4.13 TRAFFIC AND CIRCULATION

This section presents information on existing transportation and parking conditions in the City of Chino and describes potential environmental impacts that both the Proposed General Plan and the Focused Growth Plan would have on the circulation system, as well as the standards of significance by which they are evaluated. Detailed traffic model information is available in Appendix 5.

A. Existing Setting

This section presents a brief description of the circulation system in the City of Chino.

1. Regulatory Setting

Much of the transportation system in the City of Chino is owned and controlled by the City, such as the local, collector, and arterial street system, and most of the traffic signals. Some of the facilities, however, are owned and controlled by other agencies, including the California Department of Transportation (Caltrans) and the County of San Bernardino, or shared with other jurisdictions such as the cities of Ontario and Chino Hills. Similarly, while much of the funding for the transportation system is local, significant funds for improvement and maintenance also come from other sources including State, federal and County-level funding sources. Finally, transportation planning and programming is the responsibility of a number of agencies including the City of Chino, the County of San Bernardino, the San Bernardino Associated Governments (SANBAG), and the Southern California Association of Governments (SCAG). At the State level, Caltrans is the agency responsible for funding and maintaining the State highway and interstate highway systems.

Regional planning agencies SCAG and SANBAG are responsible for regional transportation planning, traffic forecasting, developing regional plans, and distributing regional transportation funds. At the County level, the County of San Bernardino operates some county facilities, and also administers Measure I, the local county half-cent sales tax for transportation. Several transpor-

tation plans and project lists are prepared by the various agencies, including the Regional Transportation Plan (RTP) by SCAG, with input from all other agencies, and the State and Regional Transportation Improvement Programs (STIP and RTIP). This section provides a brief overview of local and regional transportation planning and programming, and how it affects the City of Chino.

a. State Transportation Improvement Program

The State Transportation Improvement Program (STIP) is a multi-year capital improvement program for transportation projects on and off the State Highway System, funded with revenues from the Transportation Investment Fund and other funding sources. STIP programming generally occurs every two years. The programming cycle begins with the release of a proposed fund estimate in July of odd-numbered years, followed by California Transportation Commission (CTC) adoption of the fund estimate in August (odd years). The fund estimate serves to identify the amount of new funds available for the programming of transportation projects. Once the fund estimate is adopted, Caltrans and the regional planning agencies prepare transportation improvement plans for submittal by December 15th (odd years). Caltrans prepares the Interregional Transportation Improvement Plan (ITIP) and regional agencies prepare the Regional Transportation Improvement Plans (RTIP). Public hearings are held in January (even years) in both Northern and Southern California. The STIP is adopted by the CTC by April (even years).

Cities and other local agencies work through their Regional Transportation Planning Agency (RTPA) to nominate projects for inclusion in the STIP. Once projects are programmed, agencies may begin the project implementation process. RTPAs such as SANBAG, are allocated 75 percent of STIP funding for regional transportation projects in their Regional Improvement Program (RIP), and Caltrans is allocated 25 percent for inter-regional transportation projects in the Inter-regional Improvement Program (IIP).

All STIP projects that directly affect the City of Chino are included in the RTIP. Refer to the list of RTIP projects under the Regional Transportation Plan section for a complete list of STIP projects in Chino.

b. Regional Transportation Plan

The Regional Transportation Plan (RTP) is developed, maintained, and updated by the Southern California Association of Governments (SCAG), Southern California's Metropolitan Planning Organization. It encompasses the six counties in Southern California including Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. On May 8, 2008, the *2008 RTP: Making the Connections* was adopted by the SCAG Regional Council.

The RTP project list is divided into three sections. At the center is the RTIP, which forms the foundation of the RTP project investment strategy and represents the first six years of already-committed funding. The RTA also contains an additional financially constrained set of transportation projects above and beyond the RTIP. Finally, the Strategic Plan is an illustrative list of potential projects that the region would pursue given additional funding.

RTIP projects in Chino are as follows:

- Chino Avenue from Monte Vista Avenue to Sixth Street: Widen from two lanes to four lanes and install signal at intersection of Chino Avenue and Monte Vista Avenue (RTIP ID 200202).
- Chino-Corona Road (E/W) widening from Chino-Corona Road (N/S) to Hellman Avenue (RTIP ID 201115).
- Pine Avenue extension from State Route 71 to Euclid Avenue: Widen bridge from 2 to 4 lanes (RTIP ID 200207).
- Edison Avenue from Ramona Avenue to Central Avenue: Widen from 4 to 6 lanes and complete necessary rehabilitation (spot widening) (RTIP ID SBD031118).
- Central Avenue Overpass widening and ramp improvements (RTIP ID 201114).

- Riverside Drive at San Antonio Avenue: Widen bridge from 4 to 6 lanes (75% County, 25% City project)(RTIP ID SBD 031152).

c. County of San Bernardino Measure I

Transportation issues in the City of Chino are overseen by the San Bernardino Associated Governments (SANBAG), the council of governments and transportation planning agency responsible for regional planning in San Bernardino County. As the County Transportation Authority, SANBAG administers Measure I, the voter-approved half-cent transportation sales tax adopted by San Bernardino County voters in 1989, and extended to 2040 in November 2004. Since its implementation, Measure I has provided a steady source of revenue for transportation improvements in the City of Chino, providing nearly $12 million for Chino's transportation infrastructure during the first 20 years. Completed Measure I funded projects in the City of Chino include:

- Pavement and concrete repair, street and traffic maintenance.
- City-wide street rehabilitation.
- Upgrades to traffic signals on Riverside Drive at Yorba, Benson, and Oaks Avenues.
- Upgrades to traffic signals at Mountain Avenue and Schaefer Avenue, Central Avenue and Chino Hills Parkway, and Central Avenue and Walnut Avenue.
- Intersection improvements at Walnut Avenue and Monte Vista Avenue and at Central Avenue and Philadelphia Street.
- New traffic signal at Schaefer Avenue and Roswell Avenue.

Additional Measure I funding – approximately $768 million – is pooled by all the cities and unincorporated areas in the valley region of San Bernardino County to support regional transportation issues such as freeway improvements, Metrolink trains, and improvements to major streets that serve as transportation arteries. Funding from this pool has provided the following improvements in and around the City of Chino:

- Widening and adding carpool lanes to ten miles of State Route 60 between the Los Angeles County line and Interstate 15 (completed in 1997).
- Building the new State Route 71 in Chino and Chino Hills which transformed a two-lane highway to eight lanes of freeway (opened in 1997).
- The purchase of railroad right-of-way, track rights, station construction, track and signal improvements, and locomotive and passenger cars for Metrolink train service between San Bernardino County and other parts of Southern California (San Bernardino-Los Angeles line opened in 1992, and the Inland Empire-Orange County line opened in 1995).
- Right-of-way and construction of Euclid Avenue and Riverside Drive.

d. San Bernardino County Congestion Management Program

Proposition 111, passed in June 1990, provided additional transportation funding through a $.09 per gallon increase in the State gas tax. Included with the provision for additional transportation funding was a requirement to undertake a Congestion Management Program (CMP) within each county with an urbanized area of more than 50,000 people, to be developed and adopted by a designated Congestion Management Agency (CMA). Within San Bernardino County, the SANBAG was designated the CMA by the County Board of Supervisors and a majority of the cities representing the majority of the incorporated population. Although implementation of the CMP was made voluntary by the passage of AB 2419, the CMP requirement has been retained in all five urbanized counties within the SCAG region. In addition to its value as a transportation management tool, CMP's have been retained in these counties because of the Federal Congestion Management System requirement that applies to all large urban areas that are not in attainment of federal air quality standards. These counties recognize that the CMP provides a mechanism through which locally implemented programs can fulfill most aspects of a regional requirement that would otherwise have to be addressed by the Regional Agency (SCAG).

The City of Chino adopted the CMP in October of 2006, and the CMP for San Bernardino County was last updated in November of 2009 by SANBAG.

This document identifies goals of the program, defines legal requirements, provides other background information, and describes each individual element, component, and requirement of the program. It also reflects all legislative changes to the program since its inception in 1992. The CMP defines a network of State highways and arterials, level of service standards and related procedures, and provides technical justification for the approach. The CMP is updated biennially, although interim modifications or refinements through the technical and policy channels can occur as needed.

Appendix C of the 2007 Update to the San Bernardino CMP is the "Guidelines for CMP Traffic Impact Analysis Reports in San Bernardino County." The methodology contained in these guidelines forms the basis for the methodology used in this report. In the case of analysis of General Plan revisions/updates, the "project to be analyzed shall consist of the proposed land use."

e. County of San Bernardino General Plan

The County of San Bernardino General Plan includes a range of objectives and policies that address various aspects of circulation, including but not limited to roadways, public transportation, trucking, and non-motorized facilities.

2. Roadway Network

The City of Chino groups its streets and highways into seven functional classifications according to the number of lanes and the type of service it intends to provide. Roadway functional classifications are used to describe the function and character of streets and highways. Different types of streets are intended to handle different types of traffic. Traffic movements are channeled through a hierarchical system that progresses from a lower classification handling short, locally-oriented trips to higher classifications that connect regional and inter-regional traffic generators, handling longer trips. The roadway classification system is used to generally describe the total volume of traffic on a roadway, as well as the trip length, trip type, local access (number and type of curb cuts and driveway access), posted speeds, parking, median type, traffic control and other characteristics. The paragraphs below describe the

general characteristics of each of the seven functional street classifications in the City of Chino. They are listed in order of volume, from highest to lowest.

- **Freeway**: A freeway is an access-controlled, divided highway, with two or more lanes in each direction. Freeways are designed for high speed inter-city travel.
- **Expressway**: An expressway is a divided high-flow arterial street with three or more lanes in each direction. Typical right-of-way width is approximately 206 feet. Expressways may be separated by a median and may have a bicycle lane/trail and/or an equestrian trail.
- **Major Arterial**: A major arterial is a divided roadway with 6 to 8 through lanes. Major arterials serve major activity centers within the City, carry the majority of intra-city trips, and provide access to high volume corridors, such as freeways. Public transportation is usually more prominent along the major arterial system. Major arterials may be divided by a median and may have a bicycle lane/trail and/or an equestrian trail. Typical right-of-way width ranges between 120 feet and 134 feet, and curb-to-curb width ranges from 100 feet to 114 feet.
- **Primary Arterial**: A primary arterial is a roadway with four through lanes. Primary arterials may be separated by a median, and may have a bicycle lane/trail and/or an equestrian trial. The typical right-of-way width is 98 feet, and the curb-to-curb width range is 74 feet. Parking is prohibited on primary arterial roadways.
- **Secondary Arterial**: A secondary arterial is an undivided roadway with four through lanes. Typical right-of-way width is approximately 88 feet, and curb-to-curb width is 64 feet. Secondary arterials may have a bicycle lane/trail and/or an equestrian trail. Parking is allowed on secondary arterial roadways.
- **Collector**: A collector street is a two-lane undivided roadway with the primary function of collecting and distributing local traffic. Typical right-of-way width ranges between 60 feet and 88 feet. Collector streets may be further broken down into three subcategories according to adjacent land use:

