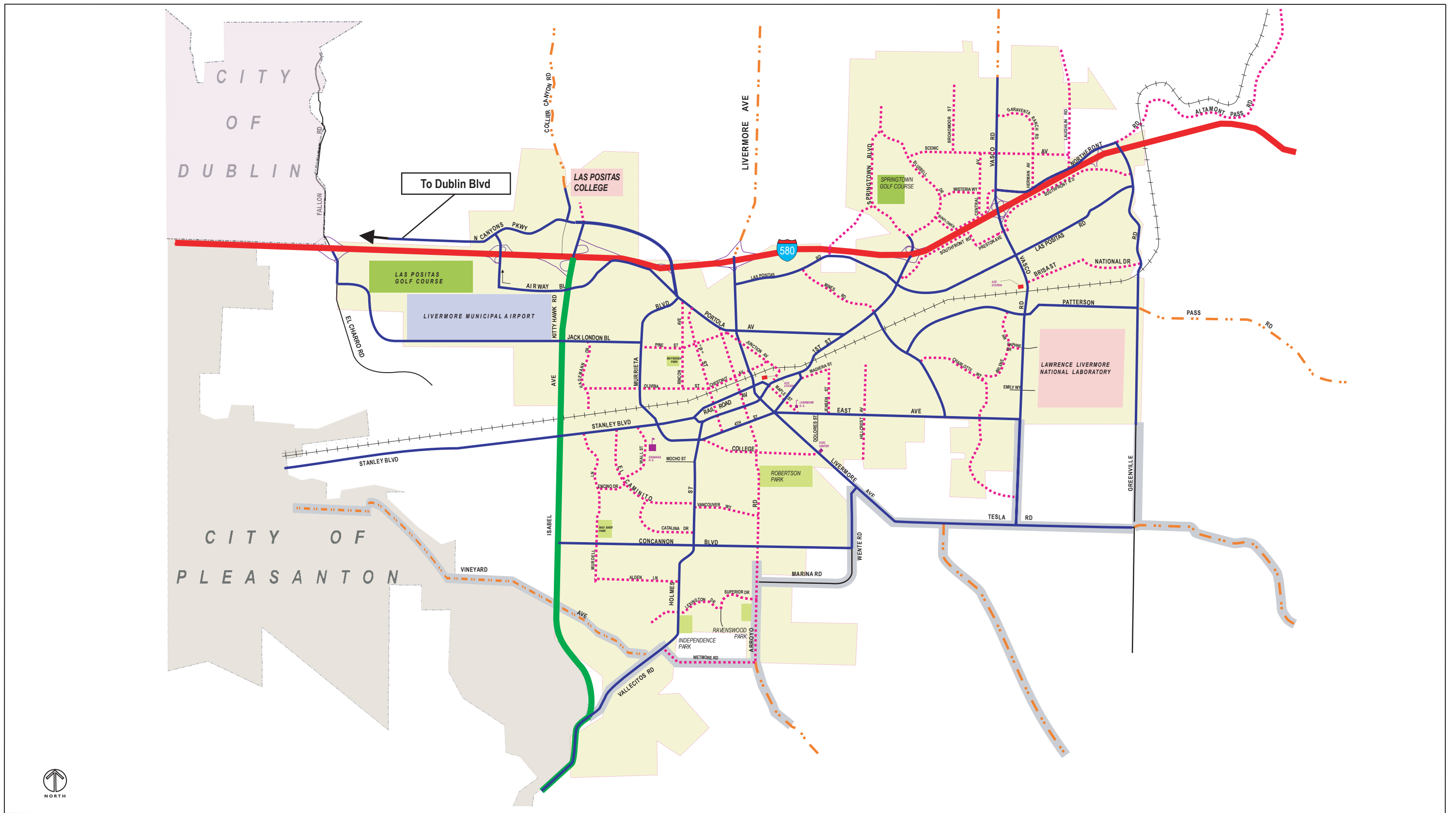
some of the roadway segments noted above, including Vasco Road and Greenville Road. To prevent further intrusion or increase in cut-through traffic in these particular locations, roadways will be limited to four to six lanes in certain locations in order to make the routes less desirable for regional traffic and freeway by-pass traffic. This action will help to prevent use of City streets by non-local cut-through traffic, but a consequential effect of this limitation could be an increase in traffic congestion and some cut-through traffic into other nearby streets.

