Citywide Roadway & Transportation Master Plan

Prepared for:
City of Tracy

February 2012

RBF CONSULTING

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1.1 INTRODUCTION

In 2008, the City of Tracy began an update of the Transportation Master Plan (TMP). The TMP was last updated in 1994. According to the City's 2006 General Plan, the city's population has more than doubled to approximately 74,000 residents between 1990 and 2004. During a similar time period, the number of jobs has almost tripled to 29,000.

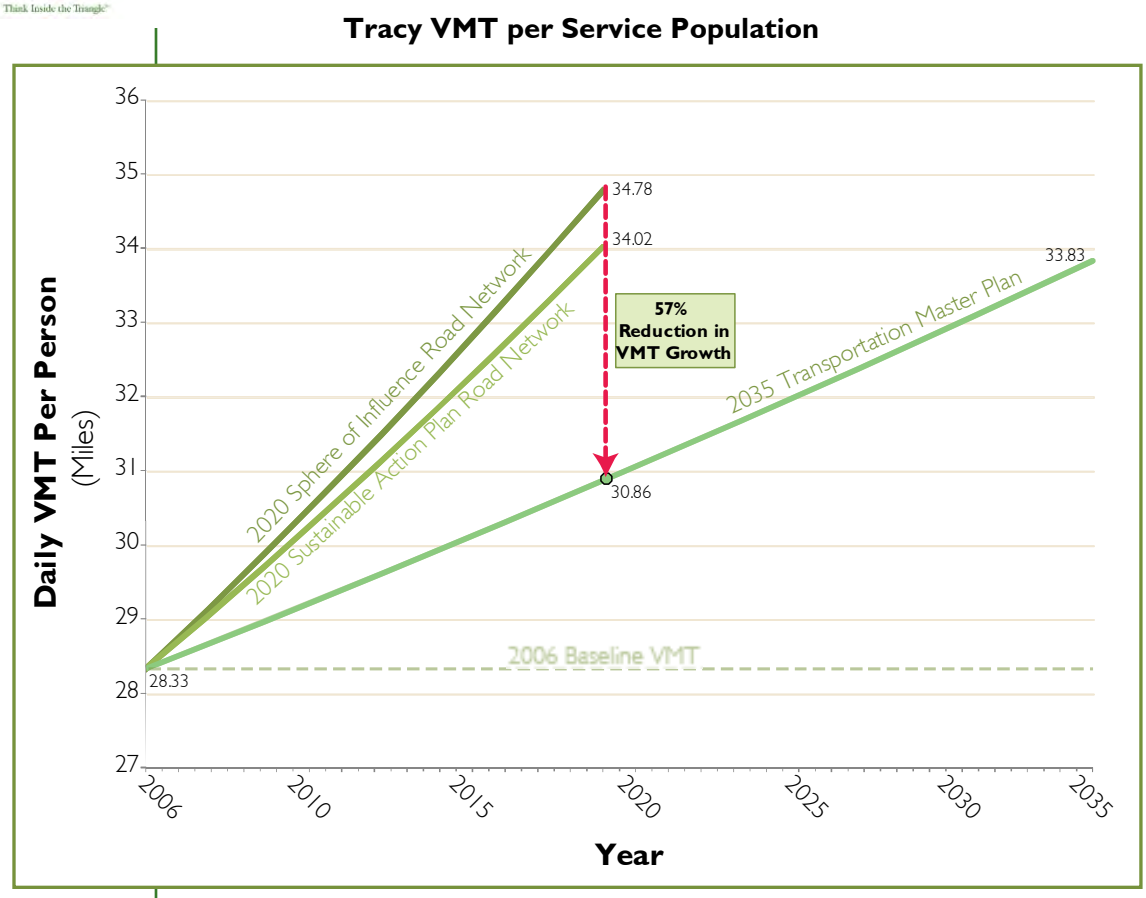
The transportation system is a key element in maintaining historical growth and accommodating future development. The transportation system includes three major freeways; several active rail lines; local and regional truck routes; arterial, collector, and residential streets; and bicycle, pedestrian, and transit facilities. The City is responsible for ensuring that the transportation system is providing adequate and efficient access for all modes.

The TMP reflects a decrease in the daily vehicle miles traveled per person for the City of Tracy service population when compared to the 2020 Sphere of Influence and Sustainable Action Plan land use and roadway network development scenarios:

Tracy Vehicle Miles Traveled (VMT) per Service Population Calculations

Scenario	Total Daily VMT	Population + Employment	Daily VMT per Service Population
Existing (2006)	3,301,364	116,526	28.33
2020 Sphere of Influence	5,291,997	152,140	34.78
2020 Sustainable Action Plan	5,175,759	152,140	34.02
2030 General Plan	4,778,000	N/A	N/A
2035 TMP	6,901,062	203,997	33.83

The road network within the 2020 Sphere of Influence and 2020 Sustainable Action Plan scenarios is represented in the City's General Plan. The 2035 road network includes a grid road network which connects future and existing land uses more efficiently. This results in a reduced VMT as indicated as follows. A reduction in VMT decreases Green House Gas emissions.



1.2 PURPOSE OF TMP

The TMP builds upon the goals and objectives as defined in the Circulation Element of the City's General Plan (July 2010) and the Sustainable Action Plan (SAP) (February 1, 2011). The SAP included feasible measures to achieve sustainability in multiple sectors and to reduce greenhouse gas (GHG) emissions. These measures include policies and measures to increase transit usage and opportunities, to improving traffic flow in the city, to support development of new bicycle and pedestrian facilities, and other land use policies.

The General Plan is based upon a future horizon year of 2030 conditions. The TMP looks out another five years, to Horizon Year (2035), to provide the maximum possible infrastructure planning and to be consistent with the planned San Joaquin Council of Governments travel demand model update to Year 2035.

The TMP provides a comprehensive review of the City's transportation system and serves as a comprehensive planning document, or blueprint, that can be utilized to identify and implement required improvements to the existing roadway system as well as expand upon the system to accommodate future development consistent with the recent General Plan update.

The TMP also balances the existing and future transportation infrastructure needs with safe access for all user groups (motorists, pedestrians, bicyclists, and transit users) by incorporating strategies, principles, and design elements such as Smart Growth design elements, Context-Sensitive Design, and Complete Streets guidelines.

The Tracy TMP includes extensive use of principles of Complete Streets and Smart Growth principles through the development of a transportation system that will address all future transportation needs:

- Transit (bus, and rail)
- Cycling
- Walking
- Private vehicle movement
- Good vehicle movement

The road network system is designed to provide a comprehensive grid system of hierarchal streets that provides for a well-connected City, reduces trip lengths, promotes non-motorized travel and reduces the per capita emission of greenhouse gasses.

Every transportation element of the TMP includes implementation of Smart Growth and Complete Streets principles. Additional, comprehensive information is included in the TMP that further identifies guidelines for use in the detail design and implementation of the TMP.

This TMP shall be updated every five years for consideration of required improvements and related costs.

1.3 DEVELOPMENT OF TMP

The development of the TMP was conducted with the following steps:

Step 1: Forecast Horizon Year Conditions: The City of Tracy Travel Demand model was updated to project Horizon Year conditions. Sustainable land use and transportation strategies were incorporated; Horizon Year and build-out land uses for each future service in the General Plan Update from the City were obtained; Horizon Year and build-out plan-line roadway networks (classification and number of lanes), based on the model link volume forecasts, incorporating the effects of the sustainability strategies were developed; and future intersection volumes were forecasted.

Step 2: Assess Horizon Year Roadway Network Conditions: The results from Step 1 was used to evaluate each aspect of the transportation system (roadway and intersection capacity, bridges/canals/culverts, bicycle and pedestrian

facilities, train crossings, truck facilities, park and ride facilities, and ITS system).

Step 3: Identify Horizon Year Roadway Improvements: The results from Step 2 were used to identify whether roadways and intersections needed to be widened, whether adequate bicycle and pedestrian facilities were provided and what gaps were missing in the system. Railroad and bridges/canal/culvert crossings were examined to determine whether sufficient capacity was provided. Updated roadway cross sections for various types of roadways were prepared to provide adequate access for all modes of travel. Improvements were identified to address projected deficiencies in other areas (e.g. park and ride facilities, ITS equipment, truck routing system).

Step 4: Finalize the Plan and Identify Capital Costs: Input on the proposed list of improvements was obtained from City staff and various stakeholders and preliminary cost estimates for implementation were developed.

1.4 OBJECTIVES OF THE TMP

The following are objectives of the TMP:

- Provide an Implementation Plan for the Circulation Element of the City of Tracy General Plan (2011).
- Serve as a comprehensive planning document or blueprint that identifies and requires improvements to the existing transportation system and expands upon the system to accommodate future development consistent with the General Plan. The system includes transit passenger movement, goods movement, pedestrian movement, bicycle movement and private vehicular movement.
- Establish a framework of goals, policies, and implementation methodology that outlines improvement projects and programs, identifies financial resources and allocates funding, and sets project priorities to provide a safe and efficient transportation system that meets the community's needs.
- Guide the development of transportation infrastructure and services as growth occurs under the General Plan.
- Facilitate a transportation system that is a multi-modal network of roads, bicycle lanes and paths, transit services, and pedestrian facilities that will support the planned land uses in the City by providing mobility to residents and visitors alike.
- Balance existing and future transportation infrastructure needs with safe access for all user groups (motorists, pedestrians, bicyclists, and transit users) by incorporating strategies, principles, and design elements such as Smart Growth design elements, Context-Sensitive Design, and Complete

Street guidelines.

- Facilitate the provision of an improved transportation system that enhances mobility, accommodates future growth, and maintains the quality of life in Tracy.
- Establish policies and priorities to maintain and improve the transportation system.
- Maintain consistency with the San Joaquin County Expressways Study,
- Preserve four-lane maximum arterial widths where possible to promote a more walkable, bikeable environment, particularly in new areas of future development where sustainable practices can be applied in an equitable manner.
- Decrease right-of-way and vehicular lane widths which implement Complete Street principles.
- Maintain consistency with the roadway plans in entitled project areas (Ellis Specific Plan and Gateway).
- Provide maximum roadway v/c ratios of 0.8 – 0.9 (roughly corresponding to a LOS D - E operation on a link-volume basis) to the greatest extent possible.
- Ensure the provision of bicycle and pedestrian facilities that connect people and places.
- Develop a comprehensive bicycle and pedestrian system that ensures a multi-modal infrastructure network.
- Develop a comprehensive circulation system that identifies bridge and culvert crossings to minimize traffic conflicts and preserve open space and preservation areas.
- Develop a comprehensive Park and Ride system that supports resident transit usage or carpooling to commute from the City.
- Provides a nexus for a Traffic Impact Fee Program that will fund the development of the planned transportation system through payment of impact fees by all future development.
- Develop Travel Demand Management (TDM) principles that reduces private vehicle trips and build on the regional TDM programs developed by the SJCOG
- Provide for a comprehensive transit system on all new collector, arterial and expressway roadways and providing opportunity for expanding transit services on the existing roadways.

1.5 REPORT ORGANIZATION

The TMP is organized into the following chapters:

Chapter 1: Introduction – Description and purpose of a transportation master plan

Chapter 2: Existing Transportation System – Description of the existing transportation roadway system (roadway functional classification, intersection operations, pedestrian and bicycle facilities, park and ride facilities, truck facilities, bridges/canals/culverts, railroad facilities, and intelligent transportation system).

Chapter 3: Overview of TMP Development Process – Description of Horizon Year and Buildout planning horizons including land use, roadway network, mode split, trip generation and distribution, and future roadway plan lines.

Chapter 4: Horizon Year TMP – Recommended improvements to support Horizon Year growth for the various transportation elements as indicated in Chapter 2.

Chapter 5: Horizon Year TMP Cost Estimates – Discussion of the cost estimates to provide the Horizon Year infrastructure recommendations.

2. EXISTING TRANSPORTATION SYSTEM

2.1 INTRODUCTION

The purpose of this chapter is to provide perceptive as to the scale of the existing transportation systems in the City of Tracy and to identify any existing operating deficiencies. The findings from this chapter will be incorporated into the Horizon Year Transportation Master Plan (TMP) to help determine the needs of the City for short and long-term future conditions.

The existing conditions determine the baseline conditions from which the Horizon Year transportation system is developed. The following elements of the transportation system in Tracy are evaluated in this chapter:

- Automobile Mobility
    - Street Segments
    - Intersections
    - Canal and Creek Crossings
    - Roadway Bridges
    - Railroad Crossings
    - Park and Ride
    - Parking
- Pedestrian Mobility
- Bicycle Mobility
- Heavy Vehicle Mobility
- Transit
- Intelligent Transportation System

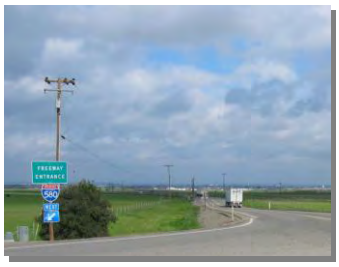
The ultimate goal of the TMP is to develop a framework of goals, policies and implementation methodology that outlines improvement projects and programs, identifies financial resources and allocates funding, and sets project priorities to provide a safe and efficient transportation system that meets the community's needs.

Tracy residents are served by an extensive, multi-modal transportation system that includes walking and cycling facilities (on-road cycling facilities, sidewalks and multi-use pathways), transit services (on-road bus services and Park & Ride lots), roads (freeways, arterials, collector and local roads) and parking facilities (on-street and off-street).

The City of Tracy's transit service will be updated as part of tier 2.

2.2 STUDY AREA

2.2.1 REGIONAL CONTEXT



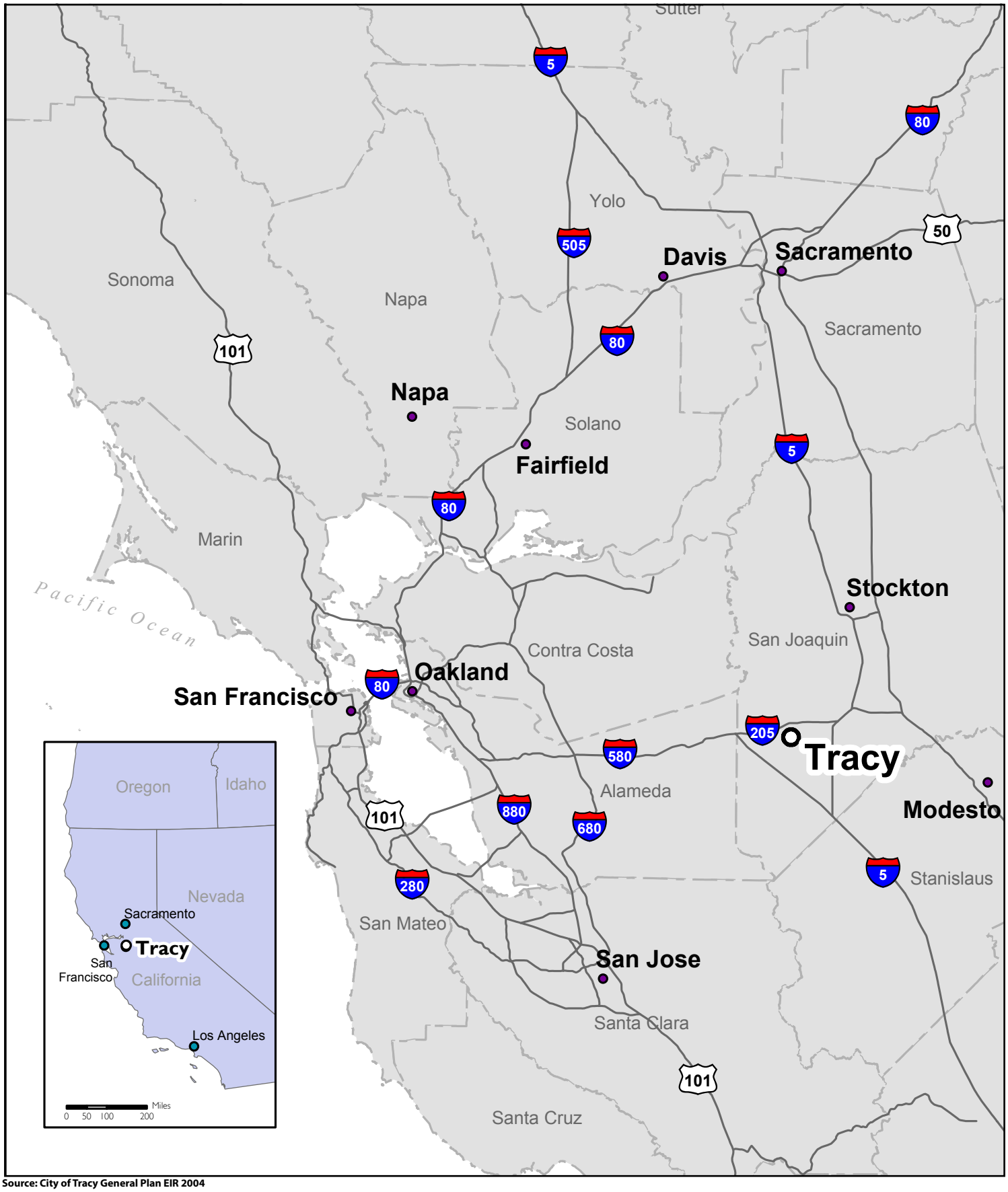
The City of Tracy is home to roughly 82,000 people based on the 2006-2008 American Community Survey 3-Year Estimates as identified by the US Census. Although the current city boundary covers an area of some 22 square miles, approximately 70% is built out.

The City of Tracy is located approximately fifty miles east of San Francisco in the southwest portion of San Joaquin County (**Figure 2.1**). The City is situated in the center of a triangle that is formed by Interstate 5 (I-5), Interstate 205 (I-205), and Interstate 580 (I-580). This orientation provides multiple access points for regional travel and goods distribution to the west towards San Francisco Bay Area along I-580, to the north along the I-5, and to southern California along I-5. Multiple agencies govern the transportation infrastructure management in and around Tracy:

- Interstate Freeways – Caltrans
- Regional Transportation Planning – San Joaquin County, San Joaquin Council of Governments, and City of Tracy
- Transit – San Joaquin Regional Rail Commission, San Joaquin Regional Transit District, and City of Tracy
- Local Streets – City of Tracy

Figure 2.2 presents the existing City limit and a parcel map of the City.

Tracy residents use automobiles more than any other mode of travel. The US Census estimated that in 2008 approximately 94% of commuters traveled by automobiles (78% drove alone, 16% carpooled), 3% traveled by transit, almost 2% traveled by walking and just over 1% traveled by other modes of transportation. Approximately 97% of households own at least one motor vehicle, with households owning an average of 1.2 each.