- Urban Residential Collector
- Rural Collector
- Urban Industrial Collector

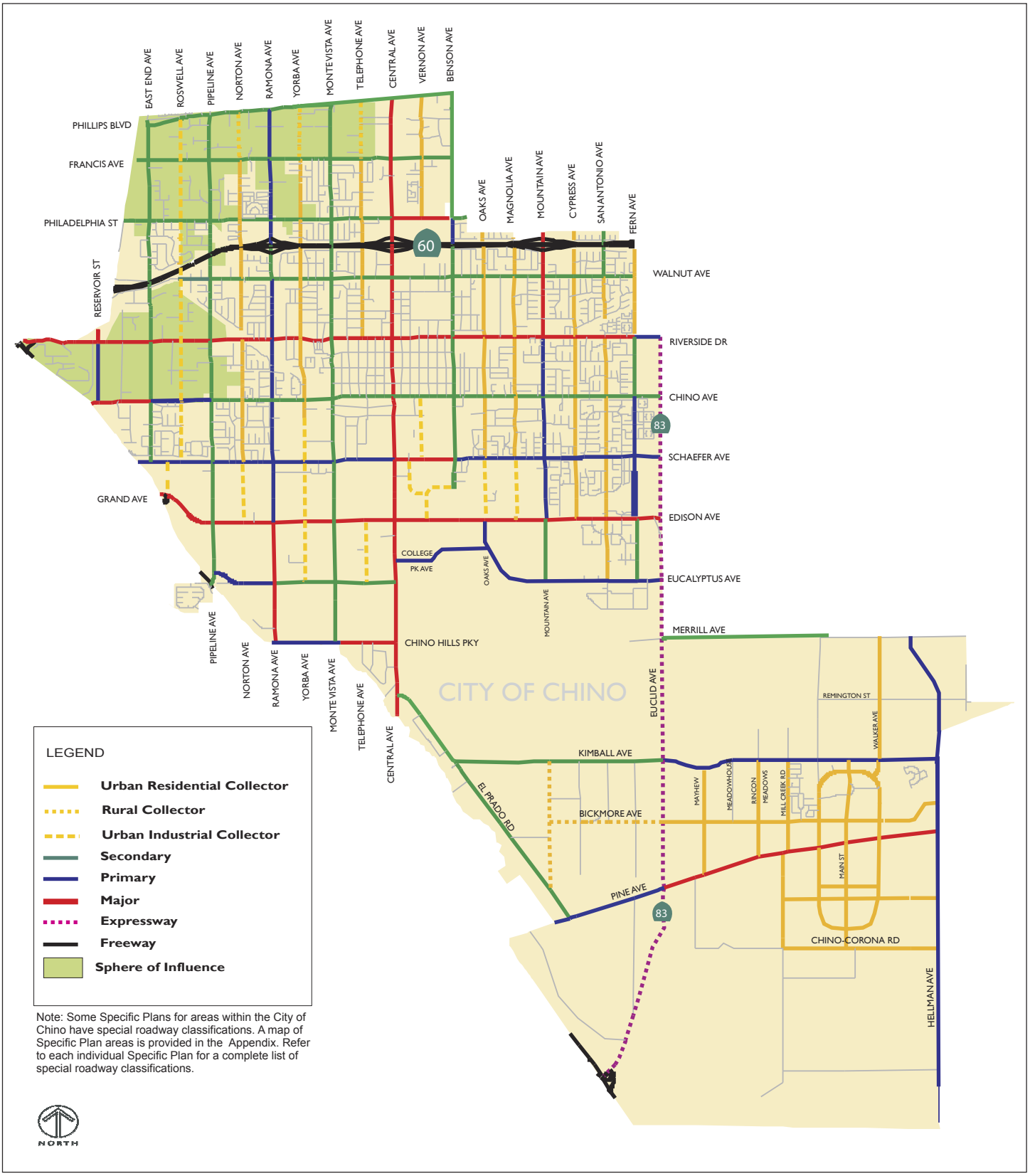
♦ **Local Street:** A local street is a two-lane undivided roadway. Local streets are primarily used to gain access to and from adjacent properties. The minimum right-of-way width for local streets is 60 feet.

It is important to note that these right-of-way widths do not include equestrial or bicycle trail requirements. Additional right-of-way would be required for these facilities. The City of Chino roadway classification map is provided in Figure 4.13-1.

The primary roadway network includes the following roadways:

♦ **State Route 60** – State Route 60, also known as the Pomona Freeway, is an east-west facility that extends from Interstate 10 near the Los Angeles River east to Interstate 10 in Riverside County. State Route 60 runs through the northern portion of the City of Chino between Philadelphia Street and Walnut Avenue. Interchanges in the City of Chino are provided at Ramona Avenue, Central Avenue, and Mountain Avenue. Sections of State Route 60 adjacent to the City of Chino have four lanes and one high occupancy vehicle (HOV) lane in each direction, with a posted speed limit of 65 miles per hour.

♦ **State Route 71** – State Route 71, also known as the Chino Valley Freeway, is a north-south freeway that extends from the State Route 57/Interstate 10 interchange, through the western boundary of the City of Chino, to its southern terminus at State Route 91. Interchanges in the City of Chino are provided at Chino Avenue, Grand Avenue/Edison Avenue, Chino Hills Parkway (State Route 142)/Ramona Avenue, and at Euclid Avenue/Butterfield Ranch Road. State Route 71 also has several interchanges that fall slightly outside of the City's boundary in Chino Hills at Riverside Drive/Peyton Drive, Soquel Canyon Parkway/Central Avenue, and Pine Avenue. Sections of State Route 71 adjacent to the City of Chino have three lanes and one HOV lane in each direction, with a posted speed limit of 65 miles per hour.



Note: Some Specific Plans for areas within the City of Chino have special roadway classifications. A map of Specific Plan areas is provided in the Appendix. Refer to each individual Specific Plan for a complete list of special roadway classifications.

FIGURE 4.13-1
ROADWAY CLASSIFICATION MAP

- **Reservoir Street –** Reservoir Street is a north-south roadway that extends through a small portion of the City of Chino along its western boundary. Within the City of Chino's boundary, Reservoir Street isclassified as a six-lane Major Arterial north of Riverside Drive and a four-lane Primary Arterial south of Riverside Drive.

- **East End Avenue –** East End Avenue is a north-south roadway that extends through the City of Chino from the City's northern boundary to Schaefer Avenue. Within the City of Chino, East End Avenue is classified as a four-lane Secondary Arterial.

- **Pipeline Avenue –** Pipeline Avenue is a north-south roadway that extends through the City of Chino. Within the City, Pipeline Avenue is classified as a four-lane Secondary Arterial.

- **Ramona Avenue –** Ramona Avenue is a north-south roadway that extends through the City of Chino. Ramona Avenue is classified as a four-lane Primary Arterial between Phillips and State Route 60 and between Walnut Avenue and Edison Avenue, a four-lane Secondary Arterial between State Route 60 and Walnut Avenue, and a six-lane Major Arterial south of Edison Avenue

- **Monte Vista Avenue –** Monte Vista Avenue is a north-south roadway that extends through the City of Chino. Monte Vista Avenue is classified as a four-lane Secondary Arterial, with the exception of the segment between Phillips Boulevard and Schaefer Avenue which has an ultimate build out of only two lanes

- **Central Avenue –** Central Avenue is a north-south roadway that extends through the City of Chino. Central Avenue is classified as a six-lane Major Arterial in the City of Chino, with the exception of the segment between Francis Avenue and Riverside Drive which has an ultimate build out of eight lanes.

- **Benson Avenue –** Benson Avenue is a north-south roadway that extends through the City of Chino from the City's northern boundary to north of Edison Avenue. The majority of Benson Avenue is classified as a four-lane Secondary Arterial, with the exception of one segment between

Philadelphia Street and State Route 60 that is classified as a four-lane Primary Arterial.

- **Mountain Avenue** – Mountain Avenue is a north-south roadway that extends through the City of Chino from the City's northern boundary to Edison Avenue. Mountain Avenue is classified as a six-lane Major Arterial north of Riverside Drive, a four-lane Primary Arterial between Riverside Drive and Edison Avenue, and a future four-lane Secondary Arterial between Edison Avenue and Eucalyptus Avenue in the City of Chino.
- **Euclid Avenue Highway** – Euclid Avenue, also known as State Route 83, is a north-south highway that extends through the City of Chino from the City's northern boundary to State Route 71, where it turns into Butterfield Ranch Road. Euclid Avenue is classified as an eight-lane Expressway in the City of Chino. It is under the jurisdiction of Caltrans.
- **Hellman Avenue** – Hellman Avenue is a north-south roadway that extends along the south-east boundary of the City of Chino, shared with Riverside County. Hellman Avenue is classified as a four-lane Primary Arterial in the City of Chino.
- **Phillips Boulevard** – Phillips Boulevard is an east-west roadway that extends along the northern boundary of the City. Although Phillips Boulevard is classified as a four-lane Secondary Arterial in the City of Chino, it has an ultimate build out of only two lanes.
- **Francis Avenue** – Francis Avenue is an east-west roadway that extends through the northern portion of the City of Chino. Although Francis Avenue is classified as a four-lane Secondary Arterial in the City of Chino, it has an ultimate build out of only two lanes.
- **Philadelphia Street** – Philadelphia Street is an east-west roadway that extends through the northern portion of the City of Chino. Within the City of Chino, Philadelphia Street is classified as a four-lane Secondary Arterial west of Central Avenue and a six-lane Major Arterial east of Central Avenue.

- **Walnut Avenue –** Walnut Avenue is an east-west roadway that extends through the City of Chino. Although Walnut Avenue is classified as four-lane Secondary Arterial, it has an ultimate build out of only two lanes west of Telephone Avenue and between Benson Avenue and Mountain Avenue.
- **Riverside Drive –** Riverside Drive is an east-west roadway that extends through the City of Chino. Within the City, Riverside Drive is classified as a six-lane Major Arterial west of Fern Avenue and a four-lane Primary Arterial east of Fern Avenue.
- **Chino Avenue –** Chino Avenue is an east-west roadway that extends through the City of Chino. Within the City, Chino Avenue is classified as a six-lane Major Arterial west of East End Avenue, a four-lane Primary Arterial between East End Avenue and Pipeline Avenue, and a four-lane Secondary Arterial east of Pipeline Avenue.
- **Schaefer Avenue –** Schaefer Avenue is an east-west roadway that extends through the City of Chino from east of State Route 71 to the City's eastern boundary. Within the City, Schaefer Avenue is classified as a four-lane Primary Arterial between East End Avenue and Central Avenue, and between Benson Avenue and Euclid Avenue, and a six-lane Major Arterial between Central Avenue and Benson Avenue.
- **Edison Avenue/Grand Avenue –** Edison Avenue is an east-west roadway that extends through the City of Chino. Although Edison Avenue is classified as a six-lane Major Arterial, it has an ultimate build out of eight-lanes between the City's western boundary and Pipeline Avenue.
- **Eucalyptus Avenue –** Eucalyptus Avenue is an east-west roadway that extends through the City of Chino in two locations; from Pipeline Avenue to Central Avenue, and from Oaks Avenue to the City's eastern boundary. Eucalyptus Avenue is classified as a four-lane Primary Arterial between Pipeline Avenue and Ramona Avenue, and a four-lane Secondary Arterial between Ramona Avenue and Central Avenue. The eastern portion of Eucalyptus Avenue extends from west of San Antonio Avenue (at the Cypress Channel) to Euclid Avenue in the College Park development.

- **Chino Hills Parkway** – Chino Hills Parkway is an east-west roadway that extends through the City of Chino from the City's western boundary to Central Avenue. Within the City, Chino Hills Parkway is classified as a four-lane Primary Arterial west of Monte Vista Avenue and a six-lane Major Arterial east of Monte Vista Avenue. Chino Hills Parkway turns into Manuel Gonzalez Drive east of Central Avenue.
- **Kimball Avenue** – Kimball Avenue is an east-west roadway in the City of Chino that extends from El Prado Road to Hellman Avenue. Kimball Avenue is classified as a four-lane Secondary Arterial west of Euclid Avenue and a four-lane Primary Arterial east of Euclid Avenue in the City of Chino.
- **El Prado Road** – El Prado Road is a northwest-southeast roadway in the City of Chino that extends from Central Avenue to Pine Avenue. El Prado Road is classified as a four-lane Secondary Arterial.
- **Pine Avenue** – Pine Avenue is an east-west roadway that extends through the City of Chino from Fairfield Ranch Road in the City of Chino Hills to the City's eastern boundary at Hellman Avenue. Within the City, Pine Avenue is classified as a four-lane Primary Arterial west of Euclid Avenue, and a six-lane Major Arterial east of Euclid Avenue.

There are eight freeway interchanges adjacent to the City of Chino. Three of these interchanges are found on State Route 60 and five are found on State Route 71. The interchange locations are listed below:

- State Route 60/Ramona Avenue – signalized interchange.
- State Route 60/Central Avenue – signalized interchange.
- State Route 60/Mountain Avenue (borders City of Ontario) – signalized interchange.
- State Route 71/Riverside Drive/Peyton Drive (borders City of Chino Sphere of Influence (SOI), City of Pomona, and City of Chino Hills) – signalized interchange.
- State Route 71/Chino Avenue (borders City of Chino SOI and City of Chino Hills) – signalized interchange.

- State Route 71/Grand Avenue/Edison Avenue (borders City of Chino Hills) – unsignalized northbound on-ramps, signalized southbound on-ramp, and signalized northbound and southbound off-ramps.
- State Route 71/Chino Hills Parkway (State Route 142)/Ramona Avenue (borders City of Chino Hills) – signalized interchange at Chino Hills Parkway (State Route 142) and Ramona Avenue.
- State Route 71/Euclid Avenue (State Route 83) (borders City of Chino Hills) – signalized northbound and southbound off-ramps, unsignalized northbound and southbound on-ramps.

Chino's circulation system is evaluated by comparing traffic volumes to street capacity. Capacity is a measure of the ability of the street system to meet and serve the demands placed on it. It is generally considered the most practical measure of how well the mobility needs of the City are being met.

The capacity of the road is affected by a number of factors, including street width, roadway design, number of travel lanes, number of roadway intersections, number of driveways, presence of on-street parking, and traffic signal cycle length.