Management of the overall traffic congestion issue will require regional roadway improvement solutions, including additional freeway capacity, additional effective transit services, vehicular trip reduction measures, improvements to key streets in adjacent jurisdictions, and other cooperative regional improvements. The action of simply widening Livermore streets to accommodate regional traffic will not solve the long-term congestion problems of the City and the region because of the magnitude of regional influence of this problem directly impacting City streets and traffic.

Future Roadway Improvements

Table 5-4, Proposed Future Roadway and Interchange Improvements, identifies the recommended street improvement locations. These recommendations are based on the results of the traffic model analysis conducted for the 2003-2025 General Plan. The priority for making these improvements will be determined in the City's Capital Improvement Program (CIP). Specific transportation improvements (i.e., additional turn lanes, etc.) will be determined as part of the bi-annual CIP projects analysis needs determination. These improvements are discussed in the following sections, along with proposed regional improvements including the I-580 freeway and interchanges in Livermore. Regional and proposed local improvements are described in the following sections.

This page intentionally left blank.



- Freeway
- Highway
- Major Street
- Collector Street
- Intercounty Route
- Special Rural Route

FIGURE 5 - 1

ROADWAY FUNCTIONAL CLASSIFICATIONS

Table 5-4 Proposed Future Roadway and Interchange Improvements

Street	Limits	Existing No. Lanes	Proposed No. Lanes with General Plan Improvements
<i>Roadways</i>			
Chestnut Street	P to Junction	4	2
First Street	P to Railroad-Maple	4	2
Greenville Road	Northfront to National	4	6
Greenville Road	National to Patterson Pass	2	4
Holmes Street	Wetmore to Alden	3	4
Isabel Avenue	Portola to Airway	0	6
Isabel Avenue	Stanley to Vallecitos	2	4
Isabel Avenue	Airway to Jack London	4	6
Isabel Avenue	Jack London to Stanley	2	6
Jack London Boulevard	Isabel to El Charro	2/0	4
Las Positas Road	east of First to west of Vasco	0	4
Las Positas Road	Vasco to Lawrence	2	4
Las Positas Road	N. Livermore to First	2/3	4
Las Colinas Road	Las Colinas to Redwood	0	2
N Livermore Ave	I-580 to Las Positas	4	6
North Canyons Pkwy-Dublin Boulevard	Doolan Canyon to Fallon	0	4
North Canyons Pkwy	Airway to Collier Canyon	4	6
P Street	Pine to Chestnut	4	2
Portola Avenue	Isabel to I-580	0	4
Portola Avenue	Murrieta to L	2/4	4
Portola Avenue	Collier Canyon to Isabel	4/0	6
Railroad Avenue	L to First	2	4

Street	Limits	Existing No. Lanes	Proposed No. Lanes with General Plan Improvements
Railroad Avenue	Maple to Old First (Realign Road)	4	4
Scenic Avenue	east end to Laughlin	0	2
Stanley Boulevard	Western City limits to Murrieta	4	6
Vallecitos Road	Isabel to west of Ruby Hills	2	4
Vallecitos Road	Pigeon Pass	2	4
Vasco Road	Patterson Pass to Las Positas	4	6
Vasco Road	Las Positas to I-580	4	8
Vasco Road	I-580 to Scenic	4	6
<i>Interchanges</i>			
I-580/Portola Avenue Interchange	---	Existing	None
I-580/Greenville Road Interchange	---	Existing	Ultimate
I-580/Vasco Road Interchange	---	Existing	Ultimate
I-580/First Street Interchange	---	Existing	Ultimate
I-580/Isabel Avenue Interchange	---	Existing	Ultimate
I-580/El Charro Road Interchange	---	Existing	Ultimate
(Reso. 2009-055)			