Source: City of Tracy General Plan EIR 2004

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Figure 2.1: Regional Location

City of Tracy Transportation Master Plan

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Mountain House Pkwy
Hansen Rd
Byron Rd
Reeve Rd
Bethany Rd
Lammers Rd
Corral Hollow Rd
Tracy Blvd
Arbor Ave
MacArthur Dr
Grant Line Rd
11th St
Central Ave
Schulte Rd
Sycamore Pkwy
Chrisman Rd
Valpico Rd
Banta Rd
Bird Rd
Linne Rd
Ahern Rd
Durham Ferry Rd
Patterson Pass Rd
205
580
5

Legend

City Limits

Sphere of Influence

Source: City of Tracy General Plan EIR 2004, RBF Consulting 2010

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North

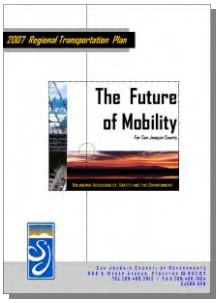
0 0.5 1 2 Miles (Approximate)

Figure 2.2: Tracy City Limits and Sphere of Influence Map

Goods movement is also a significant element of total travel demand in Tracy. The I-205 freeway carries heavy truck volumes over its entire length. Total truck traffic in 2008 east of Tracy Boulevard was over 11,200 truck trips per day, or approximately 11 percent of all traffic. I-580 freeway also carries heavy truck volumes over its entire length. Total truck traffic in 2008 on I-580, east of Highway 132 /Chrisman Avenue, was approximately 6,000 truck trips per day, or 18 percent of all traffic.

Figure 2.3 shows the existing land uses in the City overlaid on the existing base map.

San Joaquin County has numerous regional transportation improvements planned which have been outlined in the *2007 Regional Transportation Plan* (RTP) (San Joaquin Council of Governments, May 2007). These include but are not limited to:



- Highway mainline and interchange safety and operational improvements
- Roadway and intersection improvements
- Signal control upgrades and coordination improvements
- Transit facility improvements
- Bicycle facility improvements

A complete listing of the planned improvements identified in the RTP has been included in Appendix A.

The *2007 Regional Congestion Management Plan* (San Joaquin Council of Governments, December 6, 2007) identifies the strategic plan for reducing congestion and its economic impacts. The strategies include:

- Developing new land use monitoring and information program
- Developing new multi-modal performance measures
- Limiting Vehicle Miles Traveled (VMT) growth
- Coordinating between private and public agencies

2.2.2 EMERALD TRACY

The City of Tracy has started the Emerald Tracy pilot program which is part of the Emerald Cities Collaborative (ECC). The goal of the program is to improve cities and surrounding metropolitan areas by making them more environmentally friendly. Several transportation sustainability objectives have been established by the Emerald Tracy program. These objectives include a:

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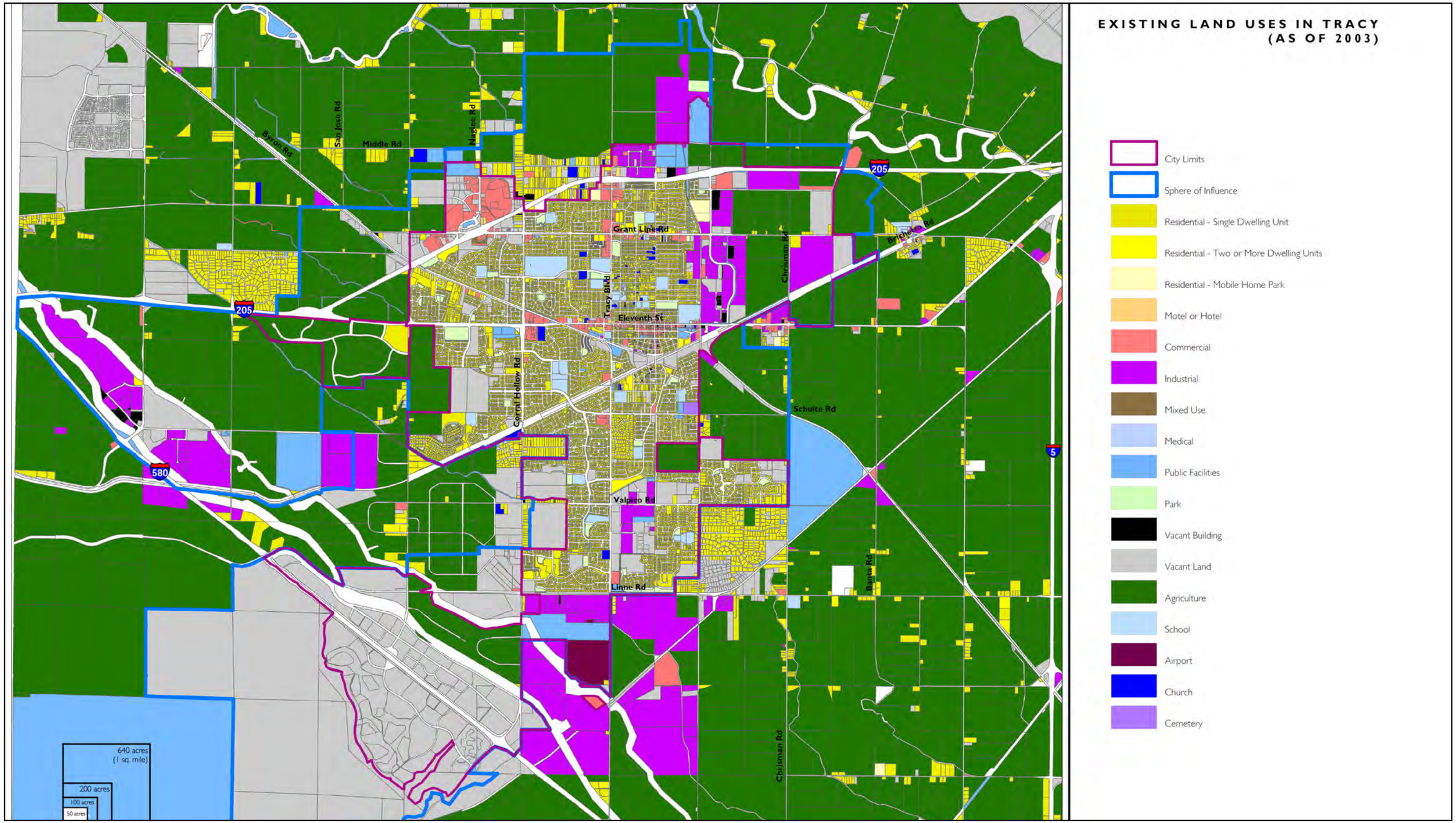

Source: City of Tracy General Plan EIR 2004

North

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Figure 2.3: Existing Land Use Map

- 20% increase in the percentage of City employees who participate in travel demand management programs from current (2006) levels.
- 20% increase in the percentage of non-City employees who participate in travel demand management programs from current (2006) levels.
- 20% reduction in the municipal VMT from current (2006) levels.
- 20% reduction in the community VMT per capita from current (2006) levels.

To make sure objectives are reached, action plan measures are currently being established from ideas that were developed during community workshops. Some of the ideas that are applicable to transportation planning are:

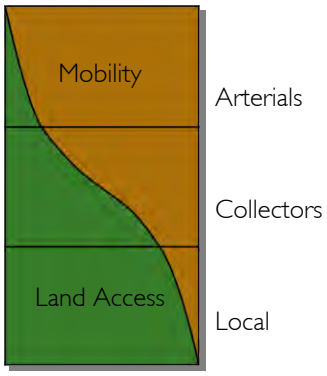
- Installing parking, shower and dressing facilities, and creating a bicycle sharing program to promote bicycle usage,
- Increasing transit route coverage to be within ½ mile of all residents and ¼ mile of 75 percent of residents in new developments,
- Filling the gaps in sidewalks along key pedestrian routes, and
- Develop a bottleneck improvement program to execute improvements along the City's key corridors.

2.3 INFRASTRUCTURE AND MODES OF TRANSPORTATION

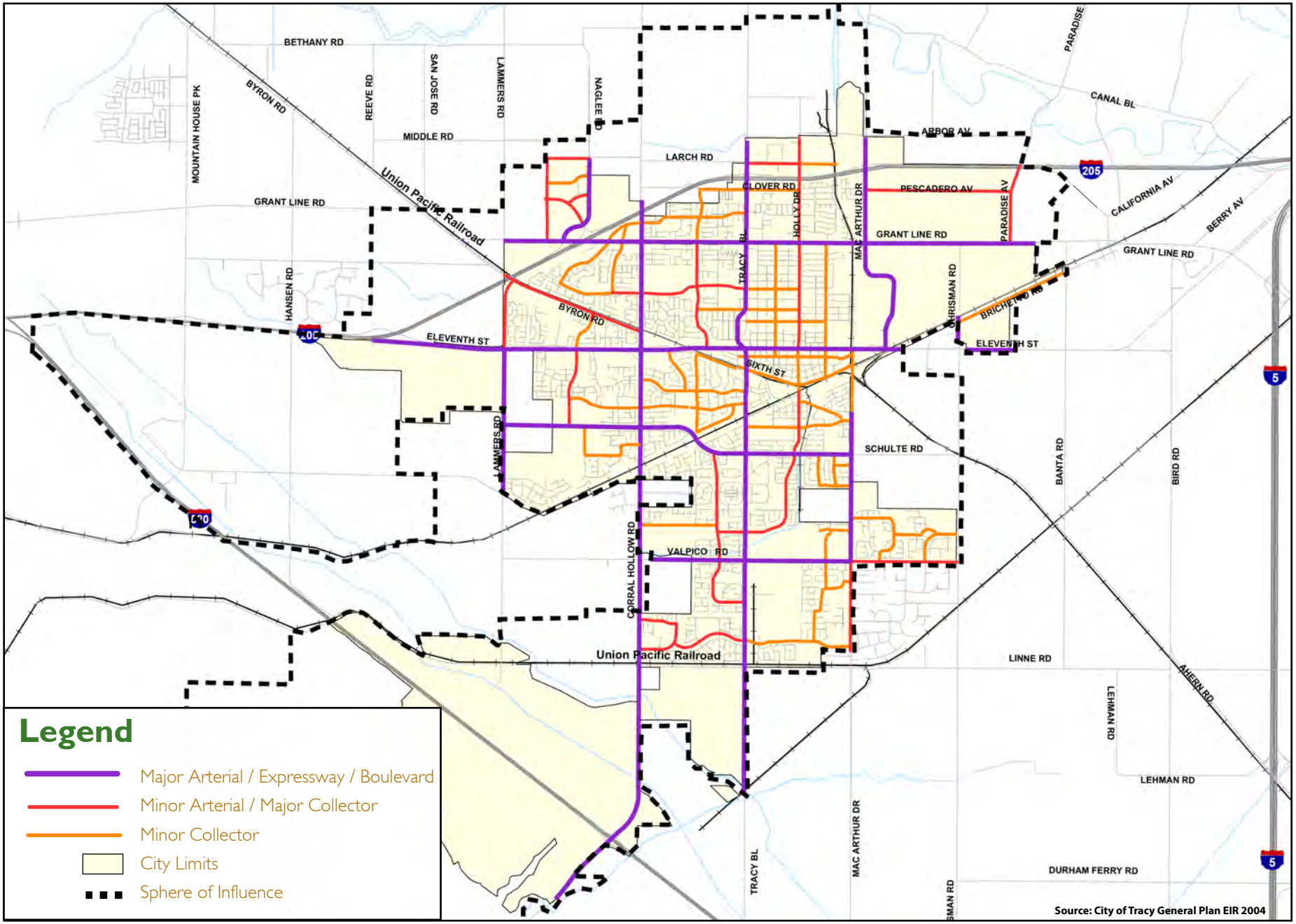
The City of Tracy roadway network supports multiple modes of travel including vehicles, transit, biking, and walking. The following sections provide a description of the elements that form the roadway network.

2.3.1 FUNCTIONAL CLASSIFICATION

Roadways that comprise the Tracy transportation network are part of a hierarchal classification system. The system classifies roadway types based on the function they serve and the jurisdiction that they fall under. The function of roadways range from regional facilities serving the mobility of high volumes of vehicles to local roadways providing access to land parcels for low volumes of vehicles.



Descriptions of the existing roadway classification system that serves the City of Tracy are provided in the following paragraphs. **Figure 2.4** presents existing roadway functional classification in the City of Tracy. **Table 2.1** summarizes the key characteristics (vehicular design capacity, typical curb-to-curb width, and number of lanes) for these various types of roadways.



North

Figure 2.4: Existing Roadway Funcitonal Classification

Table 2.1: Existing Functional Classification Design Criteria

	Design Capacity (vehicles/day)	Typical Curb to Curb Width (ft)	Typical Number of Lanes
Expressway	> 10,000	86 – 110	4 - 6
Major Arterial	> 10,000	80 – 104	4 - 6
Minor Arterial	5,000 – 12,000	64	4
Collector	2,000 – 5,000	44 – 56	2
Residential	500 – 2,000	36 - 40	2
Industrial	Not Provided	44	2

2.3.1.1 FREEWAYS

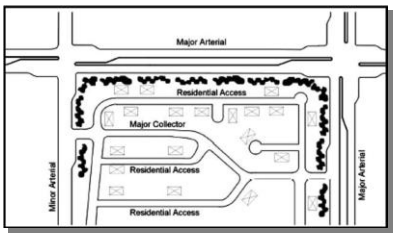
Freeways are designed to carry very high volumes of traffic at very high travel speeds. Travel along freeways is generally unimpeded and provides inter-regional and inter-state travel for passenger cars and commercial vehicles. Access is provided by grade separated interchanges that are generally spaced at a minimum of one mile.

2.3.1.2 EXPRESSWAYS

Expressways provide connections to regional roadways such as freeways and are usually designed to accommodate through traffic with limited access to adjacent land uses. These facilities typically have multiple lanes (four, six, or eight) and carry higher speeds and volumes. Access points are typically spaced further apart, usually a minimum of one third mile spacing between major intersections. Closer spacing of signalized intersections lowers the progression speeds of vehicles, yet improves distribution to more road segments on the system, ultimately providing for a denser road network with well established connections between origins and destinations. Right-in-right-out access point may be provided in-between the major intersections. Expressways generally serve higher traffic volumes (up to 75,000 average daily trips for a 8-lane facility).

2.3.1.3 ARTERIALS

Arterials provide regional connectivity and relatively unimpeded traffic flow for both passenger cars and commercial vehicles. These facilities have high vehicles capacities and support high travel speeds. Access to arterials is limited by intersection spacing and driveway locations. Arterials can be classified as either major or minor arterials.



Major arterials are designed to provide major routes within the City and to regional facilities. Major arterials have access points that are spread out approximately every mile. Traffic volumes along major arterials can be as high as 50,000 vehicles per day.

Minor arterials provide some direct access to shopping centers and large residential communities. Access to minor arterials is more frequent than major arterials (approximately every half mile). Traffic volumes along minor arterials range from 10,000 to 30,000 vehicles per day.

2.3.1.4 COLLECTORS

Collectors are designed to provide connectivity between local roadways and the higher capacity arterial facilities. Collectors also provide direct access to business and residential properties (approximately every quarter mile). High vehicle capacities and moderate travel speeds are supported by collectors. Collectors can be classified as either major or minor. Major collectors support higher volumes and higher speeds than minor collectors but have more limited access. Collectors have traffic volumes that range from 2,000 to 10,000 vehicles per day.

2.3.1.5 RESIDENTIAL

Residential streets support low traffic volumes and slow travel speeds. They provide direct access to properties and connect to the roadway network. Design guidelines of these roadways are implemented to minimize travel speed, promote pedestrian safety, and prohibit cut through traffic. Access locations are generally very close together on residential streets (approximately 500 foot spacing).

2.3.1.6 INDUSTRIAL

Industrial streets are designed to provide access to industrial and commercial land uses such as shopping centers, office parks, and industrial parks. These roadways are designed to allow access for truck traffic.

2.3.2 TRAFFIC CONTROL

Traffic control systems are used to direct drivers, pedestrians, and bicyclists while providing a safe and efficient operating environment. Traffic control systems are comprised of but not limited to roundabouts, signal controls, stop signs, pavement markings, and roadway signs. The implementation, design, and placement of these devices are governed by the California *Manual of Uniform Traffic Control Devices* (MUTCD) and the City of Tracy Standard Plans.

2.3.3 EXISTING BICYCLE CIRCULATION

The City of Tracy updated its *Bikeways Master Plan* in April 2005. The purpose of the update was to revise the *1992 Bikeways Master Plan* and to identify fund raising opportunities and provide a long range planning tool. The City is currently in the process of developing an addendum to the *2005 Tracy Bikeways Master Plan*. The addendum, *Tracy Master Plan Design Supplement*, will identify design strategies for improving the existing bicycle circulation.

2.3.3.1 BICYCLE FACILITIES AND PARKING

The City of Tracy uses the Caltrans *Highway Design Manual* (6th Edition, California Department of Transportation, 2006) for its bicycle facility design standards. The standards are outlined in Chapter 1000: Bikeway Planning and Design. These design standards classify bikeway facilities into three categories; Class I, Class II, and Class III. The categories are described below.

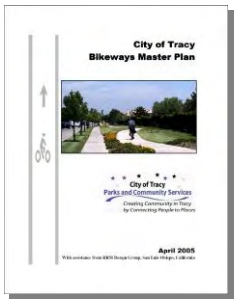
Class I Bikeway (Bike Path) – A Class I Bikeway is a physically separated bike path that does not share the roadway with motorized vehicles. They can be separated by either open space or a physical barrier and are generally two-way facilities for bicyclists and pedestrians.

Class II Bikeway (Bike Lane) – A Class II Bikeway is a bike lane that shares a portion of the roadway with motorized vehicles. They are separated by striping and are signed and marked for exclusive use by bicycle traffic. Class II Bikeways provide service for one-way bicycle traffic and are located outside of the through lanes for motorized vehicles.

Class III Bikeway (Bike Route) – A Class III Bikeway is a bike route that shares the roadway with motorized vehicles. They are identified by signs and not separated by striping. Class III Bikeways are utilized in locations that do not have Class I or Class II facilities or to connect Class II Bikeways to provide a continuous bikeway system.