To assess Chino's street segment capacities, values were developed relating average daily traffic (ADT) with levels of service (LOS) for specific roadway classifications and lane configurations. The capacity criteria utilized in this analysis are summarized in Table 4.13-1.

Roadway capacity and average daily traffic volumes, shown in Figure 4.13-2, are used in determining levels of service. A roadway with a smaller capacity and a large volume will most likely have a lower level of service (LOS D or E). By contrast, a roadway with fewer vehicles will probably have a higher level of service (LOS A or B). LOS F is considered to be the ultimate capacity of the street which represents "breakdown" conditions. LOS E is considered to be the lowest acceptable operating condition. LOS D is also the lowest acceptable level of service for CMP roadways per CMP guidelines; and for intersections in the City of Chino, per City standards.

TABLE 4.13-1 **MAXIMUM DAILY VEHICLE VOLUMES AT EACH LEVEL OF SERVICE**

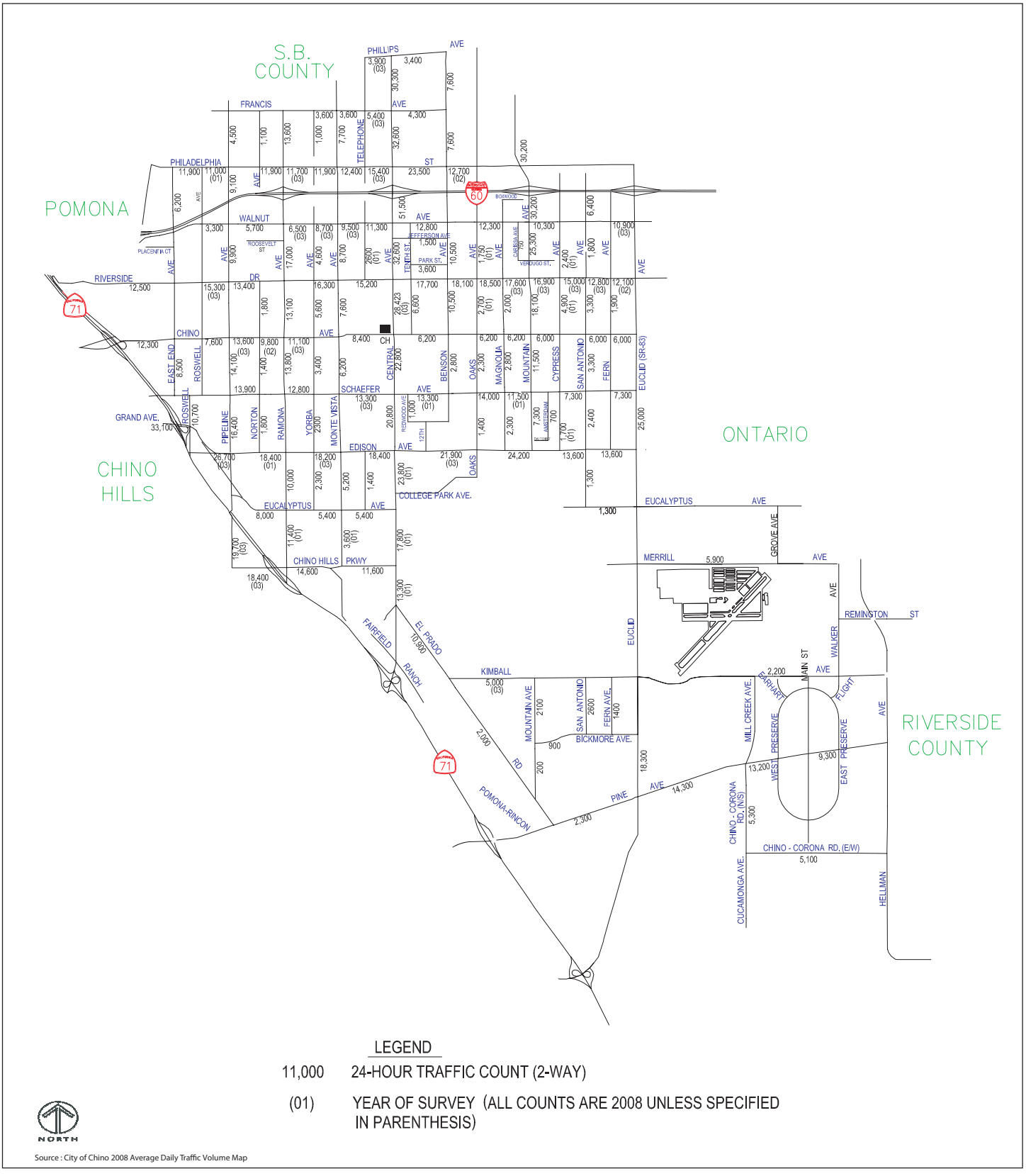
No. Lanes	Freeway	Expressway		Major Arterial		
	6	4	8	4	6	8
LOS						
A	72,000	24,500	49,000	21,500	32,300	43,000
B	84,000	28,600	57,200	25,100	37,700	50,200
C	96,000	32,700	65,400	28,700	43,100	57,400
D	108,000	36,800	73,500	32,300	48,500	64,600
E	120,000	40,900	81,700	35,900	53,900	71,800

No. Lanes	Primary Arterial			Secondary Arterial		Collector
	2	4	6	2	4	2
LOS						
A	10,000	18,000	29,000	8,000	17,000	8,000
B	11,000	20,000	34,000	10,000	20,000	9,000
C	13,000	24,000	38,000	11,000	22,000	10,000
D	14,000	27,000	43,000	13,000	25,000	12,000
E	16,000	30,000	48,000	14,000	28,000	13,000

Source: City of Chino Circulation Element, 1992 for Freeway, Primary Arterial, Secondary Arterial and Collector; Riverside County TIA Guidelines (as of April 2008) for Expressway and Major Arterial.

3. Level of Service Criteria

Intersection operations are evaluated using a Level of Service System. The concept of level of service is used to characterize how well the roadway net work operates. These evaluations are based on empirical data collected and reported in the 2000 Highway Capacity Manual, which is maintained by the



Source : City of Chino 2008 Average Daily Traffic Volume Map

FIGURE 4.13-2

AVERAGE DAILY TRAFFIC VOLUME MAP

Transportation Research Board as directed by the "Guidelines for CMP Traffic Impact Analysis Reports in San Bernardino County." The CMP states that LOS D is the lowest acceptable level of service on CMP roadways in Chino. The 2000 Highway Capacity Manual utilizes a methodology that assesses the average control delay at intersections. This methodology results in level of service measurements, indicating the quality of traffic flow and using letter grades from A (best) to F (worst). The level of service ranges for signalized intersections are provided in Table 4.13-2.

Unsignalized intersections are analyzed using a similar methodology, but delay is calculated only for movements that are controlled by the stop sign. Therefore the delay at side-street stop controlled intersections reflects only the delay accruing to vehicles that are stopping at the stop sign, while through traffic on the main street flows uninterrupted with no delay. The level of service ranges for the unsignalized intersections are shown in Table 4.13-3.

4. Existing Traffic Conditions

Existing traffic volumes are illustrated in Figures 4.13-3a and 4.13-3b. Table 4.13-4 provides the level of service results for the 30 study intersections. As shown in the table, of the 30 analyzed intersections, 29 currently operate at LOS D or better during both the AM and PM peak hour. One of the 30 analyzed intersections currently operates at LOS D or LOS E during the AM or PM peak hour, as follows:

- 7. Magnolia Avenue/Walnut Avenue (unsignalized) – LOS E, AM Peak Hour, LOS D, PM Peak Hour

5. Analysis Intersections

In total, the City of Chino Traffic Signal Master Plan includes 197 existing or planned traffic signals within its City boundary, Sphere of Influence, and its surrounding areas. Of the 197 traffic signals, 103 are existing Chino traffic signals, 38 are existing Caltrans traffic signals, five are existing County of San Bernardino traffic signals, one borders Chino and Riverside County, one is in Chino Hills, and two are in Ontario. The remaining 47 planned traffic signals are spread throughout the City and its surrounding areas, with 40 future Chino traffic signals, four future Chino/Ontario traffic signals, two future

TABLE 4.13-2 **SIGNALIZED INTERSECTION LEVEL OF SERVICE CRITERIA**

Level of Service	Description	Control Delay/ Vehicle (sec/veh)
A	Excellent operation. All approaches to the intersection appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation.	≤ 10
B	Very good operation. Many drivers begin to feel somewhat restricted within platoons of vehicles. This represents stable flow. An approach to an intersection may occasionally be fully utilized and traffic queues start to form.	> 10 – 20
C	Good operation. Occasionally drivers may have to wait more than 60 seconds, and back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted.	> 20 – 35
D	Fair operation. Cars are sometimes required to wait more than 60 seconds during short peaks. There are no long-standing traffic queues. This level is typically associated with design practice for peak periods.	> 35 – 55
E	Poor operation. Some long-standing vehicular queues develop on critical approaches to intersections. Delays may be up to several minutes.	> 55 – 80
F	Forced flow. Represents jammed conditions. Backups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the intersection approach lanes; therefore, volumes carried are not predictable. Potential for stop and go type traffic flow.	> 80

Source: *Highway Capacity Manual*, Transportation Research Board, 2000.

Chino/Riverside County traffic signals, and one future Chino Hills traffic signal. See Figure 4.13-4 for details.

In order to determine significant impacts that may result from the land use changes proposed in the City of Chino General Plan, 30 potentially affected intersections were analyzed.

Of the 30 study intersections, 21 study intersections are currently signalized and nine study intersections are currently stop controlled. Stop sign

TABLE 4.13-3 **UNSIGNALIZED INTERSECTION LEVEL OF SERVICE CRITERIA**

Level of Service	Description	Control Delay/Vehicle (sec/veh)
A	Little or no delays	≤ 10.0
B	Short traffic delays	> 10.0 to 15.0
C	Average traffic delays	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic delays with intersection capacity exceeded	> 50.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2000.

controlled intersections include side-street stop sign controlled (two-way stop where the major street operates freely) or all-way stop sign controlled intersections (all approaches must stop for stop signs). A list of the analysis intersections is provided in Table 4.13-5.

The locations of the 30 study intersections are shown on Figure 4.13-5. Figures 4.13-6a and 4.13-6b provide the existing lane configurations of each intersection, including the number of turn lanes, through lanes, and the traffic control for each approach.[1]

6. Bicycle System

Paths available to bicyclists are categorized as Class I, Class II, or Class III bicycle facilities.

[1] Exclusive right-turn lanes are lanes that are striped for right-turns only. A shared right-turn lane is a lane striped as a shared through/right-turn lane. A de-facto right-turn lane is a lane that is wide enough (typically 20 feet or more) that can act as a separate through and right-turn lane, even though it is not striped as such.