Regional Improvements/Freeway Improvements

The 2001 Regional Transportation Plan (RTP) for the San Francisco Bay Area (revised in November 2002) was developed by the Metropolitan Transportation Commission. The RTP is a long-range planning document, which specifies a detailed set of investments and strategies to maintain, manage and improve the surface transportation network in the nine-county Bay Area. The RTP includes a list of projects on regional facilities in and near the City of Livermore that will affect circulation in the City. Key projects have been included in the analysis and in the transportation model for the Circulation Element update. Each project in the RTP has an associated funding description, called “Committed,” “Track 1” or “Blueprint.” Committed project funding is specifically programmed for, and will be used to implement specific projects. Committed project funding includes all regionally significant projects with 100 percent local funding. Track 1 projects are those for which funding is anticipated to be available over the term of the RTP, but is not specifically programmed. Blueprint projects are those projects for which new funding sources must be identified in order to be implemented in the next 25 years. The regional improvements in the City and vicinity, and their funding status in the RTP, are:

- ◆ Vasco Road/I-580 interchange improvements (Committed funding status)
- ◆ Rehabilitate and widen SR 84 (First Street) from I-580 to Scott Street (Committed)
- ◆ I-580 eastbound auxiliary lane between Santa Rita Road and Airway Boulevard (Committed)
- ◆ Extend North Canyons Parkway westerly to Dublin Boulevard (Committed)
- ◆ I-580/North Livermore Avenue interchange improvements (Committed, but not included in model analysis)
- ◆ I-580/First Street interchange improvements (Committed)
- ◆ Isabel Avenue/SR 84/I-580 partial interchange construction (Phase 1) (Track 1)
- ◆ Isabel Avenue/SR 84/I-580 interchange improvements; build second bridge to provide six-lanes over I-580 (Phase 2) (Committed)
- ◆ I-580/Greenville Road interchange improvements (Committed)
- ◆ Extend Las Positas Road between First Street and Vasco Road (Committed)
- ◆ Widen Isabel Avenue to four lanes (along SR 84 alignment) from I-580 south to Vallecitos Road and improvements along SR 84 through Pigeon Pass (Committed)

- ◆ Ramp metering from I-580/I-680 interchange east to Altamont Pass (Committed)
- ◆ Widen I-580 to add High Occupancy Vehicle (HOV) lanes in each direction east to Vasco Road (initial segment) and ultimately to Greenville Road (Blueprint)

The above improvements that are either Committed or Track 1 funding status are included in the modeling analysis of future buildout conditions, with the exception of the I-580/North Livermore Avenue interchange improvements, which will not be needed. Blueprint funding status improvements, including the High-Occupancy Vehicle lanes on I-580, are not included in the analysis since full funding is not identified. Similarly, widening of SR 84 (Vallecitos Road) to four-lanes between I-680 and Isabel Avenue was not included in the analysis because full funding is not identified.

Roadway Widening Improvements

There are roadway segments in the City where additional roadway capacity will likely be needed to maintain acceptable service levels based on traffic modeling and engineering analysis. On some roadway segments, widening will be required to add one additional lane of travel in each direction. However, on other roadway segments, particularly those near I-580 that serve high percentages of non-local cut-through traffic, additional roadway widening is not proposed. This is due to the City's goal to not encourage increased cut-through traffic in the City or not to create regional by-pass routes on local streets. A discussion of cut-through traffic is provided in Section B (non-local) and below (local). Table 5-4 lists the location of each proposed roadway widening, the existing number of lanes for through traffic and the proposed future number of lanes. The timing of implementation of these improvements will be described in the City's capital improvement program.