The City of Tracy has an extensive bicycle network that includes all three bikeway categories (**Figure 2.5**). Although the bikeway system is broad, there are critical gaps that limit its effectiveness to serve cyclists through connecting origins and destinations. The gaps include:

- Three segments along Grant Line Road
  - Between MacArthur Drive and Tracy Boulevard
  - Between Tracy Blvd and Lincoln Boulevard
  - Under the I-205 overpass
- Tracy Boulevard between West 11th Street and I-205,
- Two segments on MacArthur Drive between Valpico Road and just north of Schulte Road,



Class I: Bike Path

Class II: Bike Lane

Class III: Bike Route

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Mountain House Pkwy
Hansen Rd
Byron Rd
Reeve Rd
Bethany Rd
Lammers Rd
Corral Hollow Rd
Tracy Blvd
Arbor Ave
Grant Line Rd
MacArthur Dr
11th St
Central Ave
Schulte Rd
Chrisman Rd
Sycamore Pkwy
Valpico Rd
Banta Rd
Bird Rd
Linne Rd
Ahern Rd
Durham Ferry Rd
Patterson Pass Rd
I-205
I-580
I-5

Legend

- Class I (Bike Path)
- Class II (Bike Lane)
- Class III (Bike Route)
- City Limits
- Sphere of Influence

North

0 0.5 1 2 Miles (Approximate)

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Figure 2.5: Existing Bikeway Map

City of Tracy Transportation Master Plan

- One segment south of Valpico Road, and
- One segment along Valpico Road between MacArthur Drive and Tracy Boulevard.

As identified in the City of Tracy's *Bicycle Master Plan* (BMP), bicycle parking facilities are categorized as follows:

- Class I bicycle parking facilities consist of bicycle lockers, or a secure area that may be accessed only by bicyclists.
- Class II bicycle parking facilities are bicycle racks that provide support for the bicycle but do not have locking mechanisms.

The City requires that bicycle parking be provided at parking lots with 20 or more vehicle parking stalls (*City of Tracy Municipal Code*, September 2009). Ordinance 10.08.3510, Bicycle Parking, states that 2 bicycle permanent bicycle stalls shall be provided in parking lots with 20 to 40 vehicle stalls and 5% of the total vehicle stalls for parking lots with more than 40 vehicle stalls.

Each bicycle parking stall shall be 5 ½ feet long by 2 ½ feet wide and include a permanent fixture for locking or securing the bicycle frame and wheels in an upright position. The parking stalls are required to be within 100 feet of the public entrance for each building or land use type.

2.3.4 EXISTING PEDESTRIAN CIRCULATION

The City of Tracy is pedestrian friendly with widespread sidewalk coverage and pedestrian crossing with Americans with Disabilities Act (ADA) ramps along major roadways and in residential neighborhoods. The sidewalk coverage helps to promote walking and provides pedestrians access to destinations throughout the City.

Figure 2.6 provides a map of the existing sidewalk locations and highlights them in red. Although a detail inventory of each residential neighborhood was not performed, a preliminary inventory was completed. The map highlights in yellow, neighborhoods that have approximately 90% or greater sidewalk coverage.

Similar to bikeway facilities, the City has critical gaps in sidewalk coverage. These gaps include multiple segments along Corral Hollow Road south of Schulte Road, along Byron west of Corral Hollow, along Tracy Boulevard south of Valpico Road, and along Grant Line Road west of Corral Hollow and east of East Street. In addition to the critical gaps, ADA routes have not been established along the existing sidewalks to specific destinations in the City.

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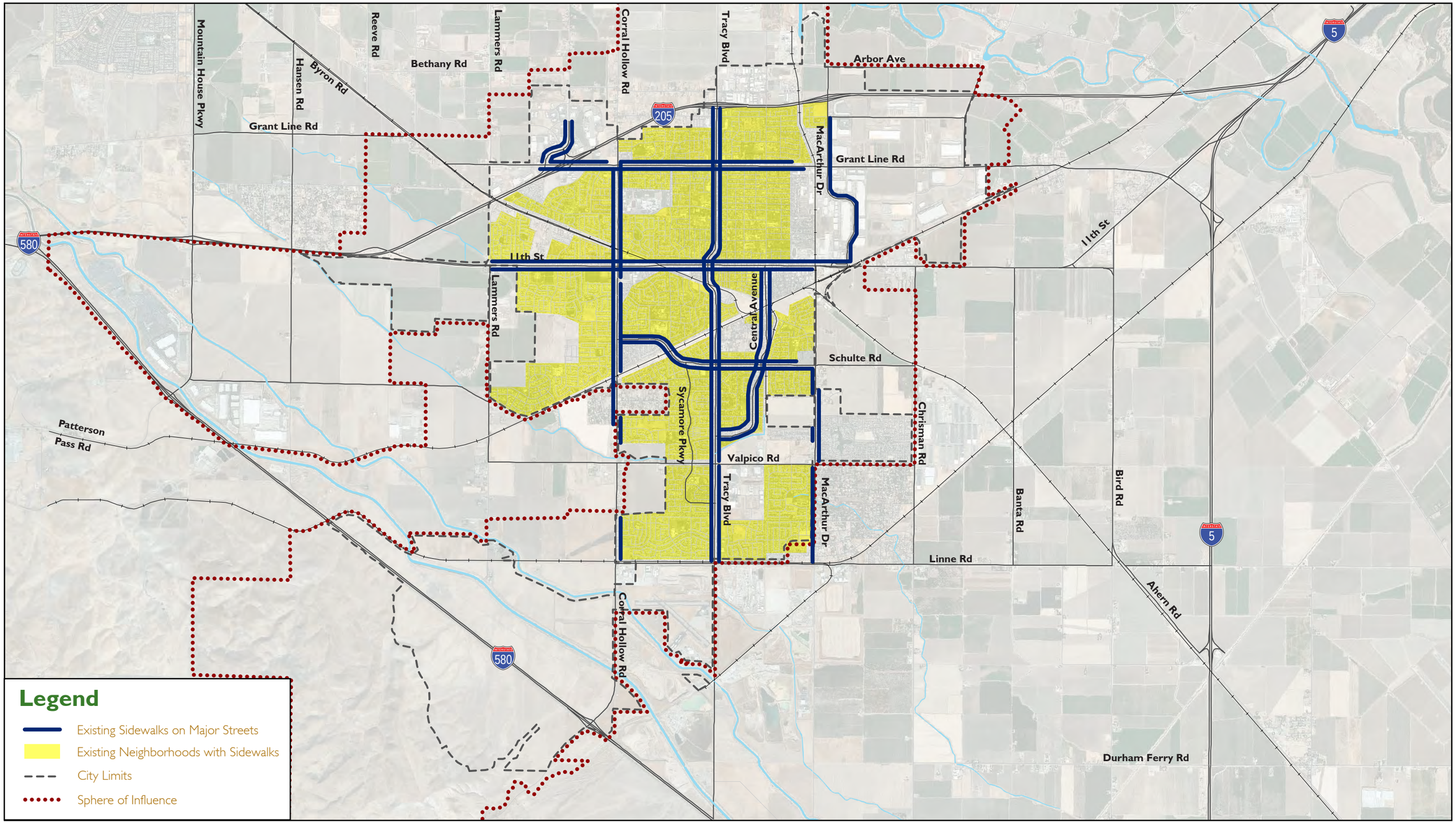

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Figure 2.6: Existing Sidewalk Map

City of Tracy Transportation Master Plan

2.3.5 EXISTING PARKING

The City's goals and actions it takes, will acknowledge the ability of parking supply and parking pricing to influence how people choose to travel. Parking areas are also a major consumer of land, and the treatment of parking within developments can either help or hinder the achievement of compact communities. Notwithstanding these concerns, adequate parking is an issue of vital importance to Tracy's businesses and institutions. Parking enables them to remain accessible to employees, customers and visitors who travel by automobile, whether by need or choice. The interests of employers, stores, service providers must be considered in the development of a balanced parking system.

Parking services provided directly by the City include on-street parking, several off-street parking lots, and enforcement of parking by-laws. These services have significant costs, but also generate significant revenues. As well, through its land use planning functions, the City also influences the supply of parking in new developments, and has some regulatory control over privately run off-street public parking lots.

2.3.6 PARK AND RIDE FACILITIES

A Park-and-Ride facility is generally an area used to park vehicles, while the vehicle owner uses a public transport or carpooling to commute. Vehicles are parked in the facility during the day and retrieved when the commuter returns. Currently, there are five Park and Ride facilities within the City of Tracy as illustrated in **Figure 2.7**.

1. Naglee Road (Naglee Road /Pavillion Parkway intersection)
2. Prime Outlets (MacArthur Drive /E. Pescadero Avenue)
3. Tracy Transit Station (southeast corner 6th Street /Central Avenue intersection)
4. 6th Street and Central Avenue (northwest corner of the intersection)
5. Altamont Commuter Express (ACE) Train Station (Tracy Boulevard /Linne Road intersection)

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Mountain House Pkwy
Hansen Rd
Byron Rd
Reeve Rd
Bethany Rd
Lammers Rd
Corral Hollow Rd
Tracy Blvd
Arbor Ave
Grant Line Rd
MacArthur Dr
11th St
Schulte Rd
Central Ave
Sycamore Pkwy
Valpico Rd
Chrisman Rd
Banta Rd
Bird Rd
Linne Rd
Ahern Rd
Durham Ferry Rd
Patterson Pass Rd
580
205
5

Naglee Road Park and Ride

Vehicular Parking Spaces: 180
Transit: Tracer and SJRTD Service
Bike Storage: 4 Lockers & 1 Bike Rack

Prime Outlet Park and Ride

Vehicular Parking Spaces: 40
Transit: No Service
Bike Storage: No Lockers & Bike Racks

Tracy Transit Center Park and Ride

Vehicular Parking Spaces: 222
Transit: Tracer and SJRTD Service
Bike Storage: 12 Lockers & Bike Racks

Sixth Street and Central Avenue Park and Ride

Vehicular Parking Spaces: 71
Transit: Tracer and No Service
Bike Storage: No Lockers & 1 Bike Rack

Altamont Communiter Express (ACE) Park and Ride

Vehicular Parking Spaces: 505
Transit: ACE Service
Bike Storage: 6 Lockers & 1 Bike Rack

Legend

- City Limits
- Shpere of Influence
- Approximate Location of Park and Ride Facility

North

0 0.5 1 2 Miles (Approximate)

RBF CONSULTING

Figure 2.7: Existing Park and Ride Facilities Map

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2.3.6.1 NAGLEE ROAD PARK AND RIDE

This parking lot is located between Grant Line Road & Pavilion Parkway along the southside of Naglee Road and west of I-205 /Naglee Road interchange. This lot has a parking capacity for 170 regular vehicles and 10 ADA vehicles. It also has one bike rack and 4 bike lockers. Access to the parking lot is provided via Naglee Road /Park and Ride signalized intersection. Currently, Tracer fixed route and paratransit service operates one local bus service and San Joaquin Regional Transit District (SJRTD) operates several inter-regional bus services to and from this parking lot. The following bus routes provide services to the Naglee Road Park and Ride facility.

- # Route B - West Valley Mall /Tracy Transit Station - TRACER
- #153-Livermore 1 - Livermore/Sandia Labs – SJRTD
- #160-Bart 1 - Pleasanton/Dublin – SJRTD
- #166-Lockheed 3 Sunnyvale- SJRTD
- #170-San Jose/Metro Dr-Light Rail
- #171-Bart 2 - Pleasanton/Dublin – SJRTD
- #172-Lockheed 4 Sunnyvale- SJRTD
- #173-Sunnyvale – SJRTD
- #174-Mtn.View/Palo Alto – SJRTD
- #175 - Santa Clara – SJRTD

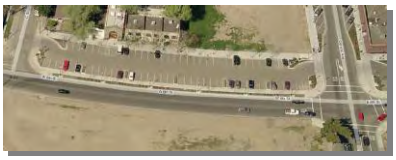
2.3.6.2 PRIME OUTLET PARK AND RIDE

This parking lot is located on the north side of E. Pescadero Avenue and in the back of Prime Outlet shopping center, and is in close proximity to the interchange of I-205 and MacArthur Drive. This lot has a parking capacity for 45 regular vehicles with no bicycle facilities provided. Access to the parking lot is shared with access for the shopping center. Currently, Tracer operates Route A bus service to and from the shopping center to Tracy Transit Station.

2.3.6.3 TRACY TRANSIT STATION PARK AND RIDE

The Tracy Transit Station opened on February 1, 2010 and serves as a transit hub for the City of Tracy. It is located on the southeast corner of Central Avenue and 6th Street. The Transit Station contains approximately 6,000 square feet and includes an indoor passenger waiting area, a ticket sales and information office, public restrooms, three community meeting rooms, 222 parking spaces (including infrastructure for up to three recharging spaces for electric vehicles), an outdoor plaza, designated bus, taxi and vanpool pickup and drop-off zones, and 12 bike lockers and bike racks. Access to the parking lot is provided along N. Central Avenue. Currently, Tracer operates five local bus services, Routes A thru E, and SJRTD operates two regional bus services to and from Stockton, Routes 26 and

90.



2.3.6.4 6TH STREET AND CENTRAL AVENUE PARK AND RIDE

This parking lot is located diagonally across from the Tracy Transit Station along the north side of 6th Street, between Central Avenue and C Street. This lot has a parking capacity for 67 regular vehicles and 4 ADA vehicles and has no bicycle facilities. Access to this parking lot is provided via a driveway along both Central Avenue and C Street.

2.3.6.5 ALTAMONT COMMUTER EXPRESS (ACE) PARK AND RIDE

The Tracy ACE station is located at Tracy Boulevard and Linne Road. This park and ride lot has a parking capacity for 493 regular vehicles and 12 ADA vehicles. The lot also contains one bike rack and 6 bike lockers. Access to the parking lot is provided via a driveway along Tracy Boulevard. Currently, ACE provides daily services between Stockton and San Jose. Two trains depart from Stockton in the morning and two from San Jose return in the evening.

2.3.7 FREIGHT – TRUCK SERVICE

The following section describes the existing trucks routes in the City of Tracy as obtained from the existing City of Tracy Truck Route Map (per City ordinance 1068 adopted 11-16-04) and survey of field data.

2.3.7.1 EXISTING TRUCK ROUTES

The existing truck routes in the City of Tracy run primarily in a north-south and east-west direction. Access to truck routes originate from Interstate 205 and disperse to the City via the interchanges at I-205 / Eleventh Street, I-205 / Grant Line Road, and I-205 / MacArthur Drive. The existing truck route network connects truck traffic on I-205 to the industrial areas in the south and northeast via MacArthur Drive, and also the commercial areas in the north and central via Larch Road, Eleventh Street, and Grant Line Roads. Truck access to I-580 is provided via a through truck route on Corral Hollow Road via the I-580 interchange to the south.

Section 3.08.290 of the City's Municipal Code establishes truck routes throughout the City restricting vehicles routes within the City with a gross vehicle weight of five tons or more, licensed commercially as a truck in the state of origin, and used for carrying goods for pickup and delivery. Vehicles meeting this requirement shall drive only on truck route designated streets except when necessary for egress and ingress by direct route to and from restricted street for the purposed of loading or unloading.

Currently there are three types of truck routes within the City of Tracy: "Through Truck Routes" and "Local Truck Routes" and STAA truck routes. These routes are indicated throughout the City with the appropriate signage specific to each

route type per MUTCD requirements.

2.3.7.2 THROUGH TRUCK ROUTES

Through truck routes are defined as a route that allows any vehicle entering the City of Tracy from any point outside the City and destined for any other point located outside the City to proceed entirely through without unloading or loading freight within the City of Tracy. A map showing the location of truck routes throughout the City can be found in **Figure 2.8**.

Existing through truck routes within the City of Tracy include:

- Arbor Road (MacArthur Drive to Holly Drive)
- Byron Road (west City limits to Lammers Road)
- Corral Hollow Road (Larch Road to Grant Line Road)
- Corral Hollow Road (Linne Road to I-580)
- Chrisman Road (North of Valpico Road portion of Chrisman Road within City limits)
- Eleventh Street (Lammers Road to the west City limits)
- Eleventh Street (MacArthur Drive to east City limits)
- Grant Line Road (West City limits to Corral Hollow Road)
- Grant Line Road (MacArthur Drive to East City limits)
- Holly Drive (Arbor Road to Larch Road)

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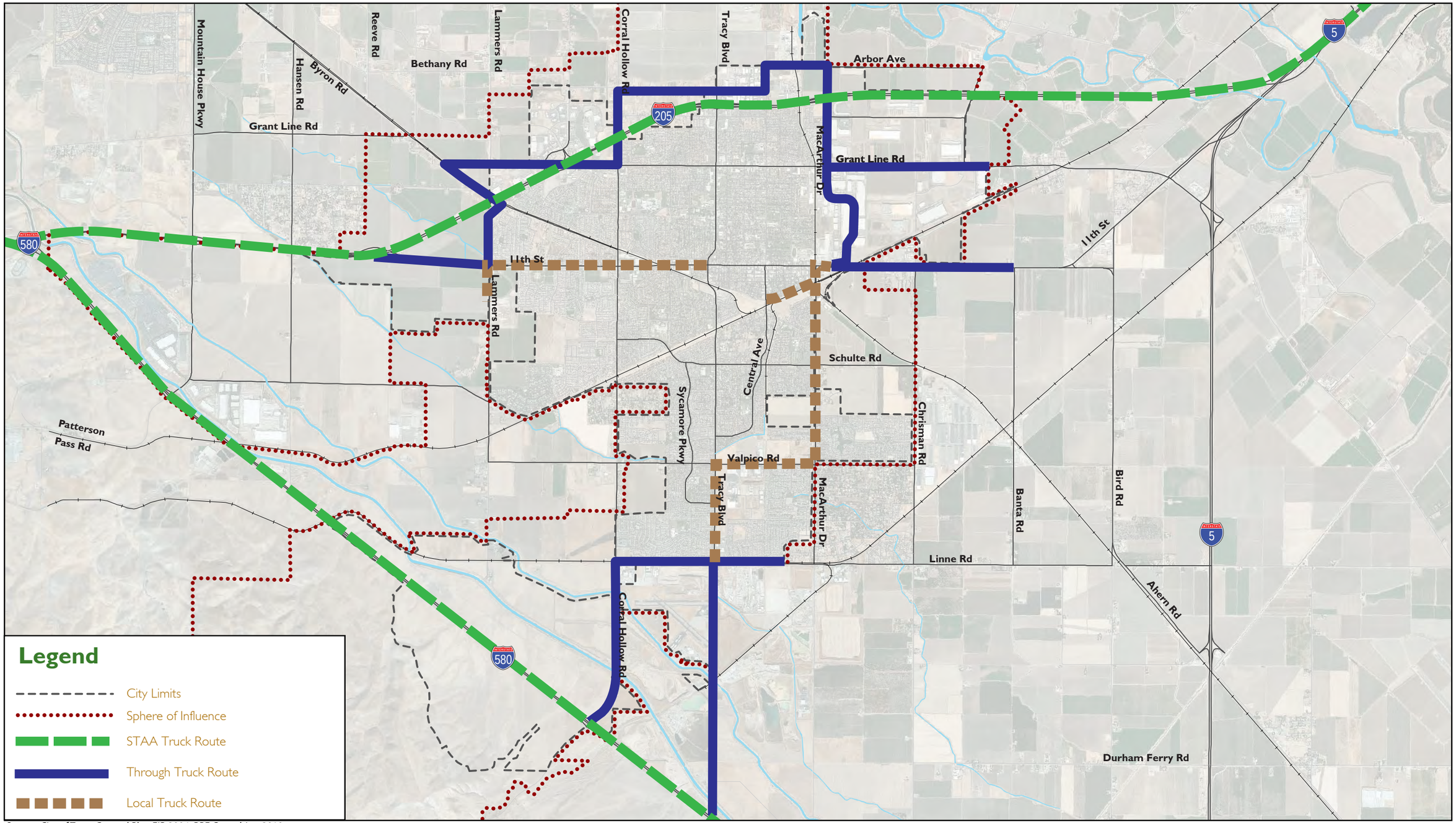

Source: City of Tracy General Plan EIR 2004, RBF Consulting 2010

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North

0 0.5 1 2 Miles (Approximate)

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Figure 2.8: Existing Truck Routes

City of Tracy Transportation Master Plan

- Lammers Road (Byron Road to Eleventh Street)
- Larch Road (Holly Drive to Corral Hollow Road)
- Linne Road (East City limits to West City limits)
- MacArthur Drive (Arbor Road to Eleventh Street)
- Tracy Boulevard (Larch Road to I-205)
- Tracy Boulevard (Linne Road to South City limits).