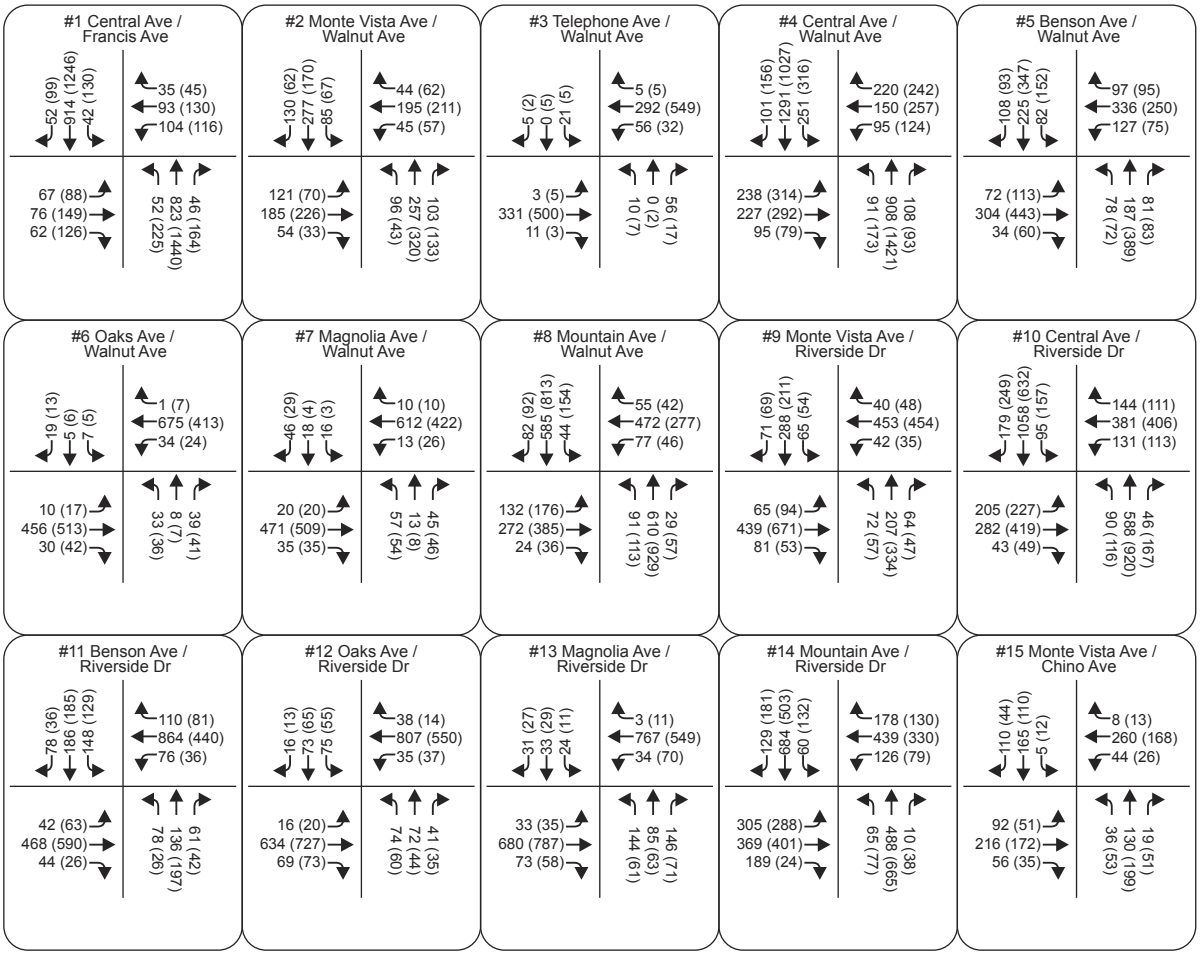
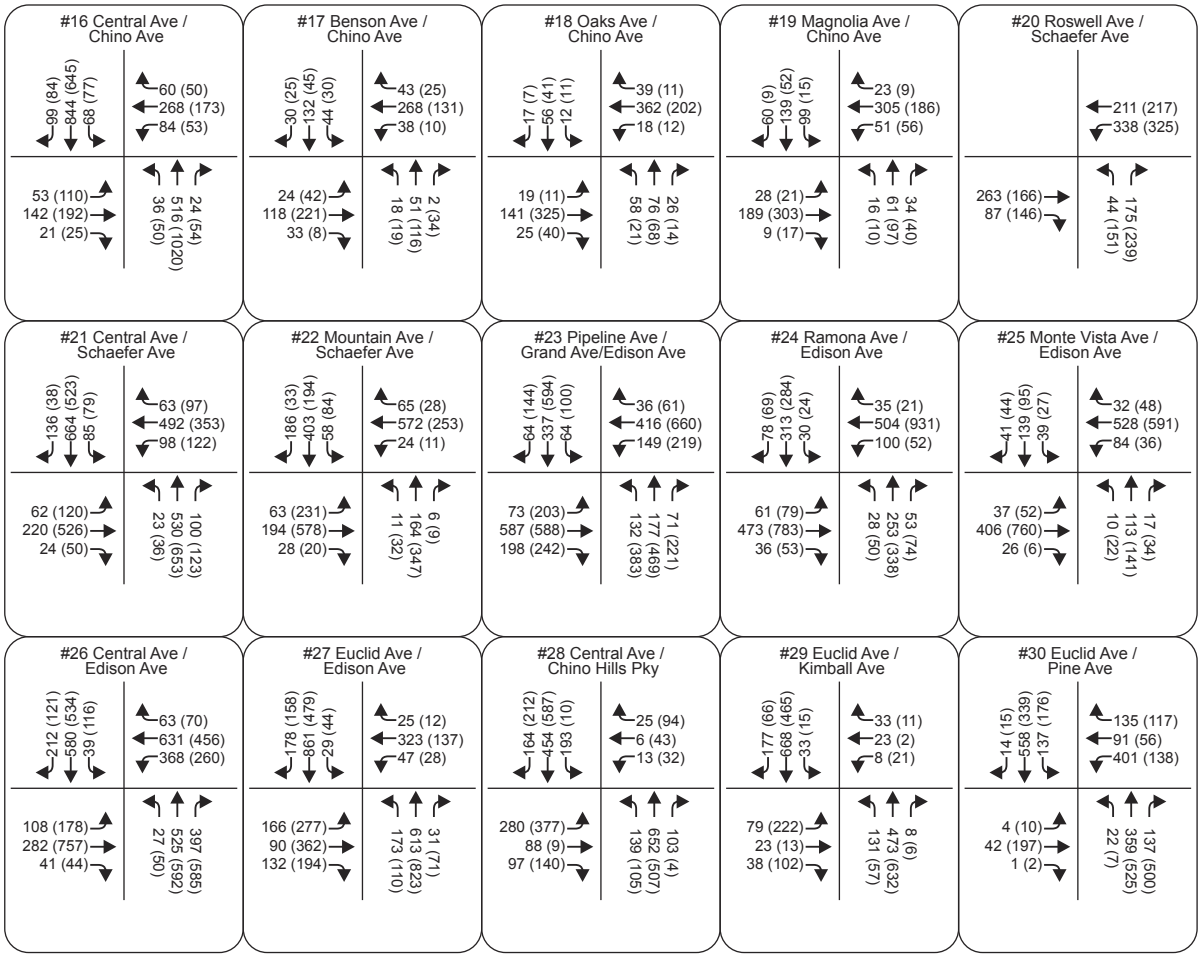


FIGURE 4.13-3a
EXISTING INTERSECTION VOLUMES



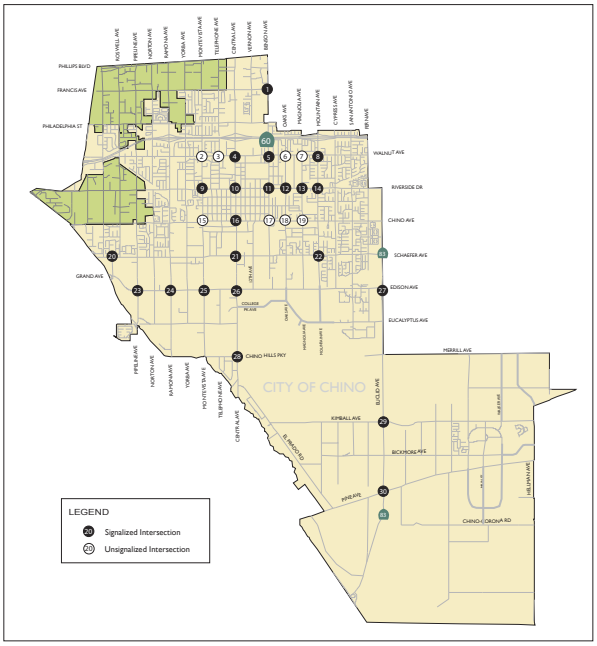


FIGURE 4.13-3b
EXISTING INTERSECTION VOLUMES

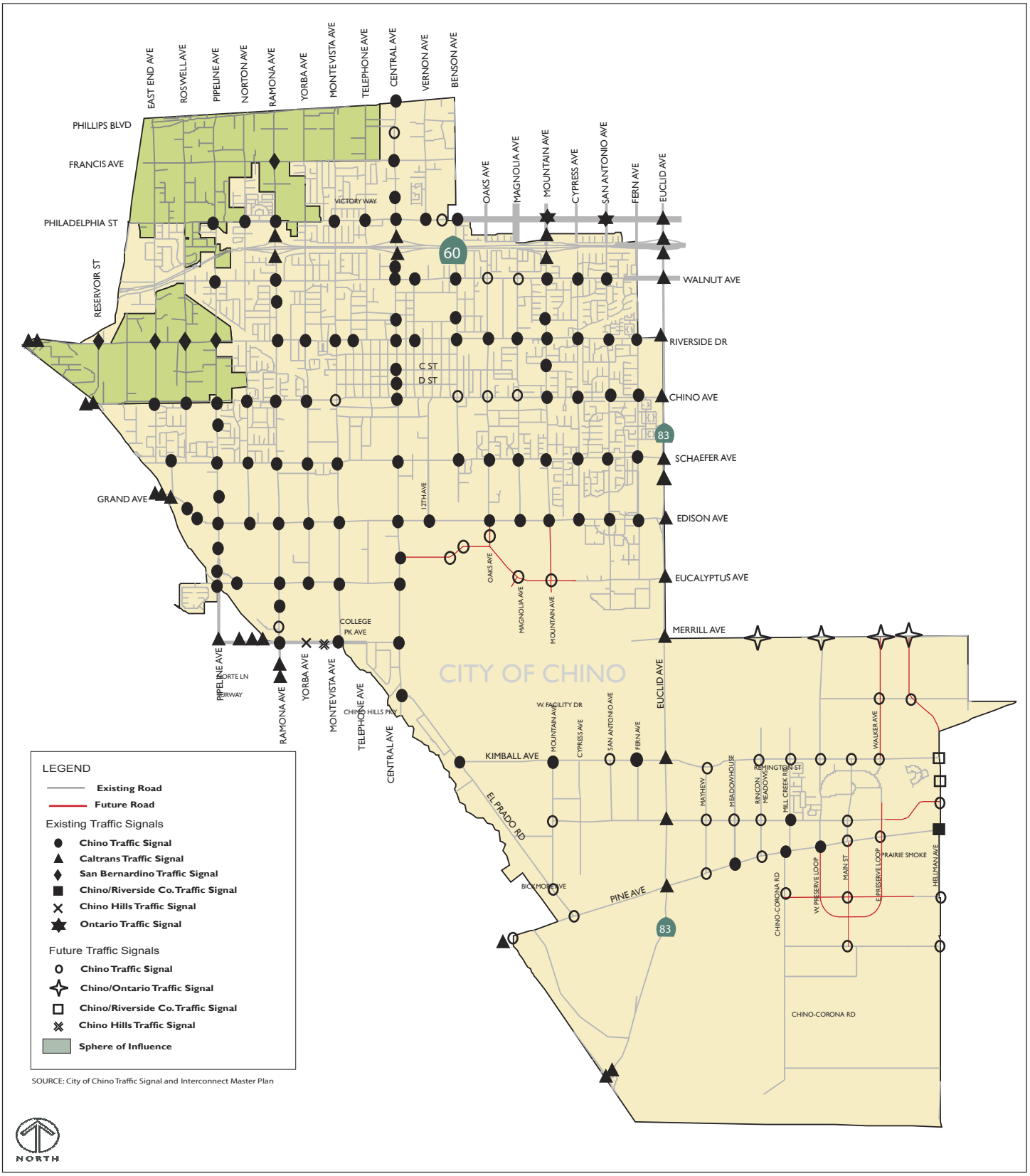
TABLE 4.13-4 **EXISTING LEVEL OF SERVICE**

		Existing Conditions					
		AM Peak Hour			PM Peak Hour		
	Intersection	LOS	Average Delay/ Vehicle	V/C	LOS	Average Delay/ Vehicle	V/C
1	Central Avenue/ Francis Avenue	B	14.8	0.276	B	19.7	0.511
2	Monte Vista Avenue/ Walnut Avenue	C	23.7	0.773	C	22.4	0.775
3	Telephone Avenue/ Walnut Avenue*	C	18.3	0.000	D	25.5	0.000
4	Central Avenue/ Walnut Avenue	C	30.1	0.682	D	35.0	0.799
5	Benson Avenue/ Walnut Avenue	B	15.8	0.295	B	16.8	0.441
6	Oaks Avenue/ Walnut Avenue*	D	34.0	0.000	C	24.9	0.000
7	Magnolia Avenue/ Walnut Avenue*	E	44.4	0.000	D	26.4	0.000
8	Mountain Avenue/ Walnut Avenue	C	33.0	0.691	C	32.5	0.698
9	Monte Vista Avenue/ Riverside Drive	B	17.1	0.377	B	16.1	0.424
10	Central Avenue/ Riverside Drive	C	30.5	0.590	C	32.7	0.653
11	Benson Avenue/ Riverside Drive	B	13.2	0.410	B	14.1	0.300
12	Oaks Avenue/ Riverside Drive	B	11.0	0.371	A	9.4	0.328
13	Magnolia Avenue/ Riverside Drive	B	13.3	0.381	A	8.7	0.320
14	Mountain Avenue/ Riverside Drive	C	32.7	0.606	C	32.4	0.611
15	Monte Vista Avenue/ Chino Avenue *	B	13.8	0.537	B	11.9	0.508
16	Central Avenue/ Chino Avenue	C	21.3	0.484	B	19.4	0.504
17	Benson Avenue/ Chino Avenue *	B	11.1	0.515	A	9.9	0.402