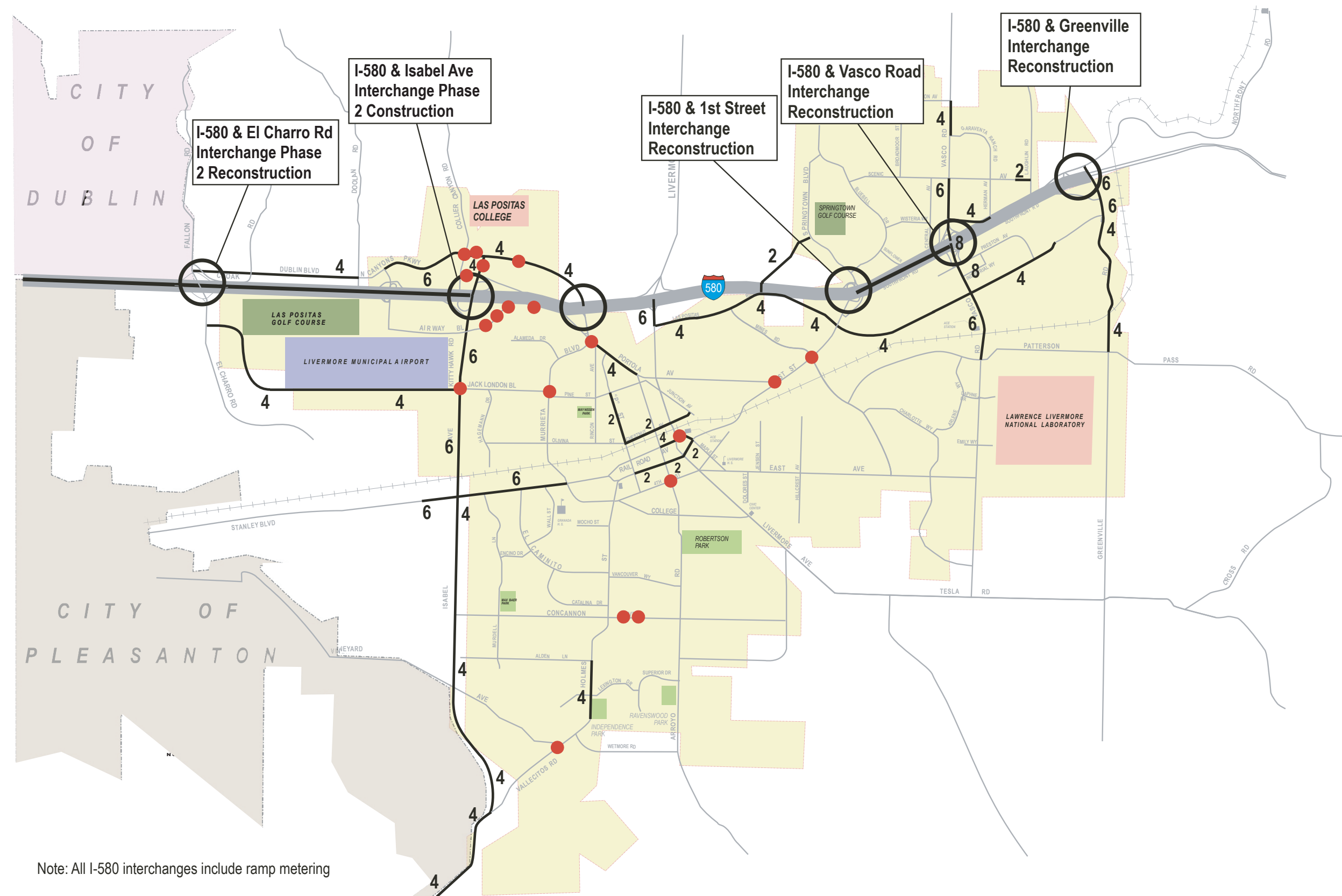
Intersection Improvements

At some intersection locations, mid-block roadway widening as noted above will not be adequate to maintain desired levels of service. This is because intersections represent "bottleneck" points in the transportation system. At intersections, the right-of-way must be shared by two intersecting roadways, and the effective capacity of each roadway to move traffic is reduced. In some locations, additional lanes of traffic are required to maintain acceptable service levels. This may include additional through lanes, additional turning lanes