2.3.7.3 LOCAL TRUCK ROUTES

Local truck routes are defined as a route that may not be used by any truck to move from any point outside of the City of Tracy continuously to any other point located outside the City of Tracy without unloading or loading within the City of Tracy. All local truck traffic trips must use the shortest local truck traffic route between connecting or through truck traffic routes and the origin and destination within the City.

Existing local truck routes within the City of Tracy include:

- Eleventh Street (Lammers Road to Tracy Boulevard)
- Eleventh Street (north leg MacArthur Drive to south leg MacArthur Drive)
- Lammers Road (Eleventh Street to 0.5 miles south of Eleventh Street) City portion
- MacArthur Drive (Eleventh Street to Sixth Street)
- MacArthur Drive (Valpico Road to Mount Diablo Avenue)
- Sixth Street (MacArthur Drive to Central Avenue)
- Tracy Boulevard (Linne Road to Valpico Road)
- Valpico Road (Tracy Boulevard to MacArthur Drive).
- MacArthur Drive (Mount Diablo Avenue to Sixth Street.

2.3.7.4 SURFACE TRANSPORTATION ASSISTANCE ACT (STAA) TRUCK ROUTES

The Surface Transportation Assistance Act (STAA) of 1982 authorized the establishment of a national network of highways designated for use by large trucks. On these highways, Federal width and length limits apply. The STAA allows large trucks to operate on the Interstate and certain primary routes called collectively the National Network (NN). These trucks, referred to as STAA trucks, are longer than California legal trucks. As a result, STAA trucks have a larger turning radius than most local roads can accommodate. The law allows for "reasonable access" to and from the NN for terminals, deliveries, trucks stops, repairs, and other reasons. The NN is recommended for through truck traffic (e.g. traffic that is passing through the area), and trucks are allowed to operate on truck-restricted

roads if they have no other means of access to their destination.

Through the City of Tracy, I-205 is a STAA route. I-580 to the south of the city limits is also a designated STAA route. Both routes are designated as National Network STAA routes.

2.3.7.5 EXISTING TRUCK STOP FACILITY

There is one designated truck stop within the City of Tracy located on North Tracy Boulevard ¼ mile to the north of the I-205 / Tracy Boulevard interchange. Services offered at this truck stop include refueling, truck parking, truck permit services, load monitors, driver lounges, showers, and laundry.

2.3.8 TRACY RAILROADS

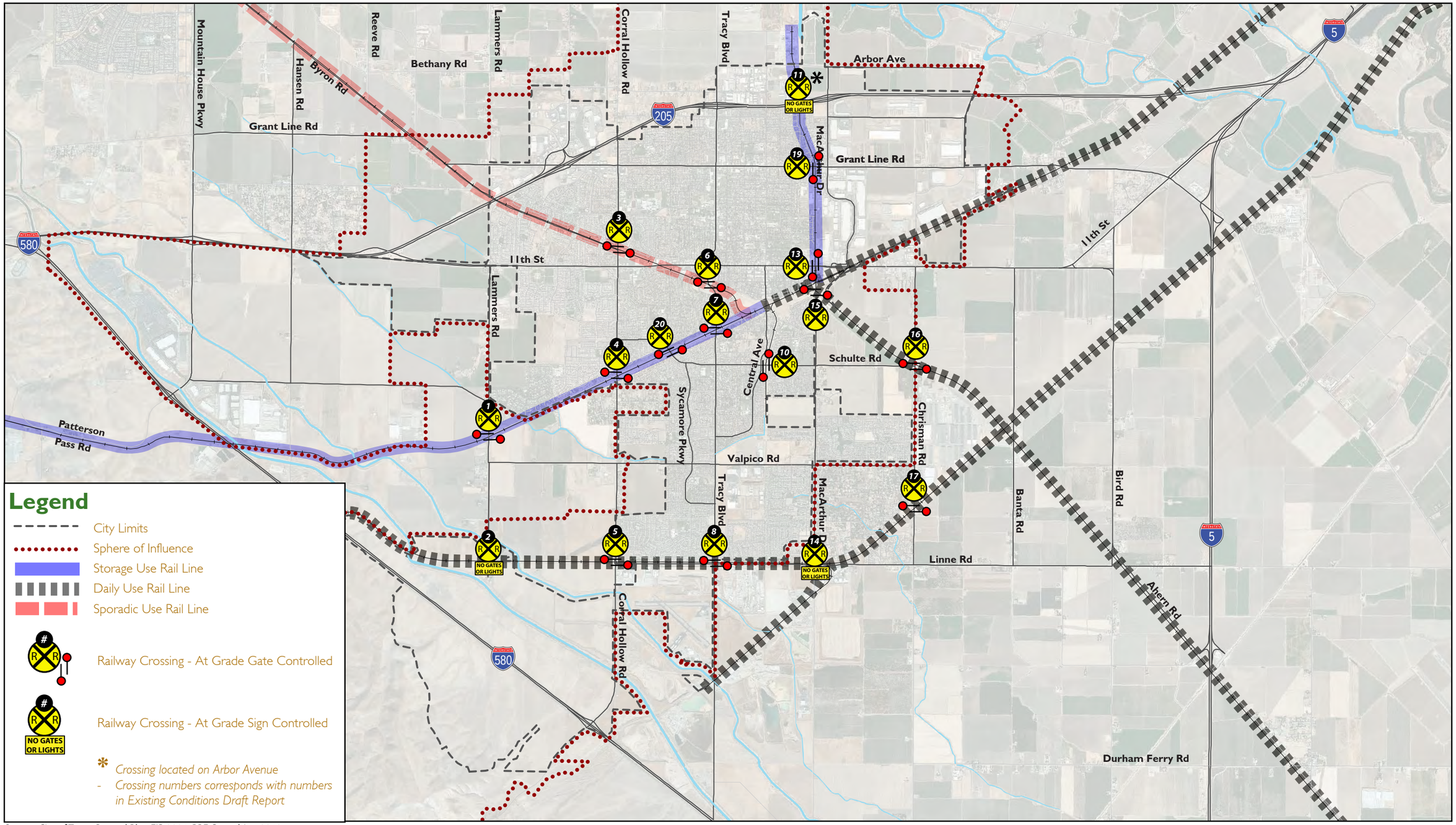
The City of Tracy has three major rail lines that run east to west through the City. Each of these lines consists of several spurs that are used to access the industrial areas throughout the City. These lines are currently owned and operated by the Union Pacific Railroad Corporation, which also operates freight rail service through the region.

The main line runs along the southern border of Tracy along Linne Road. This line is used for both freight and commuter rail service operated by Altamont Commuter Express (ACE). Approximately ten freight trains and six commuter rail trains operate daily on this track. The remaining lines run through the center of Tracy. The line along Byron Road is used minimally and does not have regularly scheduled service which connects the City to the industrial centers of the North San Francisco Bay Area. The line to the northeast is used for local freight bound for Stockton. The rail line at the southwest of the City has tracks that stop at the County line is no longer in service and is used for storage of train cars only.

2.3.8.1 RAILROAD CROSSINGS

Due to the prevalence of railroad lines, there are 19 at-grade railroad crossings and 1 grade separated railroad crossing within the City of Tracy. These crossing are distributed throughout the City with two crossings each on Corral Hollow Road, Tracy Boulevard, and MacArthur Drive. Each of the railroad crossings locations are shown in **Figure 2.9** and are described in detail below:

1. Lammers Road between Schulte and Valpico Roads: This at-grade crossing consists of two travel lanes with control gates and flashing warning signals.
2. Lammers Road south of Valpico Roads: This at-grade crossing consists of two travel lanes with gravel roads and stop sign only control.
3. Corral Hollow Road, north of the Coral Hollow Road / Eleventh Street Intersection: This at-grade crossing consists of four travel lanes located approximately 40 feet to the north of the intersection. This crossing is gate controlled with flashing warning signals and is coordinated with the



Source: City of Tracy General Plan EIR 2004, RBF Consulting 2010

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Figure 2.9: Railroad Crossings

City of Tracy Transportation Master Plan

signals at the adjacent intersection.

4. Corral Hollow Road south of Schulte Road: This crossing consists of a single track with 4 vehicle travel lanes. Vehicle crossing is controlled by control gates and flashing warning lights.

5. Corral Hollow Road north of Linne Road: This crossing is located approximately 100 feet to the north of the Corral Hollow Road / Linne Road intersection. The crossing consists of a single track with two vehicle travel lanes. Vehicle crossing is controlled by gate controls and flashing warning lights. This nearby intersection is stop sign controlled and thus does not require coordinated signals.

6. Tracy Boulevard, south of Sixth Street: This crossing is located between the intersections of Tracy Boulevard / Sixth Street and Tracy Boulevard / Beechnut Avenue. The tracks are positioned midway between the two intersections approximately 20 feet from both intersections. Both intersections are signalized and are coordinated with the crossing gates. This at-grade crossing consists of a single track and 4 vehicle travel lanes. Vehicle crossing control is restricted with gate controls and flashing warning lights.

7. Tracy Boulevard, north of Fourth Street: This crossing is located approximately 20 feet to the north of the Tracy Boulevard / Fourth Street intersection. The crossing consists of a single track, with 5 vehicle lanes. Vehicle crossing control is restricted by gate controls and flashing warning lights.

8. Tracy Boulevard, north of Linne Road: This crossing is located approximately 70 feet to the north of the Tracy Boulevard / Linne Road intersection. The at-grade crossing consists of a single track, with two vehicle travel lanes. Vehicle crossing control is restricted by gate controls and flashing warning lights. This crossing is located adjacent to the Tracy ACE station and parking lot.

9. MacArthur Drive, grade separated crossing: This grade separated crossing is located east of the MacArthur Drive / Eleventh Street intersection. The crossing consists of two tracks with a four lane bridge overpass above.

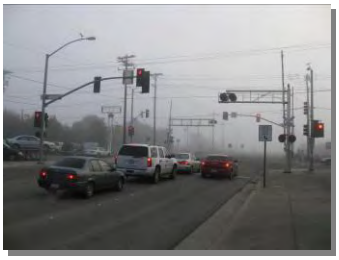
10. Schutle Road, east of Central Avenue: This crossing is located approximately 250 feet from the intersection of Schulte Road / Central Avenue. The at-grade crossing consists of a single track with 4 vehicle travel lanes. Vehicle crossing control is restricted by gate controls and flashing warning lights.

11. Arbor Avenue, between South Holly Drive and MacArthur Drive: This at-grade crossing provides freight rail access to the Holly Sugar Corporation to the north. This single track is currently used for storage only as the

track is obstructed by a fence at the Holly Sugar Corporation property line. This crossing does not have stop sign or gate crossing controls.

12. East Grant Line Road, west of MacArthur Drive: This crossing is located approximately 500 feet from the East Grant Line Road / MacArthur Drive intersection. The at-grade crossing consists of a single track with 4 vehicle travel lanes. Vehicle crossing is controlled by gate controls and flashing warning lights.
13. MacArthur Drive / Eleventh Street Intersection: This crossing is located at the east leg of the MacArthur Drive / Eleventh Street intersection. The at-grade crossing consists of a single track with 4 vehicle travel lanes. The crossing coordinated with the MacArthur Drive / Eleventh Street traffic signal. Vehicle crossing is controlled by gate controls and flashing warning lights.
14. West Lenne Road, east of MacArthur Drive: This crossing is located approximately 700 feet from the West Lenne Road / MacArthur Drive intersection. The at-grade crossing consists of a single track with two vehicle travel lanes. The track is currently being used for storage only as a fence obstructs the track at the industrial properties to the south. There is no crossing control and only a railroad crossing sign is provided.

15. MacArthur Drive, south of Eleventh Street: This at-grade crossing consists of a two tracks with two vehicle travel lanes. Vehicle crossing is controlled by gate controls and flashing warning lights.
16. Chrisman Road, north of Schulte Road: This crossing is located approximately 60 feet from the intersection of Chrisman Road and Schulte Road. This at-grade crossing consists of a single track with two vehicle travel lanes. Vehicle crossing is controlled by gate controls and flashing warning lights.



17. Chrisman Avenue, north of Linne Road: This at-grade crossing consists of two tracks with two vehicle travel lanes. Vehicle crossing is controlled by gate controls and flashing warning lights.
18. Banta Road, north of Linne Road: This at-grade crossing consists of a single track with two vehicle travel lanes. Vehicle crossing is controlled by gate controls and flashing warning lights.
19. Grant Line Road, east of Seventh Street: This crossing is located approximately 450 feet from the intersection of Grant Line Road and Seventh Street. This at-grade crossing consists of a single track with two vehicle travel lanes. Vehicle crossing is controlled by gate controls and flashing warning lights.
20. Schutle Road between Corral Hollow Road and Tracy Boulevard: This at-

grade crossing consists of a single track with four vehicle travel lanes. Vehicle crossing is controlled by gate controls and flashing warning lights.

2.3.9 BRIDGES AND CULVERT FACILITIES

The City of Tracy has several creeks, canals, and a system of aqueducts that run throughout the City. Major waterways include the Delta Mendota Canal and California Aqueduct running parallel to each other to the southwest of Tracy. Several smaller channels run throughout the City providing irrigation and collecting runoff that drains into the California Aqueduct system.

Interstate 205 has 10 over/under crossings along its stretch through the City of Tracy. These locations include;

- I-205 / Mountain Houseparkway
- 1-205 / Hansen Road
- I-205 / Eleventh Street
- I-205 / Byron Road
- I-205 / Grant Line Road
- I-205 / Corral Hollow Road
- I-205 / Tracy Boulevard
- I-205 / South Holly Drive
- I-205 / MacArthur Drive
- I-205 / Paradise Avenue

The City's bridge system consists of a network of 14 bridges and culverts that provide transportation access over these waterways. The City of Tracy bridge type and locations are shown in **Figure 2.10** and are described in detail below:

1. Mountain House Parkway, north of Schulte Road: This bridge provides access across the California Aqueduct and is approximately 200 feet long consisting of two travel lanes with concrete and steel barriers. The posted speed limit on this bridge is 45 MPH.

2. Von Sosten Road, east of Mountain House Parkway: This culvert provides access across a drainage canal and is approximately 80 feet long consisting of two travel lanes. The posted speed limit on this culvert is 35 MPH.
3. Von Sosten Road, east of Grunauer Road: This culvert provides access across a drainage canal and is approximately 60 feet long consisting of two travel lanes. The posted speed limit on this culvert is 35 MPH.
4. Grant Line Road, east of Mountain House Parkway: This culvert provides access across a drainage canal and is approximately 80 feet long consisting

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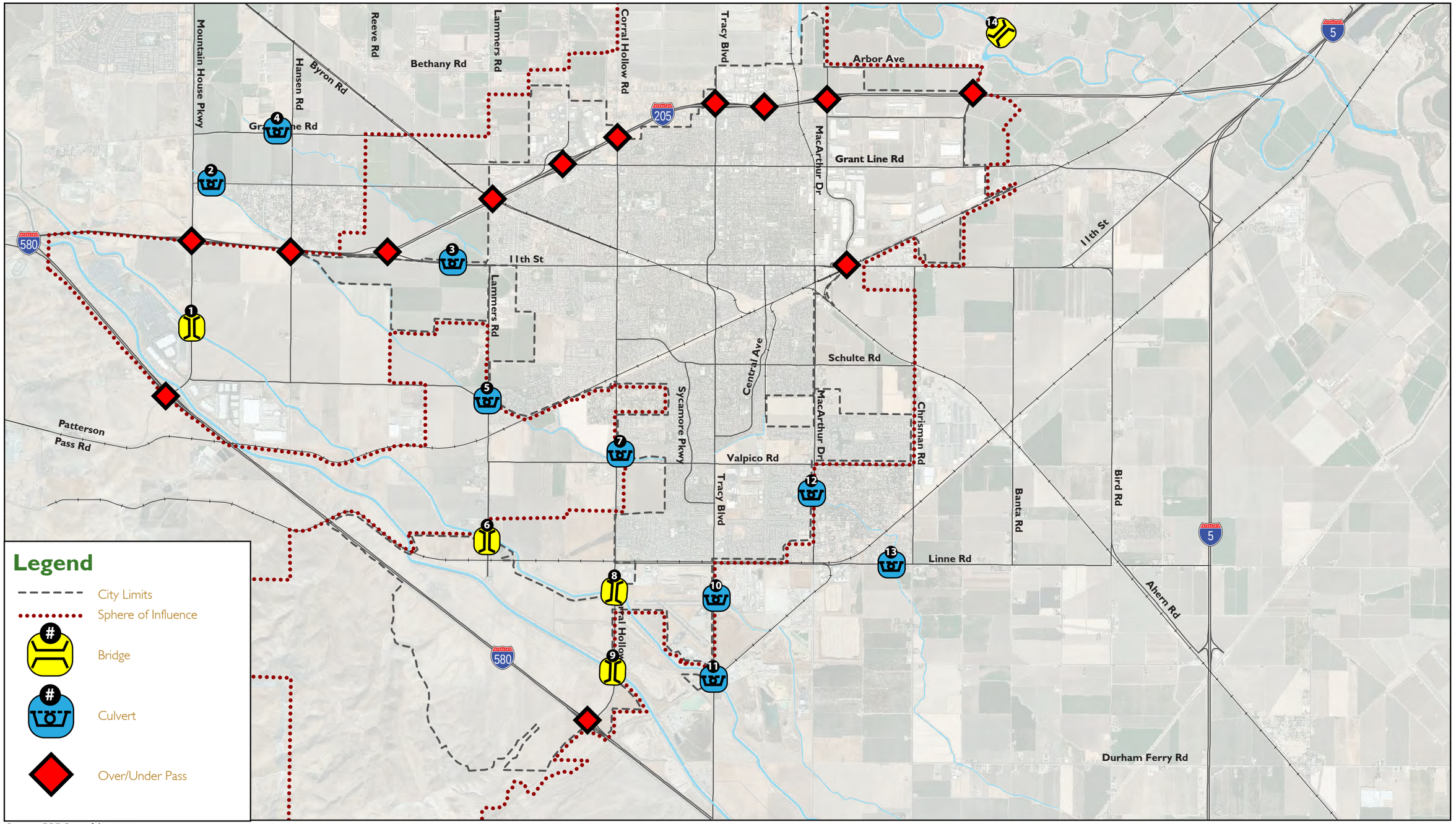


Source: RBF Consulting 2010

North

Miles (Approximate)

0 0.5 1 2

Figure 2.10: Existing Bridges and Culverts

City of Tracy Transportation Master Plan

of two travel lanes. The posted speed limit on this culvert is 35 MPH.