TABLE 4.13-4 **EXISTING LEVEL OF SERVICE** (CONTINUED)

		Existing Conditions					
		AM Peak Hour			PM Peak Hour		
	Intersection	LOS	Average Delay/ Vehicle	V/C	LOS	Average Delay/ Vehicle	V/C
18	Oaks Avenue/ Chino Avenue *	B	12.1	0.589	B	11.0	0.503
19	Magnolia Avenue/ Chino Avenue *	B	14.1	0.601	B	11.4	0.519
20	Roswell Avenue/ Schaefer Avenue *	C	21.6	0.414	C	22.7	0.432
21	Central Avenue/ Schaefer Avenue	C	27.3	0.425	C	29.9	0.510
22	Mountain Avenue/ Schaefer Avenue	C	22.8	0.345	C	22.3	0.342
23	Pipeline Avenue/ Grand Avenue	C	31.4	0.377	D	35.2	0.632
24	Ramona Avenue/ Edison Avenue	C	27.8	0.331	C	25.4	0.479
25	Monte Vista Avenue/ Edison Avenue	B	19.5	0.255	B	16.7	0.315
26	Central Avenue/ Edison Avenue	C	31.3	0.629	D	39.1	0.879
27	Euclid Avenue/ Edison Avenue	C	24.9	0.598	C	22.8	0.510
28	Central Avenue/ Chino Hills	C	28.0	0.570	C	27.5	0.496
29	Euclid Avenue/ Kimball Avenue	B	18.2	0.346	B	19.2	0.353
30	Euclid Avenue/ Pine Avenue	C	27.6	0.512	C	24.5	0.465

* Unsignalized Intersection
Note: At two-way stop-controlled intersections, V/C is 0.000.
Source: Iteris, Inc., 2009



SOURCE: City of Chino Traffic Signal and Interconnect Master Plan

FIGURE 4.13-4
EXISTING AND FUTURE TRAFFIC SIGNALS

TABLE 4.13-5 **LIST OF STUDY INTERSECTIONS**

Reference Number	Study Intersections
1	Central Avenue/ Francis Avenue
2	Monte Vista Avenue/Walnut Avenue
3	Telephone Avenue/Walnut Avenue (Two-Way Stop)
4	Central Avenue/Walnut Avenue
5	Benson Avenue/Walnut Avenue
6	Oaks Avenue/Walnut Avenue (Two-Way Stop)
7	Magnolia Avenue/Walnut Avenue (Two-Way Stop)
8	Mountain Avenue/Walnut Avenue
9	Monte Vista Avenue/Riverside Drive
10	Central Avenue/ Riverside Drive
11	Benson Avenue/ Riverside Drive
12	Oaks Avenue/Riverside Drive
13	Magnolia Avenue/Riverside Drive
14	Mountain Avenue/Riverside Drive
15	Monte Vista Avenue/Chino Avenue (All-Way Stop)
16	Central Avenue/Chino Avenue
17	Benson Avenue/Chino Avenue (All-Way Stop)
18	Oaks Avenue/Chino Avenue (All-Way Stop)
19	Magnolia Avenue/Chino Avenue (All-Way Stop)
20	Roswell Avenue/Schaefer Avenue (Two-Way Stop)
21	Central Avenue/Schaefer Avenue

TABLE 4.13-5 **LIST OF STUDY INTERSECTIONS** (CONTINUED)

Reference Number	Study Intersections
22	Mountain Avenue/Schaefer Avenue
23	Pipeline Avenue/Grand Avenue
24	Ramona Avenue/Edison Avenue
25	Monte Vista Avenue/Edison Avenue
26	Central Avenue/Edison Avenue
27	Euclid Avenue/Edison Avenue
28	Central Avenue/Chino Hills Parkway
29	Euclid Avenue/Kimball Avenue
30	Euclid Avenue/Pine Avenue

Source: City of Chino

- Class I bicycle facility: bicycle path physically separated from vehicular traffic on its own right-of-way.
- Class II bicycle facility: designated bicycle lane on a road identified by pavement markings and/or signs.
- Class III bicycle facility: bicycle route that shares the roadway with motor vehicle traffic with bicycle route signs posted at intervals.

The City contains mostly Class II bicycle facilities, although Class I facilities do exist mostly in the southeastern area of the City near open space and recreational facilities. Class III shared lanes are available in parts of the City as well. Figure 4.13-7 catalogs existing and future bicycle facilities in Chino. The Preserve and College Park Specific Plans indicate where bicycle facilities are planned within those plan areas.

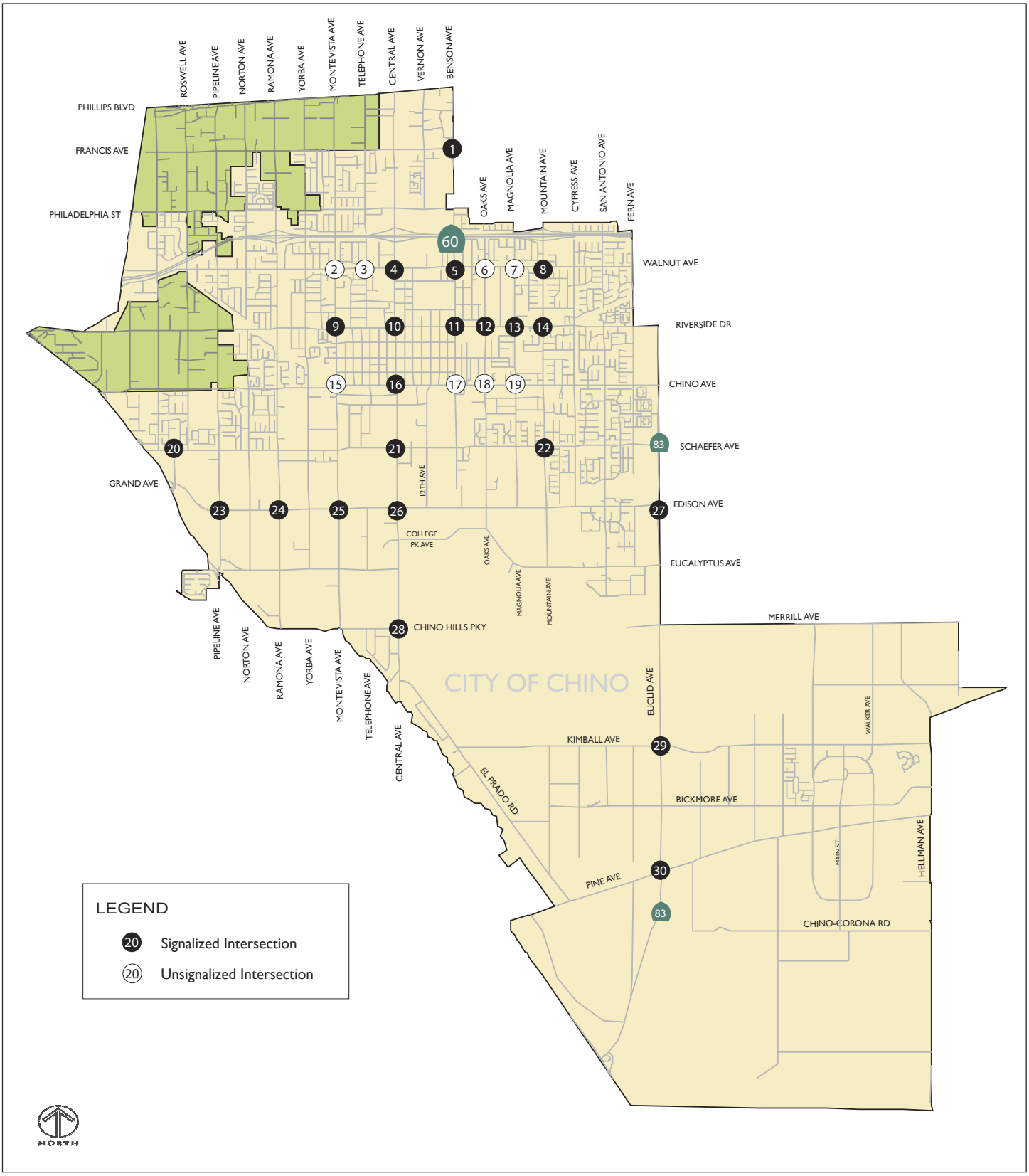
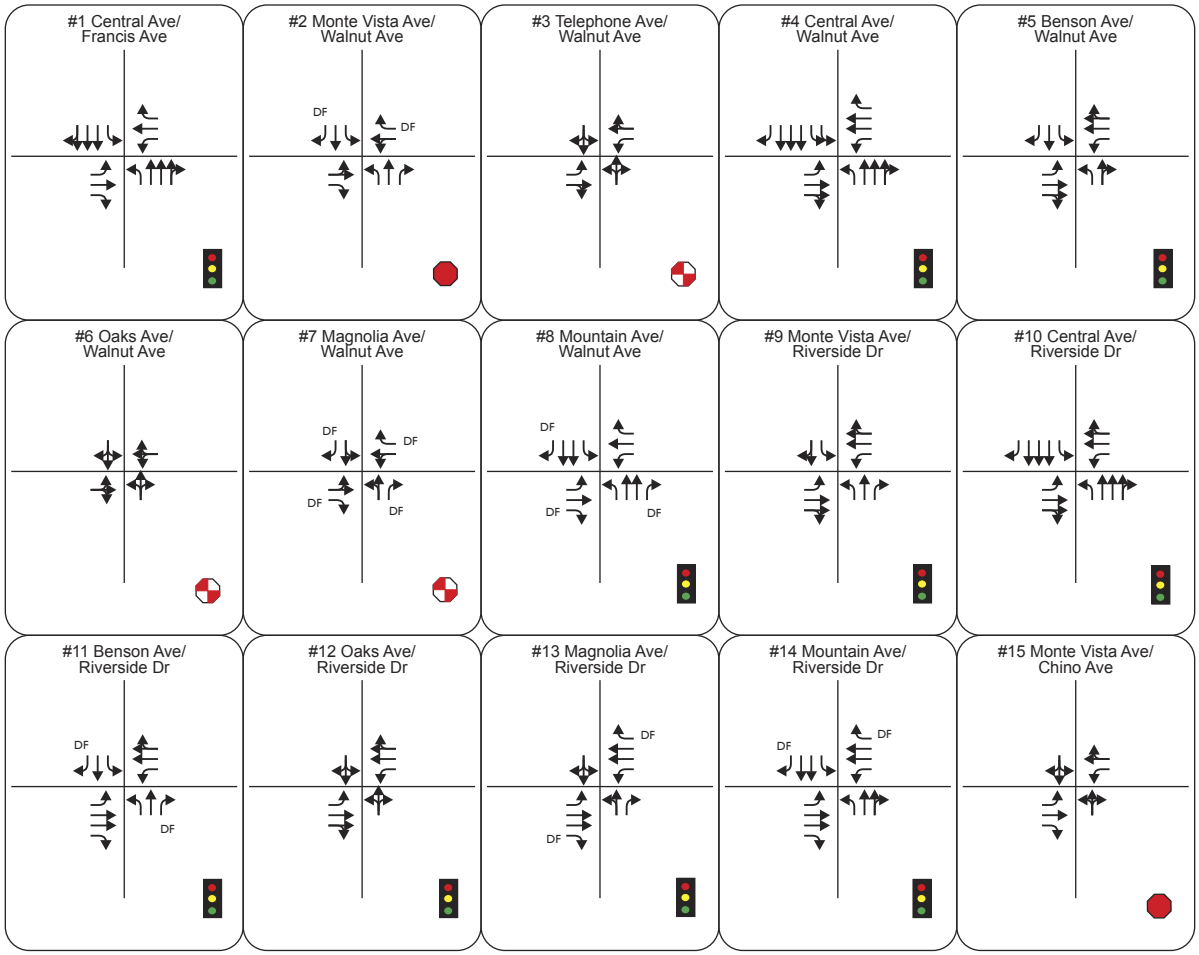
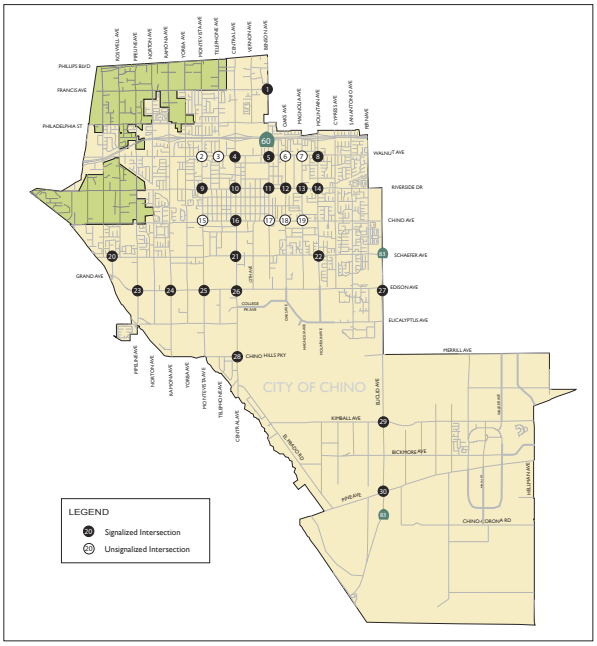
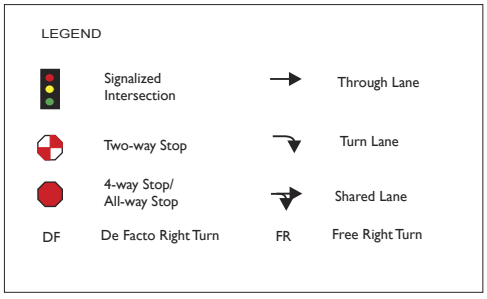