(exclusive left and/or right turn lanes), installation of traffic signals at currently unsignalized locations, modification of traffic signal timing and operations and other measures. Table 5-4 lists roadway segments that will be improved to accommodate buildout of the land use plan. Figure 5-2 illustrates the locations of the proposed intersection and roadway improvements. The figure also illustrates the locations of regional improvements, including freeway and interchange reconstruction, that have been included in the plan. At some locations, however, it is not possible to provide enough lane capacity to achieve mid-level LOS D or LOS E (threshold varies depending on location) because environmental constraints, right-of-way constraints or cut-through traffic volumes or other City policies prevent the implementation of improvements which would achieve mid-level LOS D/LOS E (as applicable) or better. Those locations are:

- ◆ First Street/N. Mines Road
- ◆ Isabel Avenue/Airway Boulevard
- ◆ Isabel Avenue/Jack London Boulevard
- ◆ Vasco Road/Northfront Road
- ◆ Vasco Road/I-580 Eastbound Ramps
- ◆ Concannon Boulevard/S. Livermore Avenue
- ◆ Holmes Street/Fourth Street
- ◆ Stanley Boulevard/Murrieta Boulevard (Reso. 2009-055)

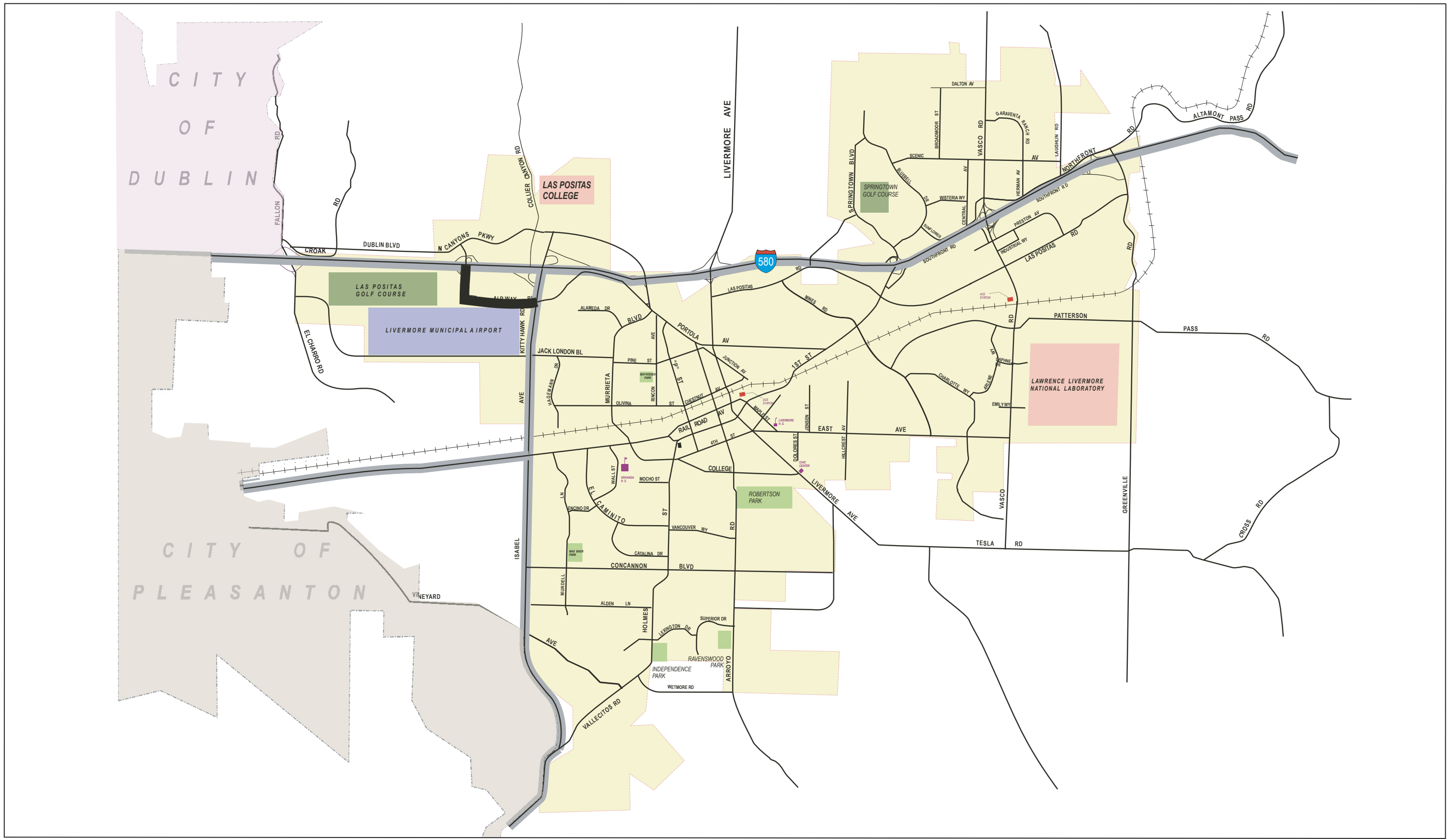
This page intentionally left blank.