5. Lammers Road, south of West Schulte Road: This culvert provides access across a drainage canal and is approximately 50 feet long consisting of two travel lanes. The posted speed limit on this culvert is 35 MPH.
6. Lammers Road, south of Valpico Road: This bridge provides access across the Delta Mendota Canal and is approximately 110 feet long consisting of two travel lanes with steel barriers along each side. The posted speed limit on this bridge is 45 MPH.

7. Corral Hollow Road, north of Valpico Road: This culvert provides access across a drainage canal and is approximately 35 feet long consisting of two travel lanes. The posted speed limit on this culvert is 45 MPH.
8. Corral Hollow Road, south of Linne Road: This bridge provides access across the Delta Mendota Canal and is approximately 115 feet long consisting of two travel lanes with steel barriers along each side. The posted speed limit on this bridge is 45 MPH.
9. Corral Hollow Road, north of I-580: This bridge provides access across the California Aqueduct and is approximately 175 feet long consisting of two travel lanes with steel barriers along each side. The posted speed limit on this bridge is 45 MPH.
10. Tracy Boulevard, south of Linne Road: This small culvert provides access across a drainage ditch and is approximately 20 feet long consisting of two travel lanes. There is no posted speed limit across this culvert.

11. South Tracy Boulevard, south of the Tracy Municipal Airport Driveway: This culvert provides access across the Delta Mendota Canal and is approximately 200 feet long consisting of two travel lanes. There is no posted speed limit across this culvert. The culvert is approximately 200 feet wide across the aqueduct and does not have side barriers.
12. MacArthur Drive, south of Etcheverry Drive: This culvert provides access across a drainage ditch and is approximately 30 feet long consisting of two travel lanes. There is a small metal barrier on the east side and concrete barrier on the west side of the culvert crossing.
13. Linne Road, west of Chrisman Avenue: This culvert provides access across a drainage canal and is approximately 25 feet long consisting of two travel lanes. There is a low-lying concrete barrier on each side of the culvert crossing. The posted speed limit across the culvert is 45 MPH.
14. Paradise Avenue, north of Arbor Avenue: This bridge provides across the Tom Paine Slough to the north of the City and is approximately 150 feet long and consists of two travel ways with metal barriers on each side.

2.3.10 INTELLIGENT TRANPORTATION SYSTEMS (ITS)

Intelligent Transportation Systems (ITS) are transportation networks that include information and communication technologies that are designed to improve the safety and operation of the transportation infrastructure. There are numerous types of ITS systems that range from simple variable message signs to more advanced real time vehicle parking guidance systems.

2.3.10.1 EXISTING SYSTEM INVENTORY AND EVALUATION

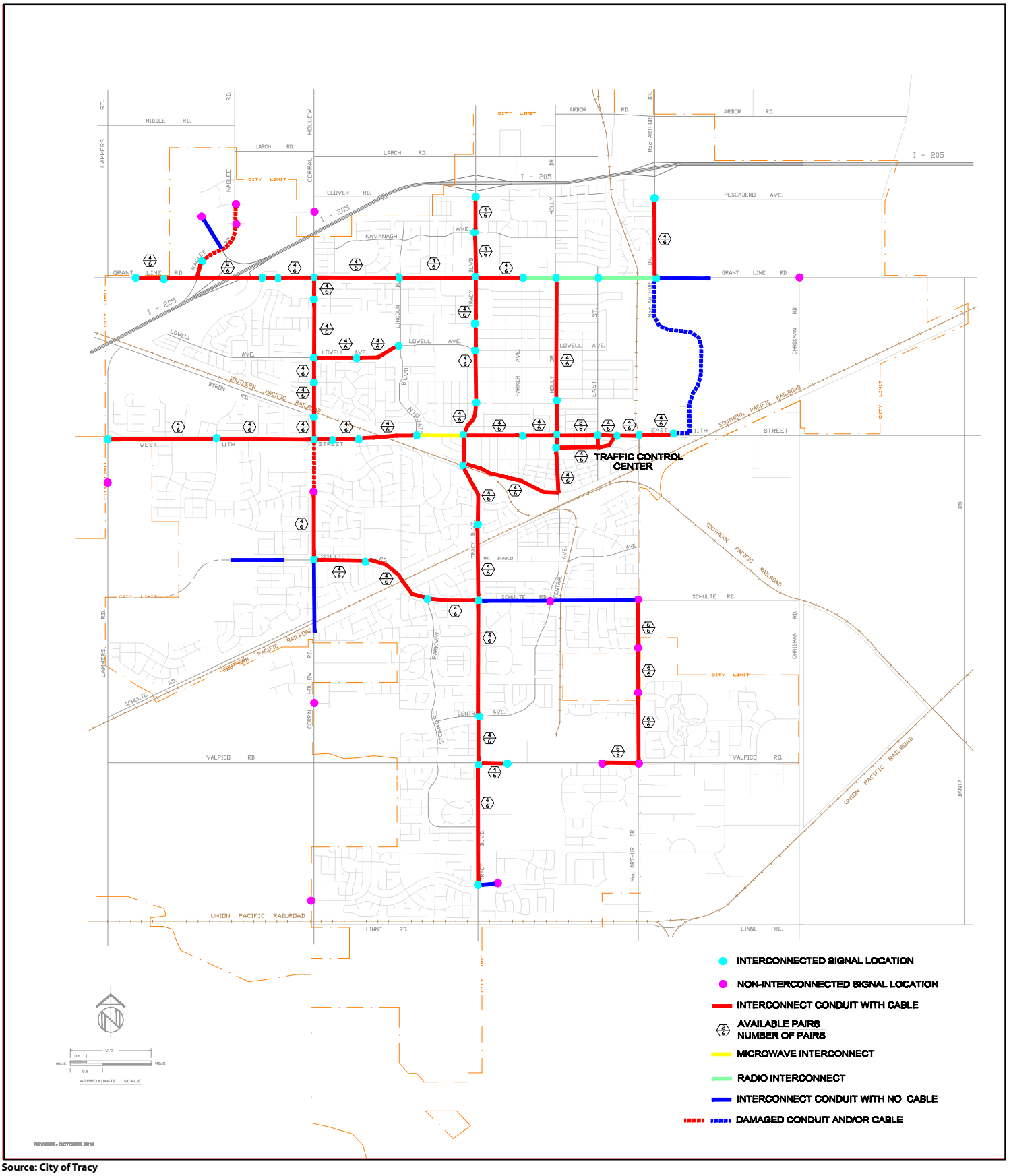
An inventory of the City of Tracy's existing traffic signal equipment, communications equipment, communications alignment was conducted.

There are sixty-five (65) signalized intersections within the City of Tracy that are operating via Model 170 traffic signal controllers located inside Type 332 cabinets at each local intersection. The traffic signal controllers are managed by Quicknet traffic management control and software system.

The City of Tracy's existing traffic signal communication infrastructure (citywide) primarily consists of twisted pair copper wire signal interconnect cable and conduit that interconnect the existing traffic signals. At designated roadway segments communications are provided over microwave and/or radio communications.

Figure 2.11 illustrates the City of Tracy's existing traffic signal locations and communication system infrastructure.

It should be noted that ITS systems have been discussed during community workshops for the Emerald Tracy program. The discussions included topics such as, continuing to implement a comprehensive signal coordination program, install adaptive traffic controls, synchronized signals, transit and emergency signal priority, and other traffic flow management techniques.



Source: City of Tracy

RBF CONSULTING

North

Figure 2.11: Existing Interconnect Master Plan

2.3.11 TRANSIT FACILITIES

Transit plays an important role for many commuters in Tracy. Tracy isalso a connection point for regional transit trips to and from the Bay area and connect transit services to the Central Valley. The public transit system includes both bus and rail components. The City is serviced by the following public transportation services:

- Local fixed-route and commuter bus services operated by the City (TRACER)
- Regional intercity fixed-route bus service operated by the San Joaquin Regional Transit District (RTD)
- County Hopper Service operated by RTD
- Commuter express bus service operated by RTD
- Altamont Commuter Express (ACE) rail service

Figure **Figure 2.12** displays existing bus transit system within the City of Tracy.

2.3.11.1 LOCAL FIXED-ROUTE BUS SERVICE (TRACER)

Fixed-route services run on a set route and time with fixed stops. TRACER offers five fixed bus routes, Routes A-E. Routes A, B and C run Monday through Friday from approximately 7:00 AM to 7:00 PM and Saturday from 9:00 AM to 5:00 PM. Routes D and E run only on weekdays when school is in session. TRACER does not operate on Sundays and holidays.

- Route A provides service to/from the Tracy Transit Station to West Valley Mall, and runs along East Street, MacArthur Drive, Grant Line Road, Tracy Boulevard and Corral Hollow Road. It also provides services to other major destinations within the City including Prime Outlets, Civic Center and West Valley Mall. It operates between 7:00 AM to 7:50 PM on weekdays and between 9:15 AM to 5:10 PM on Saturdays. Headways range between 30 to 90 minutes.
- Route B also provides service to/from the Tracy Transit Station to West Valley Mall, and runs along Holly Drive, Eaton Avenue, Tracy Boulevard, Lowell Avenue, Corral Hollow Road, Grant Line Road and Naglee Road. Major destinations served along this route include Sutter Tracy Community Hospital, Civic Center, Walmart and West Valley Mall. It operates between 7:00 AM to 6:55 PM on weekdays, and between 9:00 AM to 4:55 PM on Saturday. This service is provided with 60-minute headways during the weekdays and Saturdays.
- Route C provides service to/from the Tracy Transit Station to south Tracy residential area, along 10th Street, Eleventh Street, Corral Hollow Road, Schulte Road, Tracy Boulevard and Central Avenue. Major destinations served along this route include Civic Center, U.S. Post Office, Williams Middle School and SaveMart. It operates between 7:00 AM to 6:50 PM on weekdays, and between 9:00 AM to 4:50 PM on Saturday. This service is

provided with approximately 60-minute headways on both weekdays and Saturday.

- Route D and Route E are commuter routes and provide service only on weekdays. These routes provide a clockwise and counterclockwise loop around the City limits and run along East Street, Holly Drive, Kavanagh Avenue, Tracy Boulevard, Lowell Avenue, Corral Hollow Road, Schulte Road, Sycamore Parkway and Central Avenue. Major destinations served along these routes include Civic Center, library, elementary, middle and high schools in Tracy, and Tracy Sports Complex. Routes D/E makes two runs in the morning and two runs in the afternoon.

2.3.11.2 REGIONAL INTERCITY FIXED-ROUTE BUS SERVICE

The RTD operates one fixed-route bus line (Route 27) that connects the City to Stockton via Lathrop. Route 27 runs along Grant Line Road and East Street within Tracy. Major destinations served along this route include Civic Center and Tracy Transit Station. It operates between 5:30 AM to 7:37 PM on weekdays with six eastbound (Tracy to Manteca) runs and 4 westbound (Manteca to Tracy) runs.

2.3.11.3 COUNTY HOPPER SERVICE

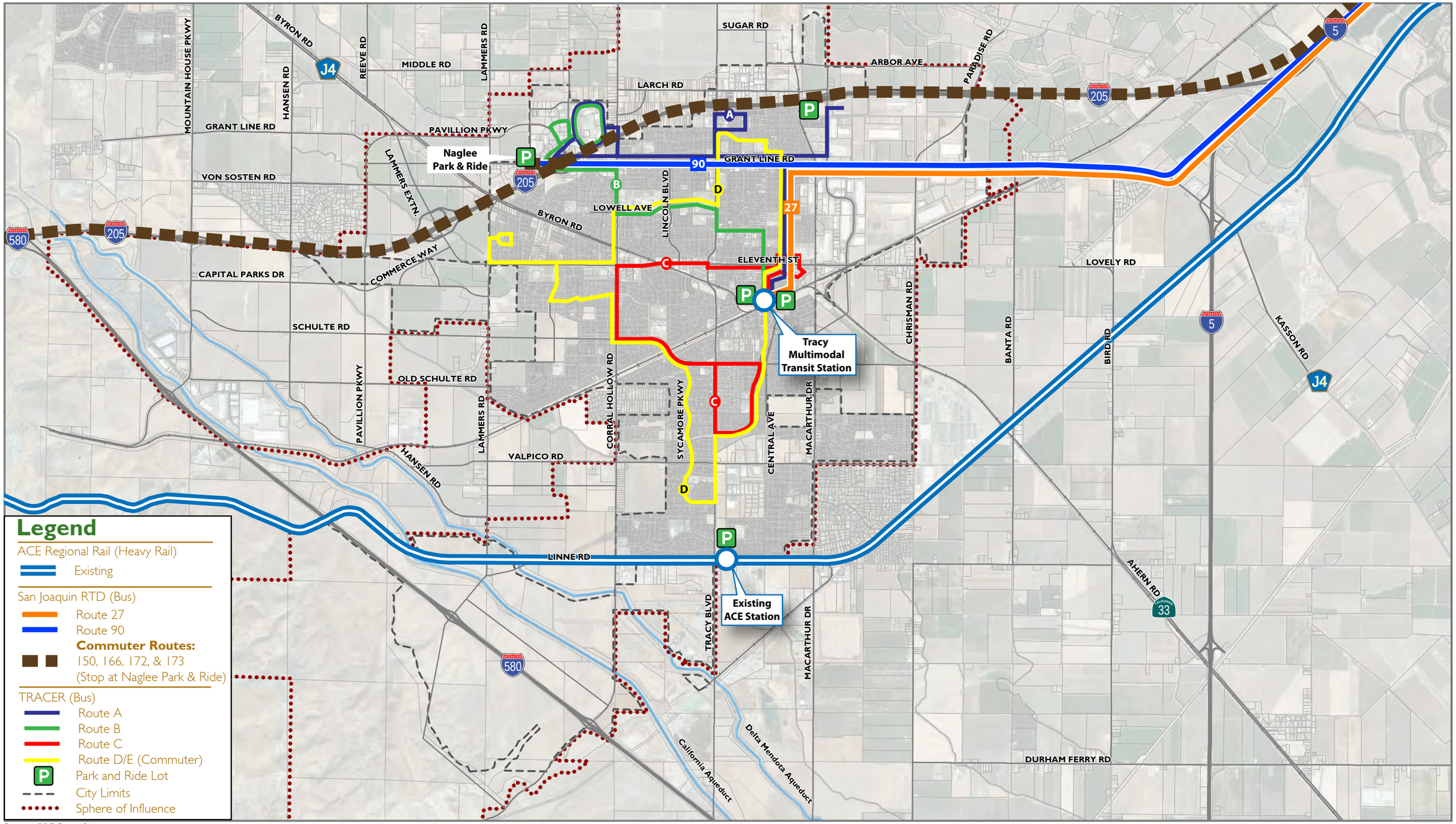
The RTD County Hopper (Route 90) is a deviated fixed-route bus service connecting Stockton, Tracy, Lodi, Manteca, Ripon and Lathrop. The Hopper replaces RTD Countywide General Public Dial-A-Ride (DAR) services during Hopper service hours in the areas covered by the Hopper service. Within the City, this route runs along Grant Line Road with stops at major locations such as Wal-Mart. Route 90 operates Monday through Friday between 5:30 AM and 11:00 PM on weekdays with eight eastbound Tracy to Manteca) runs and nine westbound (Manteca to Tracy) runs.

2.3.11.4 RTD COMMUTER BUS SERVICE

San Joaquin Commuter provides several inter-regional bus services from Naglee Road Park & Ride lot to the East Bay and South Bay, Monday through Friday, during commute hours. Route 150 consists of two feeder buses, one from Stockton and one from Manteca, that both meet at the Naglee Park and Ride Lot and then travels to the Dublin/Pleasanton BART station. Routes 166 and 172 provide service from Stockton, Lathrop, Manteca, and Tracy to Lockheed Martin in Sunnyvale. Route 173 provides service between Northrup Grumman in Sunnyvale to Stockton, Manteca, and Tracy. These commuter routes make a limited number of runs during the morning and evening periods.

2.3.11.5 ALTAMONT COMMUTER EXPRESS

ACE is a passenger rail service connecting Stockton to San Jose - http://www.acerail.com/mapsstations/tracystation.aspx. ACE operates on weekdays, excluding holidays. The ACE station in Tracy is located along Tracy Boulevard near Linne Road. ACE operates three westbound trains during the morning commute arriving in Tracy at 4:49 AM, 5:35 AM and 7:09 AM and three eastbound trains during the evening commute arriving in Tracy at 5:09 PM, 6:09 PM and 7:09 PM. ACE connects to the parallel feeder and distribution services, including RTD and TRACER in the City.



Legend

ACE Regional Rail (Heavy Rail)
- Existing

San Joaquin RTD (Bus)
- Route 27
- Route 90
- **Commuter Routes:**
  150, 166, 172, & 173
  (Stop at Naglee Park & Ride)

TRACER (Bus)
- Route A
- Route B
- Route C
- Route D/E (Commuter)
- Park and Ride Lot
- City Limits
- Sphere of Influence

Source: RBF Consulting 2011

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North

0 0.5 1 2 Miles (Approximate)

Figure 2.12: Existing Transit Service

City of Tracy Transportation Master Plan

2.4 EXISTING INTERSECTION OPERATIONS

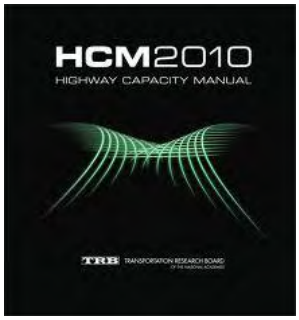
Weekday AM and PM commute peak-hour traffic operations at key intersections were analyzed to determine the existing conditions of the roadway network. The results of the analysis identify operating deficiencies in the transportation system and will be used to develop long-range planning strategies.