FIGURE 4.13-5
ANALYSIS INTERSECTIONS



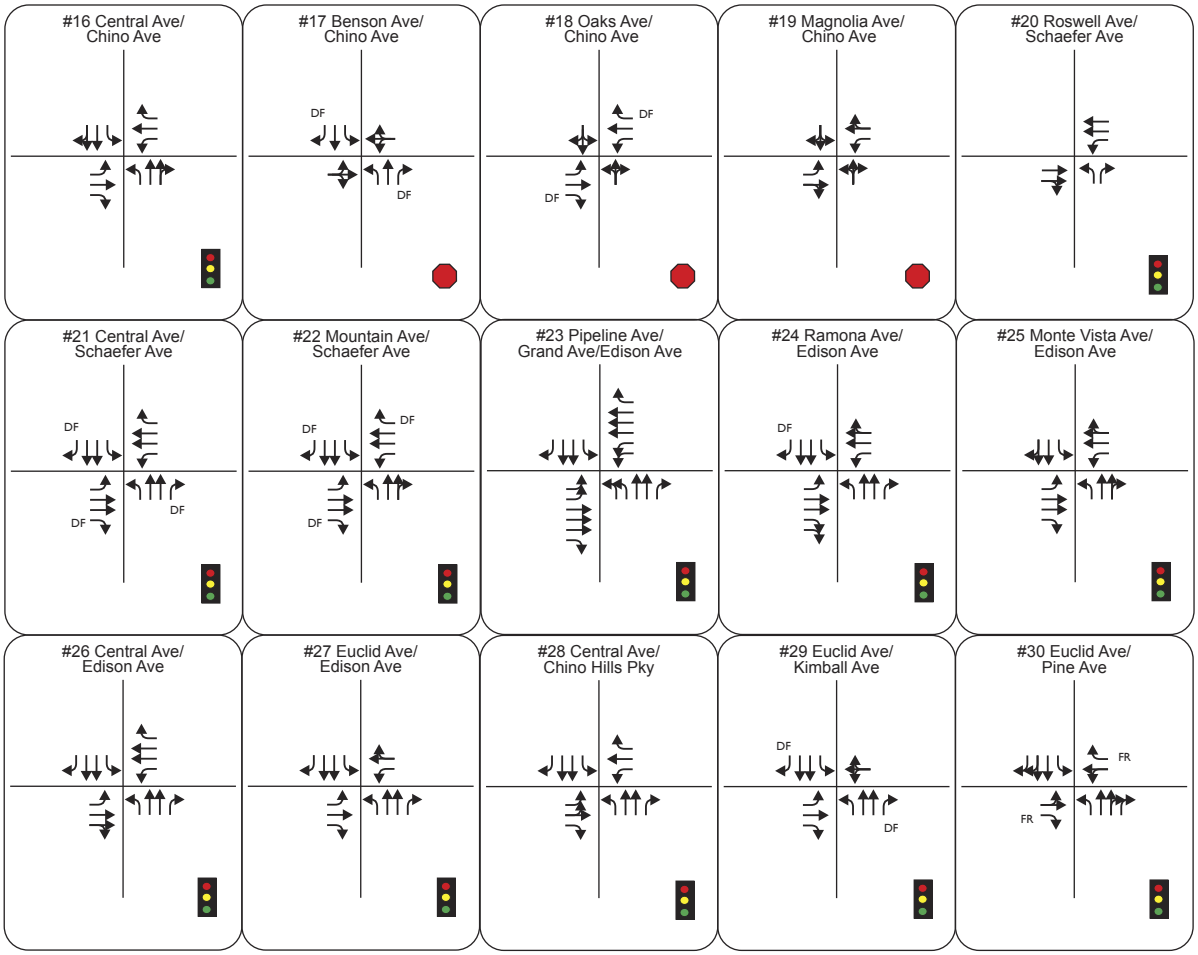


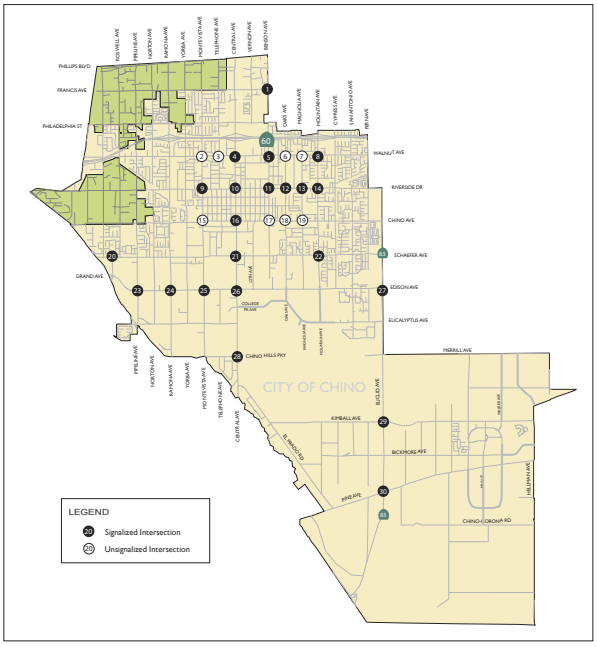


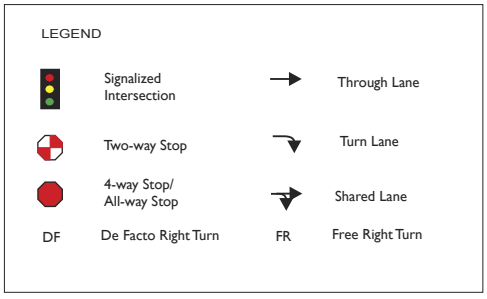
NORTH

FIGURE 4.13-6a

EXISTING INTERSECTION LANE CONFIGURATION







NORTH

FIGURE 4.13-6b

EXISTING INTERSECTION LANE CONFIGURATION

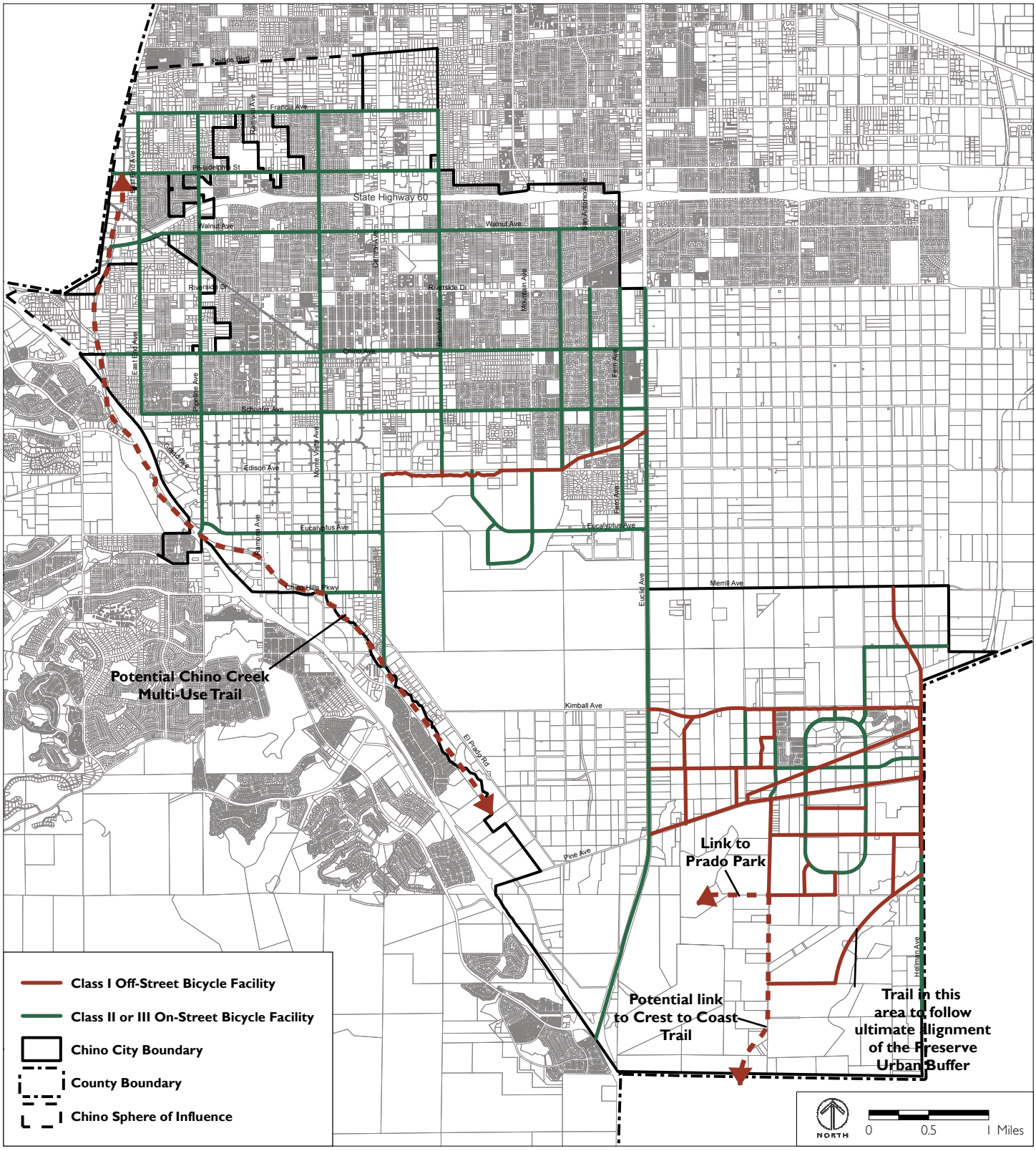


FIGURE 4.13-7

FUTURE BICYCLE FACILITIES

There is an existing bicycle network throughout the City, with facilities being constructed as the College Park and The Preserve Specific Plans are built out.

Despite the existence of numerous bicycle trails, there is a lack of long, continuous trails. These deficiencies will be remediated as funding allows. Currently, there are limited bicycle parking facilities, although bicycle parking spaces are required with all new development.

7. Pedestrian System

Chino's pedestrian network consists of both dedicated trails and the sidewalk network that covers much of the residential and commercial area of the City.

8. Public Transit System

Public transit service in and around Chino is provided by five agencies: Omnitrans, Foothill Transit, Orange County Transportation Authority (OCTA), Metrolink, and Amtrak. The Chino Transit Center located at 6th Avenue and Chino Avenue serves as a central "hub" where bus riders from various locations can assemble and take advantage of express trips or other route-to-route transfers. The services provided by each and their plans for the future are presented in this section.

a. Omnitrans

Omnitrans is the largest public transit provider in San Bernardino County, serving over 15 million passengers each year throughout 15 cities and unincorporated areas, including Chino. Omnitrans service in Chino is provided on four fixed routes: the 63, 65, 68, and 83. All routes meet at the Chino Transit Center and connect Chino to neighboring communities including Montclair, Ontario, Upland, Pomona, and Chino Hills. Current transit service is sparse in the northwest and rapidly expanding southeast quadrants of the City. Most Chino residents live within a half-mile of an existing Omnitrans bus stop, although residents in the northwest and southeast corners of the City are not within typical walking distance of a bus stop.

Omnitrans service in Chino operates every 30 minutes on weekdays and every 60 minutes on weekends. Generally bus service operates from 4:45 a.m.

to 10:45 p.m. on weekdays and 6:30 a.m. to 7:30 p.m. on weekends (Route 83 operates until 9:45 p.m.). Omnitrans offers a variety of fare options for passengers including one-way cash fares, monthly passes, and ticket books. As of September 7, 2009 one-way cash fares are $1.50 for adults and $0.60 for seniors/disability/Medicare.