Note: All I-580 interchanges include ramp metering

- | 4 | PROPOSED ROADWAY IMPROVEMENT LOCATION (ULTIMATE NUMBER OF LANES) |
|---|--|
| | PROPOSED TRAFFIC SIGNALS OR INTERSECTION IMPROVEMENTS |

PROPOSED ROADWAY AND INTERSECTION IMPROVEMENTS



- ROADWAYS DESIGNATED AS TRUCK ROUTES (upon transfer of SR-84 to Isabel Avenue)
- INTERIM TRUCK ROUTE (Until Isabel Interchange is Completed)

FIGURE 5 - 3

PROPOSED TRUCK ROUTE SYSTEM

At these locations, traffic conditions will be monitored, and feasible improvements will be implemented as required, although the traffic model forecasts indicate that they may not ultimately achieve the City's desired level of service.

Local Cut-Through Traffic

Local residential street cut-through traffic, and excessive speeding on residential local and collector streets will worsen as the congestion on the arterial street system increases. In March 2002, to help minimize local cut-through traffic problems, the City Council adopted a comprehensive residential traffic-calming program. This program enables the City to address local and collector street volume and speeding problems when they arise, and it will be used in the future to mitigate, to the greatest extent possible, any additional impacts that arise.

Changes to Truck Routes

Upon completion of the transfer of SR 84 to Isabel Avenue, the new SR 84 will be designated as a truck route. As a result of this transfer, the following truck routes would be removed from the system: First Street, Vallecitos Road north of Isabel Avenue, Holmes Street, Livermore Avenue, and Stanley Boulevard east of Isabel Avenue. This recommendation is consistent with policies to limit cut-through traffic in the City and prohibit through truck traffic from Downtown. The proposed truck route system is illustrated in Figure 5-3.

Bicycle, Pedestrian, and Trails Active Transportation Plan

The City's Bicycle, Pedestrian, and Trails Active Transportation Plan (adopted 2018 or as amended in the future) provides a comprehensive planned network, a set of goals and policies, date, and implemental programs for pedestrian, equestrian, and bicycle facility improvements within the City. The Active Transportation Plan is a fundamental component for competing for and security grants and other funding to implement the identified goals and priorities. The primary objective of the bicycle, pedestrian, and trails system is to provide a comprehensive, safe network for transportation and recreational purposes for a variety of non-vehicular users.

The proposed bicycle, pedestrian and trail network includes improvements to existing trails and bike facilities (new trail and bike lane segments), new sidewalks, as well as new bridges and major crossings to complete the existing system and provide improved access to key designations such as schools, downtown, transit stations, and community facilities.

The intent of the proposed bicycle, pedestrian, and trail facility improvements is to provide the community with a comprehensive bicycle, pedestrian, and trail network for transportation as well as recreational purposes that will serve the needs and levels of a variety of users. See the Active Transportation Plan (adopted in 2018 or as amended in the future) for a map and list of proposed bicycle, pedestrian, and trail facilities.