2.4.1 ANALYSIS METHODOGOLY

The methodologies used to perform the operational analyses and provide quantitative levels of service (LOS) were based on the *2000/2010 Highway Capacity Manual* (HCM) for unsignalized and signalized intersections. The evaluation of signalized and unsignalized intersection operations was performed using the Synchro 7.0 analysis software. These methodologies are consistent with City standards for traffic analysis.

2.4.2 HIGHWAY CAPACITY MANUAL

Traffic flow operations based on the HCM methodology at intersections were evaluated using a LOS concept. The LOS concept uses a grading scale of "LOS A" through "LOS F" with "LOS A" representing free flowing conditions and "LOS F" representing forced flow conditions.



Factors used in determining intersection LOS vary depending on the control device at the intersection. For all-way stop intersections, average delay per vehicle is used to define the LOS of the intersection operation. The average delay is determined based on the roadway capacity (number of travel lanes) provided on each intersection approach and the traffic demand.

For side-street stop controlled intersections, the operating efficiency of vehicle movements is analyzed. Vehicles on minor street approaches must yield to the through movements of the major streets. The LOS for stopped/yielding vehicles is based on the distribution of gaps in the traffic stream along the major street and driver judgment on the minor street approach in selecting gaps. The LOS reported includes both the overall or average value at the intersection for all movements and also the worst approach of the minor street stopped vehicles.

The HCM calculates the LOS of the minor street approaches and the overall intersection LOS based on this data. It should be noted that both the overall intersection LOS and the minor approach LOS are provided in this EIR. This is because traffic on the minor street approaches has the lowest priority of right-of-way at the intersection and, therefore, is the most critical in terms of delay. The threshold for each LOS grade is provided in **Table 2.2** (HCM Level of Service Criteria for Unsignalized Intersections).

Table 2.2: HCM Level of Service Criteria for Unsignalized Intersections

Level of Service	Description	Control Delay (seconds/vehicle)
A	Intersections operating at LOS A contain no congestion. The intersection operates with very little delay, from 0 to 10 seconds per vehicle.	0 – 10
B	Intersections operating at LOS B contain very little congestion. The intersection operates with minimal delay, from 10 to 15 seconds per vehicle.	>10 – 15
C	Intersections operating at LOS C contain little congestion. The intersection operates with some delay, from 15 to 25 seconds per vehicle.	>15 – 25
D	Intersections operating at LOS D contain some congestion. The intersection operates with longer delays, from 25 to 35 seconds per vehicle.	>25 – 35
E	Intersections operating at LOS E border on being congested. The intersection operates with delays from 35 to 50 seconds per vehicle.	>35 – 50
F	Intersections operating at LOS F contain congestion. The intersection operates with delays over 50 seconds.	>50
Source: *Highway Capacity Manual*, (2000 /2010), Chapter 17, Unsignalized Intersections, p. 17-2 and p. 17-22.		

For signalized intersections, average control delay per vehicle is utilized to define intersection LOS. Delay is dependent on a number of factors including the signal cycle length, the roadway capacity (number of travel lanes) provided on each intersection approach and the traffic demand. The threshold for each LOS grade is provided in **Table 2.3** (HCM Level of Service Criteria for Signalized Intersections).

Table 2.3: HCM Level of Service Criteria for Signalized Intersections

Level of Service	Description	Control Delay (seconds/vehicle)
A	Intersections operating at LOS A contain no congestion. The intersection operates with very little delay, from 0 to 10 seconds per vehicle.	0 – 10
B	Intersections operating at LOS B contain very little congestion. The intersection operates with minimal delay, from 10 to 20 seconds per	>10 – 20
C	Intersections operating at LOS C contain little congestion. The intersection operates with some delay, from 20 to 35 seconds per vehicle.	>20 – 35
D	Intersections operating at LOS D contain some congestion. The intersection operates with longer delays, from 35 to 55 seconds per vehicle.	>35 – 55
E	Intersections operating at LOS E border on being congested. The intersection operates with delays from 55 to 80 seconds per vehicle.	>55 – 80
F	Intersections operating at LOS F contain congestion. The intersection operates with delays over 80 seconds.	>80
Source: *Highway Capacity Manual*, (2000/2010), Chapter 16, Signalized Intersections, p. 16-2.		

2.4.3 LEVEL OF SERVICE STANDARDS

The City of Tracy has established LOS D, where feasible, as the minimum acceptable LOS for roadway and overall intersection operations. However, there are certain locations where these standards do not apply. The following provides a list and description of exceptions to the LOS standard of LOS D.

- Within ¼ mile of any freeway, LOS E shall be allowed on roadways and at intersections to discourage inter-regional traffic from using City streets.
- In the Downtown and Bowtie area of Tracy LOS E, shall be allowed.
- At intersections where construction of improvements is not feasible, the LOS may fall below the City's LOS D standard.
- During construction of intersection improvements or funded but not yet constructed, the LOS may temporarily fall below the City's LOS D standard.

The Caltrans standard for level of service is the LOS C/D threshold in which LOS

C is acceptable in all cases and LOS D is acceptable on a case-by-case basis.

The county of San Joaquin has established LOS D as the minimum acceptable LOS for roadway and intersection operations.

2.4.4 EXISTING LEVELS OF SERVICE

Weekday AM and PM peak-hour traffic counts were conducted primarily in 2003 with a few locations counted in 2002. Intersections 12, 13, 16, 17, 18, 20, 21, 23, 28, and 46 were not included in the 2004 General Plan and subsequently were not counted in 2002 or 2003, but rather in 2009.

The Synchro software program was utilized to conduct weekday Existing AM and PM peak hour level of service calculations at each study intersection. The LOS results are listed in **Table 2.4** below and are shown graphically on **Figure 2.13**. All intersections operate at an acceptable LOS during the existing weekday AM and PM peak hours except for the following intersections.

- Corral Hollow Road/Eleventh Street
- MacArthur Drive/Shulte Road
- MacArthur Drive/Valpico Road
- Byron Road/Grant Line Road

The Synchro output calculations are provided in **Appendix B.**

Table 2.4: Existing Intersection Level of Service

Number	Intersection	Control Type	Delay		LOS	
			AM	PM	AM	PM
3	I-205 WB Ramps/Naglee Road	Signal	13	14	B	B
4	I-205 EB Ramps/Grant Line Road	Signal	11	20	B	C
5	I-205 WB Ramps/Tracy Boulevard	Signal	14	23	B	C
6	I-205 EB Ramps/Tracy Boulevard	Signal	8	10	A	A
7	I-205 WB Ramps/MacArthur Drive	Signal	8	8	A	A
8	I-205 EB Ramps/MacArthur Drive	Signal	6	5	A	A
9	Naglee Road (I-205 WB Ramps) /Grant Line Road	Signal	8	12	A	B
12	I-580 WB Ramps/Mountain House Parkway	SSS	5	2	A	A
13	I-580 EB Ramps/Patterson Pass Road	SSS	3	30	A	C
16	I-580 WB Ramps/Corral Hollow Road	SSS	7	2	A	A

Number	Intersection	Control Type	Delay		LOS	
			AM	PM	AM	PM
17	I-580 EB Ramps/Corral Hollow Road	SSS	3	6	A	A
18	Naglee Road/Middle Road	SSS	5	5	A	A
20	MacArthur Drive/Arbor Avenue	AWS	8	8	A	A
21	Paradise Road / Arbor Avenue	SSS	3	3	A	A
22	Lammers Road/Byron Road	AWS	10	13	A	A
23	Lammers Road/Grant Line Road	SSS	1	6	A	A
25	Corral Hollow Road/Grant Line Road	Signal	22	34	C	C
26	Tracy Boulevard/Grant Line Road	Signal	19	35	B	C
27	MacArthur Drive/Grant Line Road	Signal	22	20	C	B
28	Chrisman Avenue/Grant Line Road	Signal	10	10	A	A
29	Lammers Road/Eleventh Street	Signal	17	21	B	C
30	Corral Hollow Road/Eleventh Street	Signal	40	33	D	C
31	Tracy Boulevard/Eleventh Street	Signal	23	29	C	C
32	MacArthur Drive/Eleventh Street (North)	Signal	6	6	A	A
33	Chrisman Avenue/Eleventh Street (South)	Signal	19	17	B	B
37	Corral Hollow Road/Shulte Road	Signal	20	20	B	B
38	Tracy Boulevard/Shulte Road	Signal	25	21	C	C
39	MacArthur Drive/Shulte Road	Signal	43	26	D	C
40	Lammers Road/Valpico Road	SSS	9	9	A	A
41	Corral Hollow Road//Valpico Road	AWS	14	12	B	A
42	Tracy Boulevard/Valpico Road	AWS	16	16	C	C
43	MacArthur Drive/Valpico Road	Signal	40	22	D	C
44	Corral Hollow Road/Linne Road	SSS	6	11	A	B
45	Tracy Boulevard/Linne Road	AWS	12	9	B	A
46	Naglee Road/Park and Ride	Signal	13	21	B	C
47	Byron Road/Grant Line Road	SSS	31	58	D	**F**

Note: Level of service ratings exceeding the LOS standard are highlighted in **bold** text.

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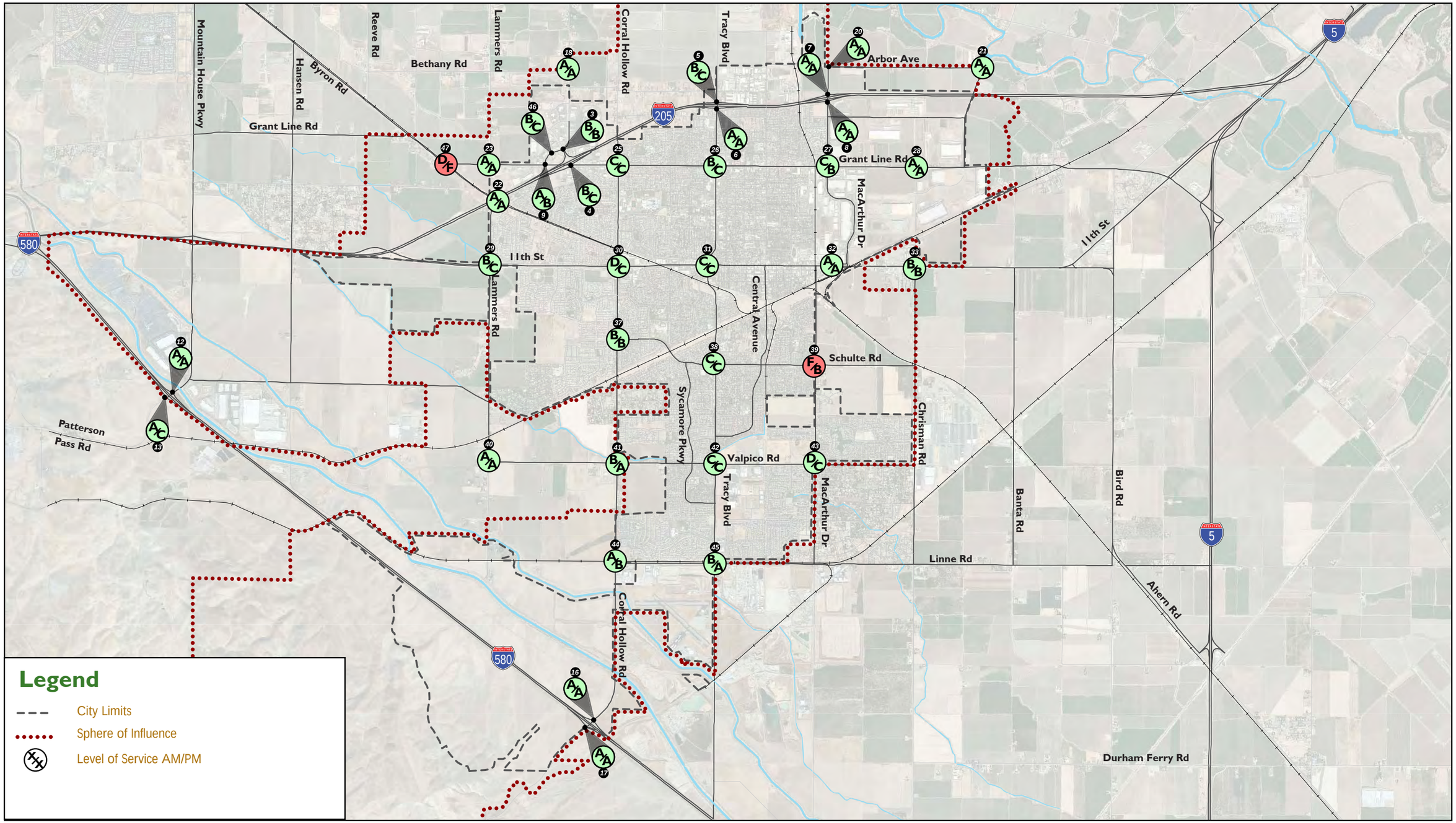

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Figure 2.13: Existing Level of Service

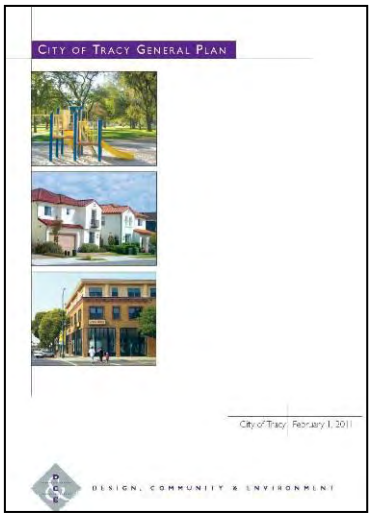
City of Tracy Transportation Master Plan

3. HORIZON YEAR FORECAST

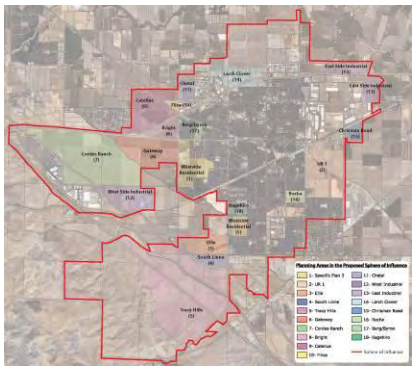
3.1 INTRODUCTION

This chapter presents the traffic forecasting methodology that was used to develop the roadway network requirements for the Tracy Transportation Master Plan (TMP). This is the first step in the process of defining the physical and operational improvements that will be needed to serve development under the Tracy *General Plan*. The resulting plan-line roadway network is based on roadway-level volume forecasts and a roadway volume-based assessment of the network's performance in Horizon Year in terms of volume-to-capacity ratios.

3.2 OVERVIEW OF TRANSPORTATION MASTER PLAN DEVELOPMENT PROCESS



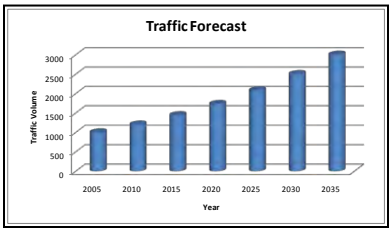
The TMP will guide the development of transportation infrastructure and services as growth occurs under the General Plan. While the General Plan Update and EIR forecasts traffic conditions to the year 2030, the TMP looks out another five years, to Horizon Year, in order to provide the maximum possible infrastructure planning. The Horizon Year was chosen because it is practically possible to estimate Tracy land use growth patterns to that year, and because the San Joaquin Council of Governments is planning to update its travel demand model to the year 2035. Note that neither the 2030 nor the Horizon Year forecasts represent full build-out of all the development capacity in the General Plan areas, but rather the residential and non-residential growth that is expected under the growth management ordinance (for residential uses) and based on market trends (for non-residential uses). The TMP development steps for developing the Horizon Year travel demand model volumes are listed below; this chapter documents the results of step 3.



1. Prepare the Tracy Travel Demand Model to project conditions to Horizon Year, including the addition of a component that can model the effect of sustainable land use and transportation strategies (the "Ds")
2. Obtain Horizon Year and build-out land uses for each future service in the General Plan Update from the City
3. Develop Horizon Year and build-out plan-line roadway networks (classification and number of lanes), based on the model link volume forecasts, incorporating the effects of the sustainability strategies
4. Develop Horizon Year detailed intersection forecasts at the 65 TMP Tier 1 intersections.

3.3 TRAFFIC FORECASTING METHODOLOGY

This section gives an overview of the Tracy Travel Demand Model, including the current validation years in use (2004 and 2006), the preparation of the Horizon Year and Build-Out models, and the incorporation of a new model component to assess the effects of sustainability strategies on vehicle trip generation and VMT. **Section 3.4** describes the land uses and trip generation assumed within the Tracy Sphere of Influence (SOI), for the Horizon Year and Build-Out scenarios.



As discussed later in this chapter, the Build-Out scenario reflects a time horizon that is well beyond Horizon Year Conditions and contains speculative assumptions regarding land uses and development.

3.3.1 TRACY TRAVEL DEMAND MODEL VALIDATION YEARS

The Tracy Travel Demand Model was developed by Fehr & Peers and has been updated and re-validated several times. It underwent a full validation to 2004 conditions, as described in Fehr & Peers' Technical Memorandum, *Tracy Citywide Model Documentation* (March 27, 2006). In late 2009, the model was validated to 2006 conditions to support the development of baseline transportation information (vehicle trips and vehicle-miles traveled) for the *Sustainability Action Plan* (SAP). The year 2006 was chosen for the SAP baseline year because it is the most recent year for which the City has comprehensive input data for the greenhouse gas baseline calculations. Fehr & Peers Technical Memorandum, *Tracy Sustainability Plan Transportation Inputs* (January 22, 2010) describes the 2006 validation.

Table 3.1 shows the 2004 and 2006 employment and housing totals for the 2004 and 2006 models, within the Tracy SOI boundary. The 2006 land uses were developed by adding all approved, constructed and occupied projects to the 2004 land use data set, using a list compiled by City staff.

It is important to note that 2004 remains the Setting (i.e., baseline year) for the General Plan Update EIR and the Transportation Master Plan/EIR, even though the SAP's baseline year is 2006. However, for purposes of forecasting the TMP's future (Horizon Year and Build-Out) conditions, Fehr & Peers is using the 2006 validated model, because it is the most recent validation available.