Omnitrans operates a demand-response transportation system known as OmniLink, which provides curb-to-curb service for the general public. The Chino Senior Center is served by OmniLink vehicles during weekdays from 10:00 a.m. to 1:00 p.m. Reservations are necessary. Adult one-way tickets are $3.00 and students, seniors and persons with disabilities are eligible for discounted fares.

b. Foothill Transit

Foothill Transit is a fixed route transit operator in Chino. Foothill Transit serves the San Gabriel and Pomona Valleys with 35 fixed-route local, express, and rail-feeder lines. It carries over 16 million passengers per year.

Chino is located in the far east side of Foothill Transit's service area. Only one Foothill Transit route currently serves the City. Route 497 is a commuter express line operating between Chino and Los Angeles. The bus line serves both the Chino Transit Center and the Chino Park & Ride lot, located at Chino Avenue and SR-71. In addition to Chino, route 497 serves the City of Industry as well as Union Station in Los Angeles and USC Medical Center. Route 497 provides the only direct link to Los Angeles from Chino and operates only during the AM and PM peak periods. Busses depart Chino Transit Center approximately every 15 minutes between 4:40 a.m. to 7:30 a.m. and return between 4:00 p.m. to 8:00 p.m. Commuter Express fares are $4.40 one-way.

c. Orange County Transportation Authority

The Orange County Transportation Authority (OCTA) is the public sector transportation planning body and transit service provider for Orange County, California. OCTA operates approximately 80 lines which encompass every city in Orange County, along with the Los Angeles County com-

munities of Lakewood, La Mirada, Cerritos, and Long Beach, and with express service to the San Bernardino County cities of Chino Hills and Chino.

OCTA Route 758 provides Intercounty Express Bus service for commuters traveling from Chino, Chino Hills, Diamond Bar, and Brea to Irvine Spectrum. Route 758 originates at the Chino Transit Center and has limited stops. The bus utilizes freeway carpool lanes along the 57 and 5 freeways to cut travel time. Service operates Monday through Friday. Busses depart Chino Transit Center every half hour between 5:30 a.m. to 6:00 a.m. and return between 6:50 p.m. to 7:15 p.m. There are two round trips daily. Express Bus fares are $3.00 for adults and $2.70 for seniors (65 and older), persons with disabilities and Medicare cardholders.

d. Metrolink

Metrolink is the regional commuter rail service providing fast and reliable service to Ventura, San Bernardino, Los Angeles, Riverside, Orange, and San Diego counties. Service is provided on seven lines on weekdays, two lines on Saturdays, and one line on Sundays.

While there are no Metrolink stations in Chino, neighboring cities do have stations. The closest Metrolink line serving Chino is the Riverside line. The Riverside line is located north of Chino and stops in East Ontario and in downtown Pomona. The line connects Riverside to Los Angeles at Union Station. The two stations are approximately 7 to 10 miles from the Chino Transit Center. Numerous Omnitrans bus routes serve both stations but there are no direct routes between Chino and these two stations. Approximately ten weekday runs are provided in each direction on the Riverside line and fares vary by distance traveled.

e. Amtrak

Amtrak provides intercity passenger train service throughout the United States. While there are no Amtrak stations in Chino, the Ontario Amtrak station and Pomona Amtrak station are approximately 4 and 5 miles north of Chino. The Pomona station is used by Metrolink commuter trains, Foothill Transit Buses, and Amtrak's *Sunset Limited,* which stops in Pomona on Sun-

days, Tuesdays and Fridays. The Sunset Limited operates three times a week on a schedule connecting Los Angeles to Arizona, New Mexico, Texas, Louisiana, Mississippi, Alabama, and Florida. The Ontario Amtrak Station is used by Amtrak California's daily Motorcoach service between the San Joaquin trains at Bakersfield and Calexico, with intermediate stops at Claremont, San Bernardino, Palm Springs, and Thousand Palms, Indio, Brawley, and El Centro. The stations are fully wheelchair accessible and have free short-term parking. Fares vary according to distance traveled.

9. Freight System

The movement of goods is related directly to the type and intensity of the surrounding land use. Rail and trucking activity is generally focused in areas where commodities must be picked up or delivered. That may include industrial areas with manufacturing, warehousing, truck terminals and other land uses which utilize raw materials and generate products. Commercial areas also generate trucking movements, although to a lesser intensity than highly industrial areas. Rail trips generally begin or end in industrial locations; however, rail activity may impact residential and commercial areas where rail tracks are located. This section identifies the existing rail system and designated truck routes in the City of Chino.

a. Freight Rail System

Union Pacific (UP) operates one rail line in the City of Chino. The UP rail line enters the northwest portion of the City, between Philadelphia Street and Walnut Avenue, and extends diagonally to its eastern terminus at Benson Avenue and Chino Avenue. Several shorter lines branch from the main UP line in the City of Chino, and extend throughout a small portion of the City bounded by Pipeline Avenue, Chino Avenue, Central Avenue and Eucalyptus Avenue.

The UP rail line intersects 24 streets in the City of Chino. Various mechanisms are used to warn oncoming traffic of a train's presence, including flashing lights, gates, cross bucks, and stop signs. A maximum of two freight trains travel through each rail line/roadway intersection on a daily basis. Table 4.13-6 is a list of streets, the warning type, the total number of tracks,

TABLE 4.13-6 **EXISTING RAIL AT-GRADE CROSSINGS**

Crossing ID	Street	Type Warning	Total Tracks	Daily Trains
747240X	East End Avenue	Flashing Lights	1	2
747241E	County Road	Gates	1	2
747243T	Walnut Avenue	Gates	1	2
747245G	Walnut Avenue	Gates	1	2
747246N	Roswell Street	Cross Bucks	1	2
747247V	Pipeline Avenue	Gates	1	2
747248C	Riverside Drive	Flashing Lights	1	2
747249J	Ramona Avenue	Cross Bucks	1	2
747250D	Yorba Avenue	Cross Bucks	1	2
747251K	Monte Vista Avenue	Gates	1	2
747252S	Chino Avenue	Gates	1	2
747253Y	5th Street	Cross Bucks	3	2
747257B	Central Avenue	Stop Signs	1	2
747258H	11th Street	Stop Signs	1	2
747259P	G Street	Flashing Lights	1	2
747260J	12th Street	Stop Signs	1	2
747266A	Schaefer Avenue	Gates	1	2
747267G	Monte Vista Avenue	Cross Bucks	1	2
747268N	Edison Avenue	Cross Bucks	1	2
747269V	Yorba Avenue	Cross Bucks	1	2
753602V	Ramona Avenue	Gates	1	2

TABLE 4.13-6 **EXISTING RAIL AT-GRADE** CROSSINGS (CONTINUED)

Crossing ID	Street	Type Warning	Total Tracks	Daily Trains
753704N	Edison Avenue	Gates	1	2
753705V	Norton Avenue	Gates	1	2
753706C	Ramona Avenue	Gates	1	2

Source: City of Chino.

and the number of daily trains at each rail line/roadway intersection in the City of Chino. The existing and future freight rail facilities located in the City of Chino are shown in Figure 4.13-8A and the typical railroad right-of-way cross-sections are shown in Figure 4.13-8B.

b. Truck Routes

The City of Chino has an adopted truck route map, as illustrated in Figure 4.13-9. The purpose of the truck route map is to identify the most appropriate routes for "through" trucks, as well as extra large trucks, in the City. Truck routes also inform truck drivers of allowed routes and also discourage intrusion of non-local truck movements into areas of the City where they would not be desired (i.e. residential districts and near sensitive land uses such as schools, senior centers, hospitals and day care centers). By State law, trucks are allowed to use any arterial roadway to access a destination for purposes of doing business along that roadway. However, a truck that is merely "passing through" is restricted to certain designated routes. A "through" truck trip is defined as a truck trip that uses a roadway facility to get from one roadway or freeway to another without stopping along its route for purposes of doing business. For example, in Chino, a through truck trip could occur from State Route 71 to Euclid Avenue via a number of east-west streets, or in the north-south direction from State Route 60 to State Route 71 along several streets. Many of the current truck trips in the City are made for purposes of doing business in the City (the truck stops along the way to deliver or pick up goods), but there are also other truck trips that are non-local "through" trips.

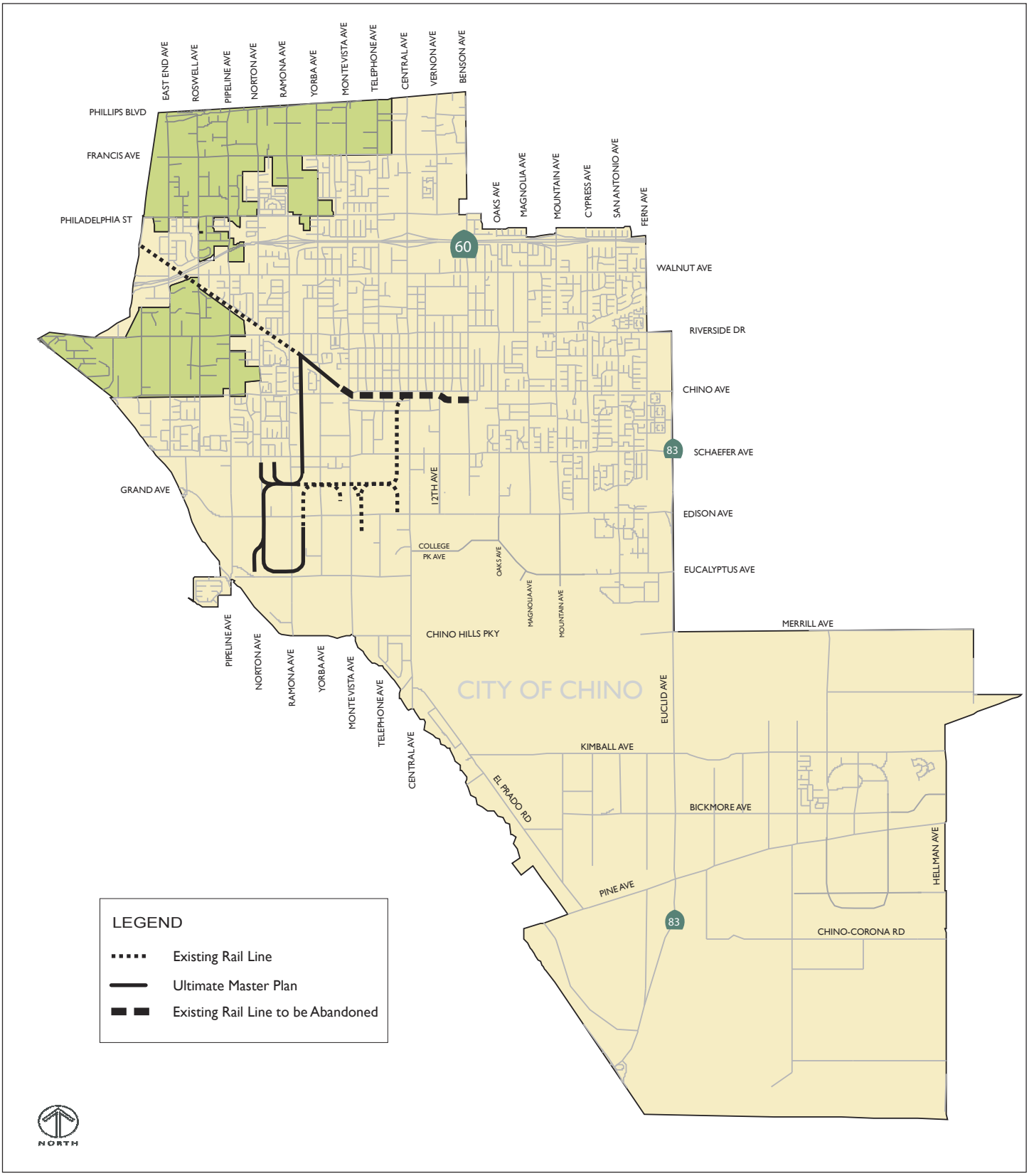
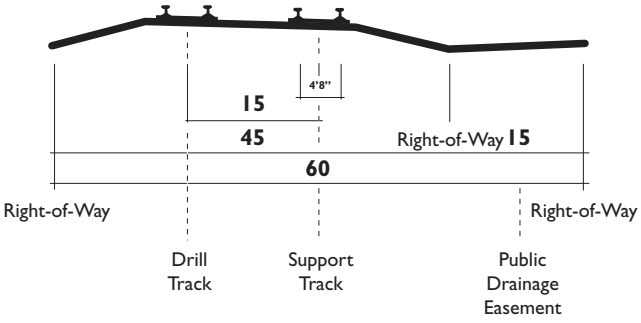