Table 3.1: Land uses in the Tracy Travel Demand Model: 2004 and 2006

Scenario	SF	MF	SF+MF	Retail	Service	Other	Total Employment
2004 Validation	18,578	6,594	25,172	3,512	9,298	10,850	23,660
2006 Validation	20,195	6,594	26,789	3,610	9,644	10,850	24,104

1. Residential (SF and MF) is presented in units of dwelling units
2. Non-residential is presented in units of employees
Source: Fehr & Peers, March 2010.

3.3.2 HORIZON YEAR – EXTRAPOLATION FROM GENERAL PLAN 2030 CASE

The Horizon Year model was developed by beginning with the 2030 network and land uses that were developed for the General Plan Update EIR, and adjusting the land uses in the 18 future services to represent reasonable expectations for development to Horizon Year. The land use assumptions were derived from the General Plan by City staff. The model was run iteratively, testing network adjustments (adding new connections and widening roadways where needed) with the goal of achieving volume-to-capacity ratios under 1.0, and ideally under 0.9 where the capacity of roadways is as defined in the Tracy General Plan. This process represents an initial screening of network adjustments. The intersection level analysis determined the necessity of infrastructure improvements. The land use growth within the Tracy SOI for this scenario is discussed in **Section 3.4**. The land uses outside the Tracy SOI were retained at the 2030 levels.

3.3.3 BUILD OUT – LONG RANGE FORECAST

The Build-Out model was developed as described for Horizon Year, but using the full build-out potential for all 18 future services. The land use growth within the Tracy SOI at build-out is discussed in **Section 3.4**. The land uses outside the Tracy SOI, which includes the following regions/counties of San Joaquin, Bay Area, Stanislaus, Mountains/Foothills (Amador/Calaveras/Tuolumne), and SACOG regions, were factored up to represent 2050 levels, using Department of Finance population and employment projections. This was done to bring the regional land uses closer to the actual build-out horizon for Tracy, which based on the land uses, is well beyond the year Horizon Year. The land uses for Horizon Year and 2050, outside the Tracy SOI, are shown in **Table 3.2**.

As indicated earlier, the Build-Out scenario reflects a time horizon that is well beyond Year Horizon Year Conditions and contains speculative assumptions regarding land uses and development. Thus, the recommendations in the TMP are based upon the Horizon Year scenario.

Table 3.2: Land uses outside Tracy SOI: Horizon Year and 2050

Scenario	SF	MF	SF+MF	Retail	Service	Other	Total Employment
Horizon Year	3,164	1,573	4,737	1,123	2,944	3,005	7,072
2050	3,829	1,830	5,659	1,375	3,505	3,567	8,447

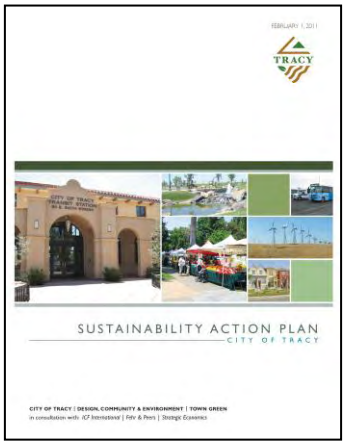
1. Residential (SF and MF) is presented in thousands of dwelling units

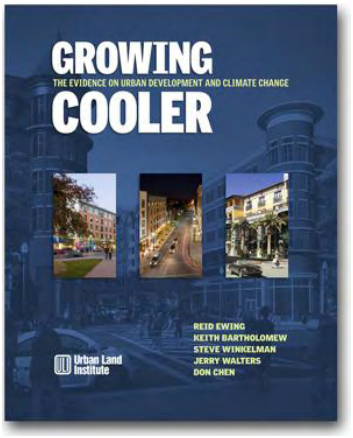
2. Non-residential is presented in units of thousands of employees

3. Horizon Year data is extrapolated from 2030 Tracy Travel Demand Model. 2050 data is taken from California Department of Finance projections.

Source: Fehr & Peers, March 2010.

3.3.4 SUSTAINABILITY STRATEGIES ASSESSMENT





Fehr & Peers developed a new component of the Tracy Travel Demand Model that allows the model to more accurately reflect the benefits of the sustainability strategies being developed for the SAP and the TMP. The 4D's adjustments, named for the variables of land use Density, Diversity, Design, and access to regional Destinations that affect vehicle trip generation and internalization, are based on nationally validated elasticities as documented in the publication *Index 4D Method: A Quick-Response Method of Estimating Travel Impacts from Land-Use Changes* (U.S. EPA/Criterion/Fehr & Peers, October 2001). The adjustments allow the travel demand model trip generation to reflect the reductions that can be achieved when the land use reflects an increase in smart growth characteristics (denser, more diverse, designed with more connectivity, or in a location with good access to regional destinations) compared to the typical development in a given area, such as a new future service. The model was also adjusted to allow the benefits of the other sustainability strategies developed for the SAP to be quantified. **Appendix C** contains a more detailed description of these model adjustments.

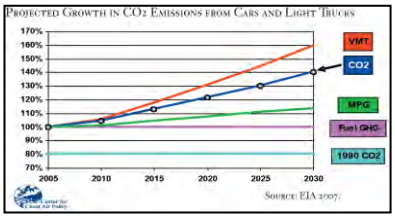
The strategies are shown in **Table 3.3**, along with the VMT reductions on a daily basis in 2020 for each strategy. A more detailed discussion of the SAP strategies is presented in Appendix B of Fehr & Peers' Technical Memorandum, *Tracy Sustainability Plan* (SAP) – 2020 VMT and GHG Estimates (January 29, 2010). The VMT reductions shown in **Table 3.3** come from a combination of reduced trip generation, reduced trip lengths, and fuel efficiency improvements. The Horizon Year traffic volume projections discussed in the next section incorporate the same strategies as analyzed for 2020 for the SAP, and reflect corresponding reductions in vehicle trips and VMT.

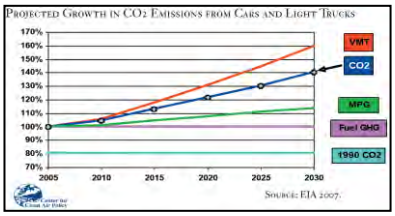
Table 3.3: Reduction Summary – Daily VMT in 2020

Measure	VMT Reduction per day in 2020	GHG (metric tons CO2) Reduction per day in 2020
Density	4,463	2.31
Diversity	21,415	11.09
Design	76,089	39.39
Charge for Downtown Parking	825	0.4
Bicycle Amenities	799	0.38
Park and Ride Lot Master Plan	1,189	0.62
Car-Sharing	9,368	4.55
Inter-City Bus Coordination	258	0.14
ACE Altamont Route Upgrades	5,827	3.14
Parking Cash-Out	718	0.37
Low-Carbon Fuel[1]	-	32.75
Expand Local Bus Service	7,053	3.42
Congestion Relief	-	1.85
School Programs	3,016	1.45
Remote Offices	1,140	0.61
Transit Subsidy	1,570	0.8
Live/Work Units	3,537	0.8
TOTAL	137,267	104.07

1. This GHG reduction is assumed in all of the 2020 scenarios to reflect planned county-wide improvements in fleet and fuels

Source: Fehr & Peers, January 2010.





3.4 TMP LAND USE AND TRIP GENERATION

3.4.1 LAND USE ASSUMPTIONS – HORIZON YEAR AND BUILD OUT

The Horizon Year development assumptions were derived from the General Plan by City staff, with the Growth Management Ordinance controlling total residential growth, and recent development trends guiding the estimation of non-residential growth. City staff allocated the growth to the various future services shown in **Figure 3.1** based on a combination of considerations, including how advanced each area is in the entitlement process, existing or expected conditions of approval, and anticipated environmental or jurisdictional constraints.

Build-out development assumptions were also provided by City staff, and were developed based on consultations with each of the land owners.

Table 3.4 shows the Existing (2006), Horizon Year and Build-Out citywide land use totals. These are shown in the shaded rows, along with the 2030 General Plan (SOI Update) scenario, and the 1994 Roadway Master Plan land use assumptions, for comparative purposes.

The Horizon Year housing and employment totals represent growth of about 51 percent and 167 percent, respectively, over 2006 conditions. Relative to the 2030 General Plan SOI Update land uses, the housing grows by an additional 1,600 units, and employment grows by about 15,600 jobs.

Build-Out population and employment totals represent growth of 63 percent and 663 percent, respectively, over 2006 conditions. While the Build-Out case includes modest housing growth over Horizon Year conditions, at about 3,000 units, the employment growth is much greater, at an additional 120,000 jobs, approximately.

Table 3.4: Transportation Master Plan Land Use Assumptions Within Tracy SOI

Scenario	SF	MF	SF+MF	Retail	Service	Other	Total Employment
Existing (2006)	20,195	6,594	26,789	3,610	9,644	10,850	24,104
2030 GP SOI[1]	29,068	9,858	38,926	11,500	15,276	21,777	48,553
Horizon Year	27,229	13,297	40,506	15,091	18,751	30,340	64,182
Buildout	29,214	14,343	43,557	35,189	59,915	88,928	184,033
1994 RMP—"Development Capacities"[4]			46,300				116,000
1994 RMP – Horizon Year[4]			46,300				70,000 – 82,000[5]

1. 2030 General Plan with Updated Sphere of Influence

2. Residential (SF and MF) is presented in units of dwelling units

3. Non-residential is presented in units of employees

4. From 1994 Roadway Master Plan land use assumptions -- not including Mountain House, which adds 12,750 dus (using 3.45 pop/hhld) and 20,000 jobs

5. 90,000 total; three out of four Horizon Year scenarios included 8,000 jobs at MH; the fourth included 20,000 jobs at MH

Source: Fehr & Peers, March 2010.

3.4.2 TRIP GENERATION CHARACTERISTICS

Table 3.5 shows the floor area ratios and employee densities that were used to convert raw acreages of non-residential development to employees, which is the variable the Tracy Travel Demand model uses.

Table 3.6 shows the raw vehicle trip generation rates used in the Tracy Travel Demand Model. These rates are based on local trip generation surveys, and are thus locally validated Tracy rates. The vehicle trip generation reductions discussed in **Section 3.4.3** effectively reduces the vehicle trip generation indicated by these rates, in the areas where the various sustainability strategies apply. The citywide effect of these reductions is discussed in **Section 3.4.3**.

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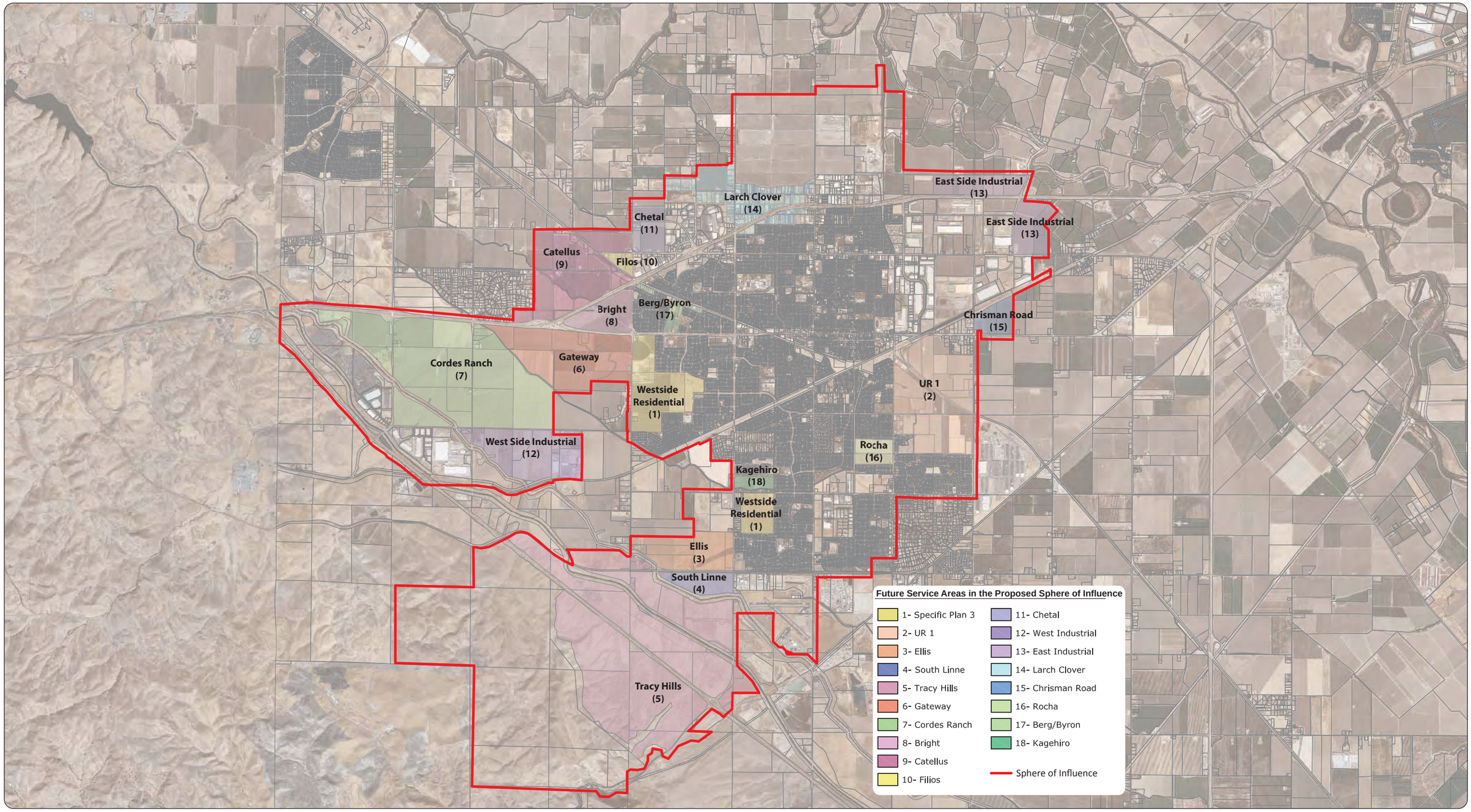

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Figure 3.1: Tracy Future Service Areas

City of Tracy Transportation Master Plan

Table 3.5: FARs and Employment Densities

	Retail	Office	Other
Employees / KSF[1]	2	3	1
Floor Area Ratio (FAR)	0.30	0.45	0.50

1. KSF = 1,000 square feet

Source: Fehr & Peers, March 2010.

Table 3.6: Tracy Model Approximate Peak Hour Vehicle Trip Generation Rates

Lane Use Type	Units	AM Model	AM ITE	PM Model	PM ITE
Single Family	Dwelling Units	0.55	0.75	1.05	1.01
Multi Family[1]	Dwelling Units	0.31	0.51	0.59	0.62
Retail[2]	Employees	1.90	1.00	3.46	3.73
Office[3]	Employees	0.22	0.48	0.42	0.46
Other[4]	Employees	0.17	0.51	0.33	0.59

The above rates are approximate because the actual rates depend on the individual trips' origins and destinations.

Other employment is mostly comprised of industrial employment

1. Land Use Code 220 (Apartment)
2. Land Use Code 820 (Shopping Center)
3. Land Use Code 710 (General Office Building)
4. Land Use Code 150 (Warehousing)

Source: Fehr & Peers, March 2010; Tracy Travel Demand Model.

3.4.3 TRIP GENERATION REDUCTIONS DUE TO SUSTAINABILITY STRATEGIES

Table 3.7 presents the trip reductions due to the SAP transportation measures for the future services and for Tracy as a whole. The future services achieve a greater reduction in trips than Tracy as a whole because many of the SAP transportation measures address only new developments – most of which occur in the future services.

Table 3.7: Trip Reductions Due to SAP Measures – Horizon Year

Area	Trip Reduction %
Future Services	5.8%
Tracy Citywide (SOI)	4.4%
Source: Fehr & Peers, March 2010.	

3.4.4 TRIP GENERATION BY FUTURE SERVICE

Table 3.8 shows the AM and PM peak hour trip generation for each future service, at Horizon Year and Build-Out. The Horizon Year trip generation for the 18 future services represents growth of about 125 percent compared to existing citywide trip generation. Build-out trip generation for the future services represents growth of 385 percent compared to existing citywide trip generation.

In Horizon Year, the future services with the highest trip generation growth are Tracy Hills, Cordes Ranch, and Gateway, all with between 7,000 and 10,000 PM peak hour trips. Westside Residential, Bright Triangle, Catellus, and Filios all have between 3,000 and 5,000 PM peak hour trips.

At Build-Out, the Larch-Clover Planning area has the highest trip growth, at about 45,000 PM peak hour trips. Tracy Hills and Cordes Ranch have between 22,000 and 26,000 trips, Gateway has about 17,500 trips, and Bright Triangle and Catellus have 9,000 – 10,000 trips.

Table 3.8: Tracy Model Estimated Peak Hour Vehicle Trip Generation for Service Areas

Service Area	Horizon Year		Buildout	
	AM Trips	PM Trips	AM Trips	PM Trips
Service Area 1 (Westside Residential)	1,800	3,400	1,800	3,400
Service Area 2 (Urban Reserve 1)	900	1,700	1,900	3,650
Service Area 3 (Ellis)	1,150	2,150	1,150	2,150
Service Area 4 (South Linne)	0	0	450	850
Service Area 5 (Tracy Hills)	5,250	9,850	14,150	26,150
Service Area 6 (Gateway)	3,850	7,100	9,300	17,450
Service Area 7 (Cordes Ranch)	4,800	8,950	11,650	22,100

Service Area	Horizon Year		Buildout	
	AM Trips	PM Trips	AM Trips	PM Trips
Service Area 8 (Bright Triangle)	2,450	4,500	5,600	10,250
Service Area 9 (Catellus)	1,650	3,100	4,750	8,950
Service Area 10 (Filios)	1,900	3,450	1,900	3,450
Service Area 11 (I-205 Expansion)	1,550	2,850	4,500	8,150
Service Area 12 (West Side Industrial)	0	0	1,800	3,500
Service Area 13 (East Side Industrial)	0	0	1,350	2,650
Service Area 14 (Larch Clover)	1,000	1,800	24,750	45,050
Service Area 15 (Chrisman)	900	1,650	1,950	3,650
Service Area 16 (Rocha)	50	100	300	550
Service Area 17 (Berg/Byron)	100	150	200	350
Service Area 18 (Kagehiro)	150	250	150	250
Service Area Totals	27,500	51,000	87,650	162,550
Existing (2006) Citywide Total for Comparison	24,000	45,200	24,000	45,200
Source: Fehr & Peers, March 2010. Tracy Travel Demand Model.				

3.4.5 TRIP DISTRIBUTION

Table 3.9 shows the trip distribution for the City of Tracy for both the existing year (2006) and the Horizon Year scenario. The addition of jobs in the city increases the internal capture of trips, from 62 percent in 2006 to 64 percent in Horizon Year. There is still a large trip interaction with San Joaquin County because the increase in jobs attracts trips from residents in the County. However, trips between Tracy and the Bay Area drop from 13 percent in 2006 to 7 percent in Horizon Year.

Graphic plots that illustrate the model's trip assignment for each future service are included in the **Appendix D**. These plots do not represent the final trip accounting that will be used for proportional share calculations, but can be viewed as illustrative of the individual future services' trip paths and regional distribution.

Table 3.9: Citywide Trip Distribution

	Tracy	North Valley	South Valley	Bay Area	San Joaquin County
Existing (2006)	62%	8%	3%	13%	14%
Future (Horizon Year)	64%	4%	4%	7%	21%
Source: Fehr & Peers, March 2010.					

3.5 HORIZON YEAR FORECASTS, NETWORK SIZING AND PERFORMANCE

Figure 3.2 shows the recommended Horizon Year roadway network. This network was developed in consultation with City staff and based on iterative Tracy Travel Demand Model runs, incorporating the effects of the SAP strategies. Some of the guiding principles that underlie this network are:

- Consistency with the San Joaquin County Expressways Study
- Preservation of 4-lane maximum arterial widths where possible, to promote a more walkable, bikeable environment, particularly in new areas of future development where sustainable practices can be applied in an equitable manner
- Consistency with the roadway plans in entitled project areas (Ellis Specific Plan and Gateway)

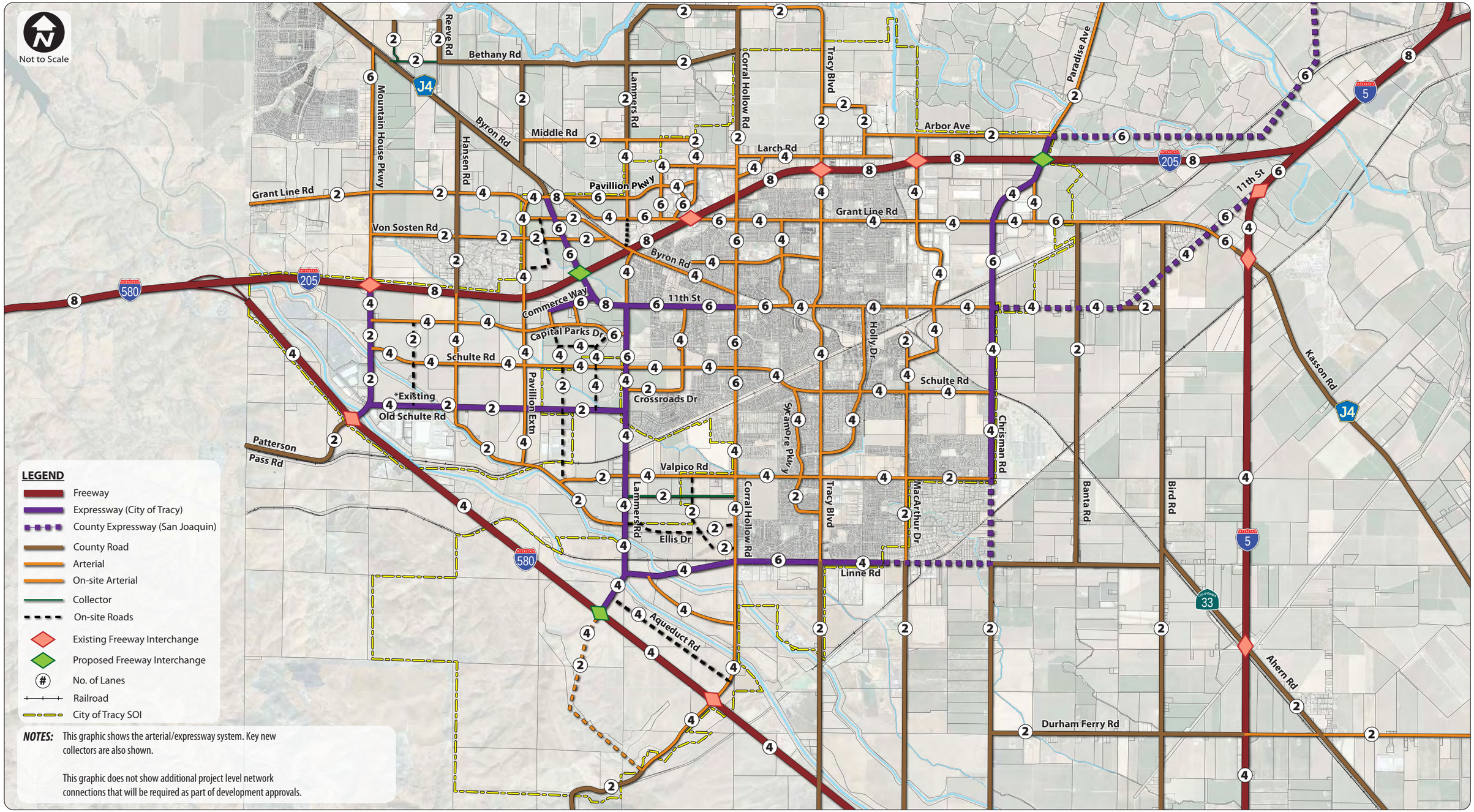

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Figure 3.2: Horizon Year Roadway Network

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- Provision of maximum v/c ratios of 0.8 – 0.9 (roughly corresponding to a LOS D - E operation on a link-volume basis) to the maximum extent possible
- Provision of key roadway connections and freeway interchanges that are needed to serve substantial traffic volumes by Horizon Year, even if full use of those roadway connections and interchanges is not projected until beyond Horizon Year

It is very important to note that the link-based v/c ratios provide a general guide to how the major roadway segments would function in Horizon Year. A more accurate assessment of roadway capacity will be available when intersection turn movement forecasts are developed and service level calculations are performed, following this link-level forecasting step.

Figures 3.3A and **3.3B** present roadway segment forecasts for the AM and PM peak hours, respectively. For segments where existing peak hour counts are available, growth on the link was recorded between the existing (2006) model and the future (Horizon Year) model.[1] This growth was added to the existing counts to represent a Horizon Year estimate of volume on each link. This method of forecasting is called the difference method. These forecasted volumes were then compared to the capacity of the links based on the Tracy General Plan roadway capacities, and a volume-to-capacity ratio was calculated. The v/c ratios are shown in **Figures 3.4A** and **3.4B** for the AM and PM peak hours, respectively.

The volumes presented on **Figures 3.3A** and **3.3B** do not represent the final volumes used for the intersection level analysis. Adjustments based on current and expected future travel patterns were performed after the raw model forecasts were reviewed. The volumes on these figures represent an order of magnitude estimate of volumes on major roadways in Tracy.

[1] Existing counts from 2006, corresponding to the base model year, and 2009 were used. The link forecasts that pivot off 2009 counts may thus be slightly off, since theoretically traffic growth between 2006 and 2009 would be double-counted; however, this error is likely to be small due to the relatively low traffic growth in the last three years. The intersection volumes to be developed will better-account for the different count years.

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Not to Scale

LEGEND

- Freeway
- Expressway (City of Tracy)
- County Expressway (San Joaquin)
- County Road
- Arterial
- On-site Arterial
- Collector
- On-site Roads
- Existing Freeway Interchange
- Proposed Freeway Interchange
- Horizon Year Forecast
- Railroad
- City of Tracy SOI

NOTES: This graphic shows the arterial/expressway system. Key new collectors are also shown.

This graphic does not show additional project level network connections that will be required as part of development approvals.

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Figure 3.3a: Horizon Year AM Peak Hour Volunes

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Not to Scale

LEGEND

- Freeway
- Expressway (City of Tracy)
- County Expressway (San Joaquin)
- County Road
- Arterial
- On-site Arterial
- Collector
- On-site Roads
- Existing Freeway Interchange
- Proposed Freeway Interchange
- (#) Horizon Year Forecast
- Railroad
- City of Tracy SOI

NOTES: This graphic shows the arterial/expressway system. Key new collectors are also shown.

This graphic does not show additional project level network connections that will be required as part of development approvals.

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Figure 3.3b: Horizon Year PM Peak Hour Volunes

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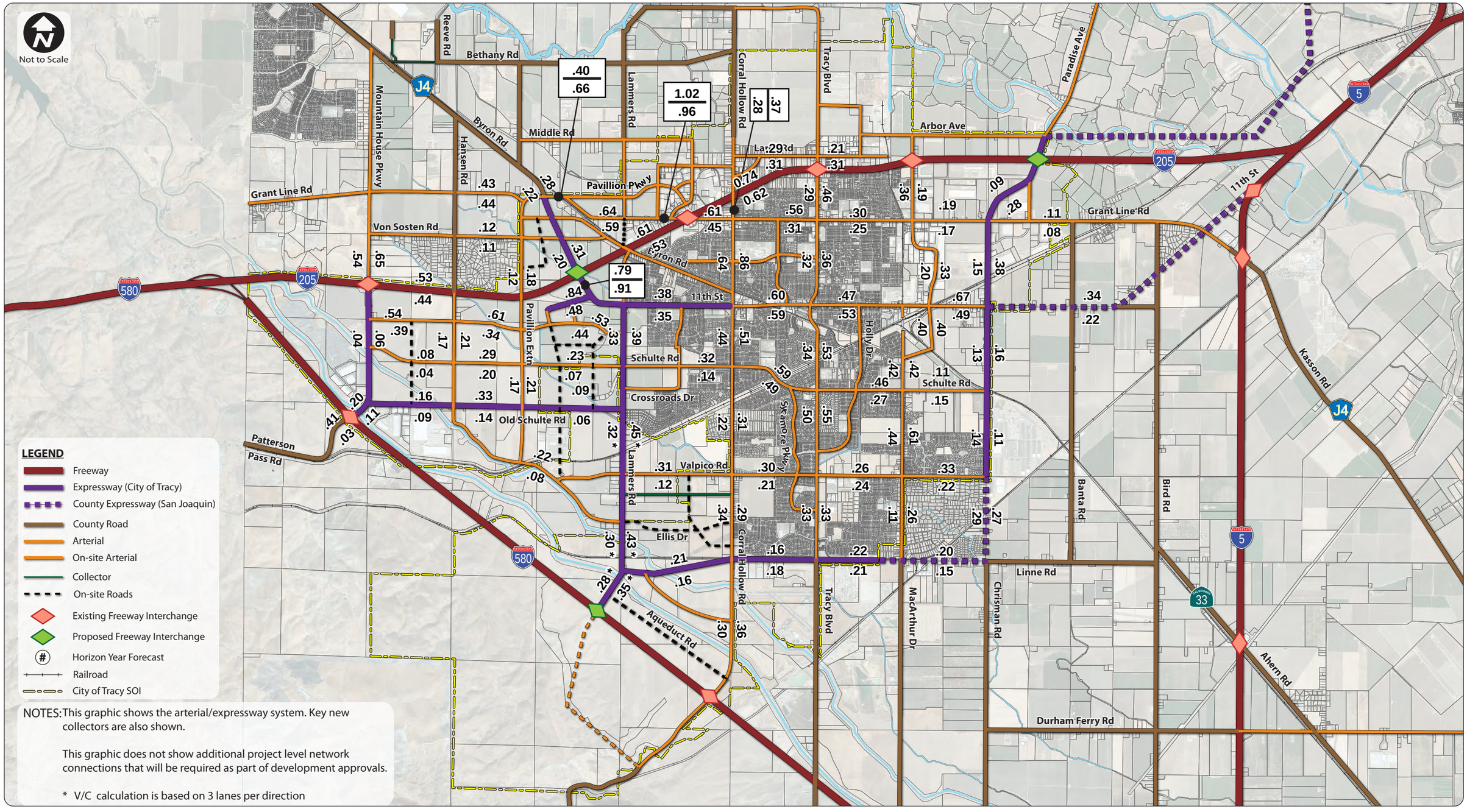

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Figure 3.4a: Horizon Year AM Peak Hour V/C Ratios

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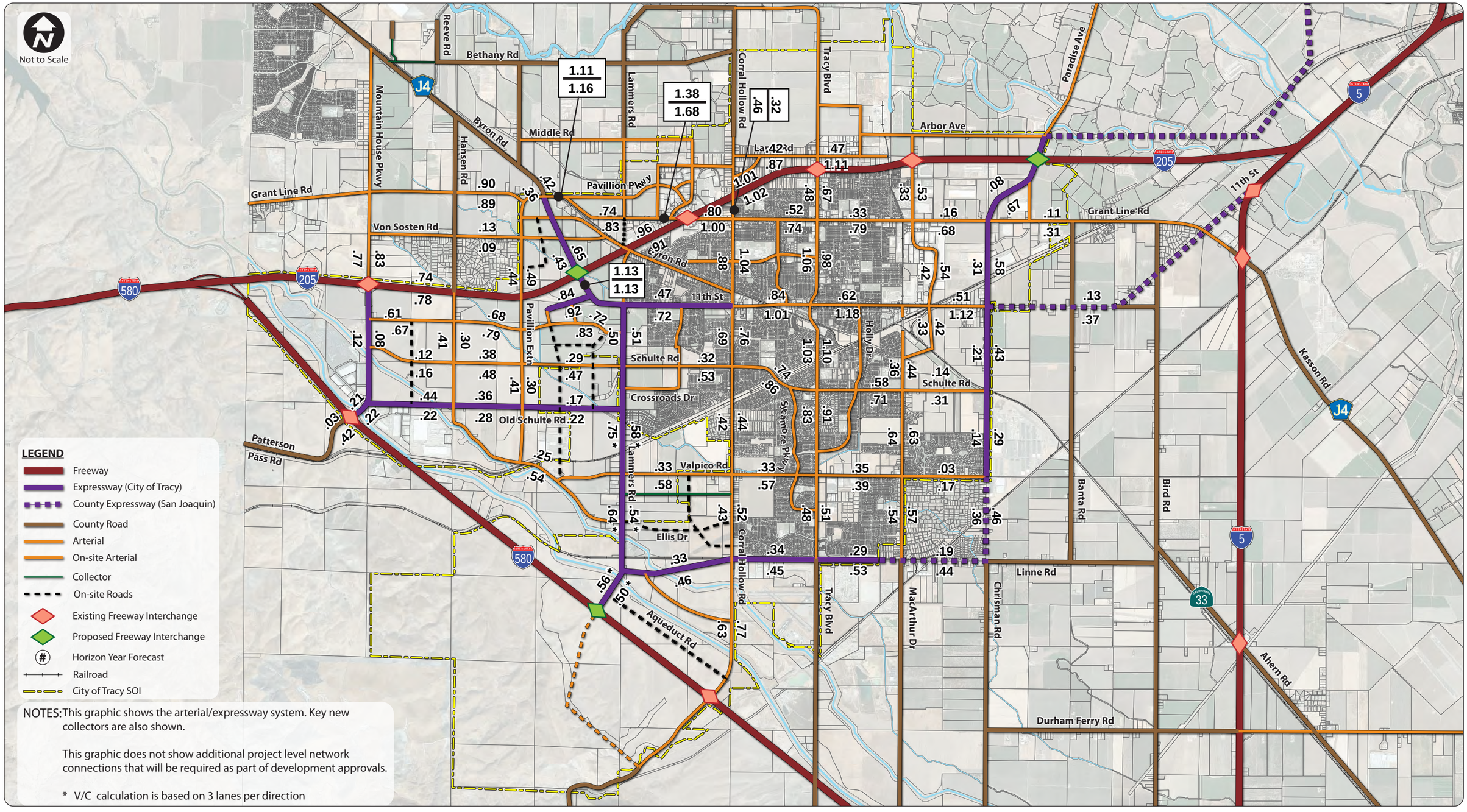

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Figure 3.4b: Horizon Year PM Peak Hour V/C Ratios

City of Tracy Transportation Master Plan

3.6 BUILD-OUT PLAN LINES

Figure 3.5 shows the Build-Out plan lines. Relative to the Horizon Year network, this network upgrades certain roadways from collector to arterial classification, and widens roadways where feasible (primarily in the western and northern development areas). This network does not provide sufficient capacity to serve the build-out land use plan; many additional connecting roadways and roadway widenings would be needed to serve the traffic generated by the additional residential development, and significantly higher employment levels, in the Build-Out case. Given the long-range horizon for the Build-Out case, and the corresponding unknowns as to how certain future services will ultimately develop, a complete and adequate Build-Out network cannot be designed. However, **Figure 3.5** provides the recommended core facilities on which to plan for growth beyond Horizon Year levels. Further study will be necessary to plan for the Build-Out condition.

Figure 3.6a and **Figure 3.6b** presents the AM and PM peak-hour volume-to capacity ratios for the roadway segments.

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Not to Scale

LEGEND

- Freeway
- Expressway (City of Tracy)
- County Expressway (San Joaquin)
- County Road
- Arterial
- On-site Arterial
- Collector
- On-site Roads
- Existing Freeway Interchange
- Proposed Freeway Interchange
- (#) No. of Lanes
- Railroad
- City of Tracy SOI

NOTES: This graphic shows the arterial/expressway system. Key new collectors are also shown.

This graphic does not show additional project level network connections that will be required as part of development approvals.

* Pavillion Parkway Interchange will not be constructed but is included in the analysis.

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Figure 3.5: TMP Right Of Way Map

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Not to Scale

LEGEND

- Freeway
- Expressway (City of Tracy)
- County Expressway (San Joaquin)
- County Road
- Arterial
- On-site Arterial
- Collector
- On-site Roads
- Existing Freeway Interchange
- Proposed Freeway Interchange
- (#) TMP Buildout V/C Ratios
- Railroad
- City of Tracy SOI

NOTES: This graphic shows the arterial/expressway system. Key new collectors are also shown.

This graphic does not show additional project level network connections that will be required as part of development approvals.

\+ Pavillion Parkway Interchange will not be constructed but is included in the analysis.

* V/C calculation is based on 2 lanes per direction

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Figure 3.6a: Buildout AM Peak Hour V/C Ratios

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Not to Scale

LEGEND

- Freeway
- Expressway (City of Tracy)
- County Expressway (San Joaquin)
- County Road
- Arterial
- On-site Arterial
- Collector
- On-site Roads
- Existing Freeway Interchange
- Proposed Freeway Interchange
- (#) TMP Buildout V/C Ratios
- Railroad
- City of Tracy SOI

NOTES: This graphic shows the arterial/expressway system. Key new collectors are also shown.

This graphic does not show additional project level network connections that will be required as part of development approvals.

\+ Pavillion Parkway Interchange will not be constructed but is included in the analysis.

* V/C calculation is based on 2 lanes per direction

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Figure 3.6b: Buildout PM Peak Hour V/C Ratios

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