FIGURE 4.13-8a

EXISTING AND FUTURE FREIGHT RAIL FACILITIES

Double Track



Single Track

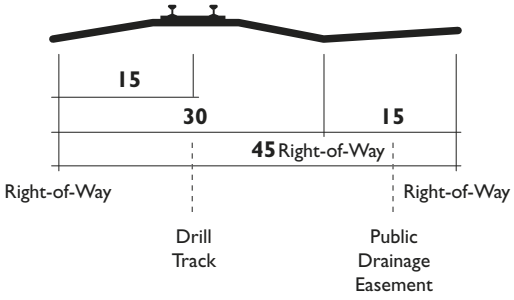


FIGURE 4.13-8b
TYPICAL RAILROAD RIGHT-OF-WAY CROSS-SECTION

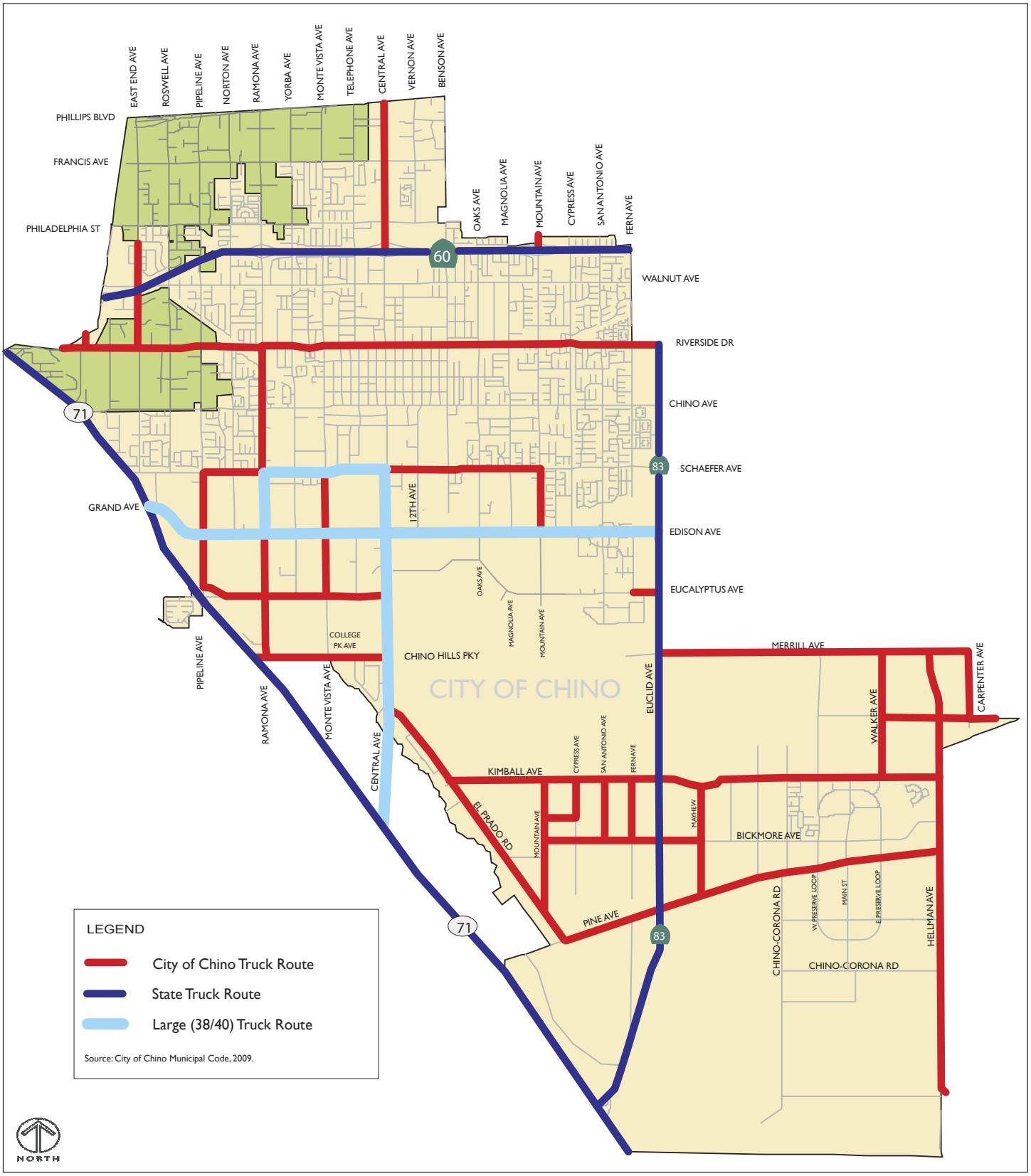


FIGURE 4.13-9
TRUCK ROUTE MAP

The State of California Vehicle Code states that cities may post truck restricted routes or alternatively, truck designated routes, for trucks of certain weight classifications. Other types of truck restrictions may apply to selected conditions such as bridges or roadway segments that are not designed to handle trucks of a certain height or weight. Those restrictions would be in addition to the limitation on general through-truck travel.

The City of Chino truck route system includes the following categories of routes:

- City of Chino Truck Routes
- Large (38/40) Truck Routes
- State Truck Routes

Chino truck routes are located primarily on east-west oriented roadways, including Riverside Drive, portions of Schaefer Avenue, Edison Avenue, Eucalyptus Avenue, Chino Hills Parkway, Merrill Avenue, Pine Avenue, Bickmore Avenue, El Prado Road, and Kimball Avenue. Several of those routes provide a continuous truck route connection from State Route 71 to Euclid Avenue through the City of Chino. All of the north-south oriented truck routes are discontinuous and do not extend the length of the City. This is intentional because the City does not desire to provide "cut-through" routes for trucks to and from State Route 60, and two sufficient north-south routes are already provided by Euclid Avenue and State Route 71. The north-south discontinuous routes include portions of East End Avenue, Pipeline Avenue, Ramona Avenue, Monte Vista Avenue, Central Avenue, and Mountain Avenue, Mayhew, Walker Avenue, Hellman Avenue, and Carpenter Avenue.

While only small portions of State Route 71 are actually located within the City of Chino, it serves the City and provides regional through truck access. Thus, there are good north-south (Euclid Avenue and State Route 71), as well as east-west (State Route 60) access routes for through trucks in the City of Chino. A summary of existing and planned Chino truck routes, Large (38/40) truck routes, and State truck routes are provided below.

North-South:

- Reservoir Street within the City of Chino
- East End Avenue, between Philadelphia Street and Riverside Drive within the City of Chino
- Pipeline Avenue, between Schaefer Avenue and Eucalyptus Avenue
- Ramona Avenue, between Riverside Drive and Schaefer Avenue and between Edison Avenue and Chino Hills Parkway
- Monte Vista Avenue, between Schaefer Avenue and Eucalyptus Avenue
- Central Avenue, between Phillips Boulevard and State Route 60
- Mountain Avenue, between Schaefer Avenue and Edison Avenue; between State Route 60 to the northern city boundary; and from Kimball Avenue to Pine Avenue
- San Antonio Avenue, from Kimball Avenue to Bickmore Avenue
- Cypress Avenue from Kimball Avenue to Cypress Avenue (E/W)
- Hellman Avenue, from Kmball Avenue to east city boundary
- Fern Avenue from Kimball Avenue to south of Bickmore Avenue
- Planned Routes
- Walker Avenue, between Merrill Avenue and Kimball Avenue
- Mayhew, between Kimball Avenue and Pine Avenue
- Hellman Avenue from Merrill Avenue to Kimball Avenue
- Carpenter Avenue within the City of Chino

East-West:

- Riverside Drive, between the City's western boundary and SOI boundary
- Riverside Drive, between SOI and Euclid Avenue
- Schaefer Avenue, between Pipeline Avenue and Mountain Avenue
- Edison Avenue, Between State Route 71 and Euclid Avenue
- Eucalyptus Avenue, between Pipeline Avenue and Central Avenue and between Fern Avenue and Euclid Avenue
- Chino Hills Parkway, between the City's western boundary and Central Avenue within the City of Chino
- Merrill Avenue, between Euclid Avenue and the City's eastern boundary
- Remington Street, between Walker Avenue and the City's eastern boundary

- El Prado Road, between Central Avenue and Pine Avenue
- Kimball Avenue, between El Prado Road and the City's eastern boundary
- Cypress Avenue (E/W) from Mountain Avenue to Cypress Avenue (N/S)
- Bickmore Avenue, between Mountain Avenue and Mayhew
- Pine Avenue, between El Prado Road and the City's eastern boundary

Planned Route:

- Remington Avenue from Walker Avenue to eastern city boundary

Existing State truck routes in the City of Chino include the following streets:

- State Route 60, throughout the City
- State Route 71, small portions within the City
- Euclid Avenue (State Route 83), throughout the City

Existing Large (38/40) truck routes in the City of Chino include the following streets:

North-South:

- Ramona Avenue, between Schaefer Avenue and Edison Avenue
- Central Avenue, between Schaefer Avenue and the City's southern boundary

East-West:

- Edison Avenue, between State Route 71 and Euclid Avenue

10. Airport

Chino Airport (CNO), formerly known as Cal Aero Field, is a county-owned public-use airport located east of Euclid Avenue (State Route 83), between Merrill Avenue and Kimball Avenue. Chino Airport has three runways and is classified as a general aviation reliever airport due to its proximity to Ontario Airport (ONT) and John Wayne Airport (SNA). The Chino Airport serves private, business, and corporate tenants and customers from the Inland Empire.

B. Standards of Significance

The proposed projects would have a significant impact if either of them would:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system.
- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Result in inadequate parking capacity.
- Conflict with adopted policies, plans or programs supporting alternative transportation.
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

C. Modeling Assumptions and Methodology

The future traffic forecasts for Chino used in this analysis were developed using a version of the Southern California Association of Governments/San Bernardino Associated Governments Comprehensive Transportation Plan (CTP) travel demand model that has been adapted for use in the City of Chino General Plan Update.

The socio-economic data contained within the City and SOI portion of the existing and buildout model is as provided by DC&E and is based upon the existing conditions and the current adopted General Plan. This data includes the Agriculture Preserve Subarea 1, The Preserve, and College Park. The areas outside the City/SOI area contain land uses in the CTP model with additional refinements for the Eastvale Area (Riverside County), and New

Model Colony (City of Ontario). The Ontario Airport trips included in the model are consistent with the CTP Model. The buildout model also includes planned roadway improvements within the Chino area as well as additional roadway network detail.

The future intersection turning movement volumes were based on the growth between the existing conditions model and buildout conditions model intersection approach and departure volumes, which are added to existing condition intersection approach/departure volumes. This step provides the adjusted volumes that will be used to determine the buildout turning movement volumes. The next step in the forecasting of future turning volumes is to apply the B-turn methodology. The B-turn methodology is generally described in the "National Cooperative Highway Research Program Report (NCHRP) 255: Highway Traffic Data for Urbanized Area Project Planning and Design," Chapter 8. The B-turn method uses the base year turning percentages (from traffic counts) and proceeds through an iterative computational technique to produce a final set of future year turning volumes. The computations involve alternatively balancing the rows (approaches) and the columns (departures) of a turning movement matrix until an acceptable convergence is obtained. Future year link volumes are fixed using this method and the turning movements are adjusted to match. The results are checked for reasonableness, and manual adjustments are sometimes applied.

D. Impact Discussion

This section describes the impacts associated with implementation of both the Proposed General Plan and the Focused Growth Plan. Some of the impacts have very similar discussions, so the projects are discussed together. In other cases, they are less similar to one another and are discussed in separate subsections. The model plots for the Proposed General Plan and the Focused Growth Plan are found in Appendices 5 and 6 respectively.

1. Increase in Traffic

As is discussed below, neither the Proposed General Plan nor the Focused Growth Plan would have a significant impact on traffic relative to existing traffic or the street system. Therefore, both projects have a *less-than-significant* impact with respect to increases in traffic.

a. Future Intersection Lane Configurations—Both Projects

For the evaluation of projected traffic impacts associated with the Proposed General Plan and the Focused Growth Plan, a number of intersection improvements are assumed in place by the buildout horizon year. The Proposed General Plan lane configurations and the Focused Growth Plan lane configurations are shown in Figure 4.13-10A and B, and Figure 4.13-11A and B, respectively. The only difference is intersection #17, Benson Avenue and Chino Avenue, where a traffic signal is assumed to be in place under the Proposed General Plan.

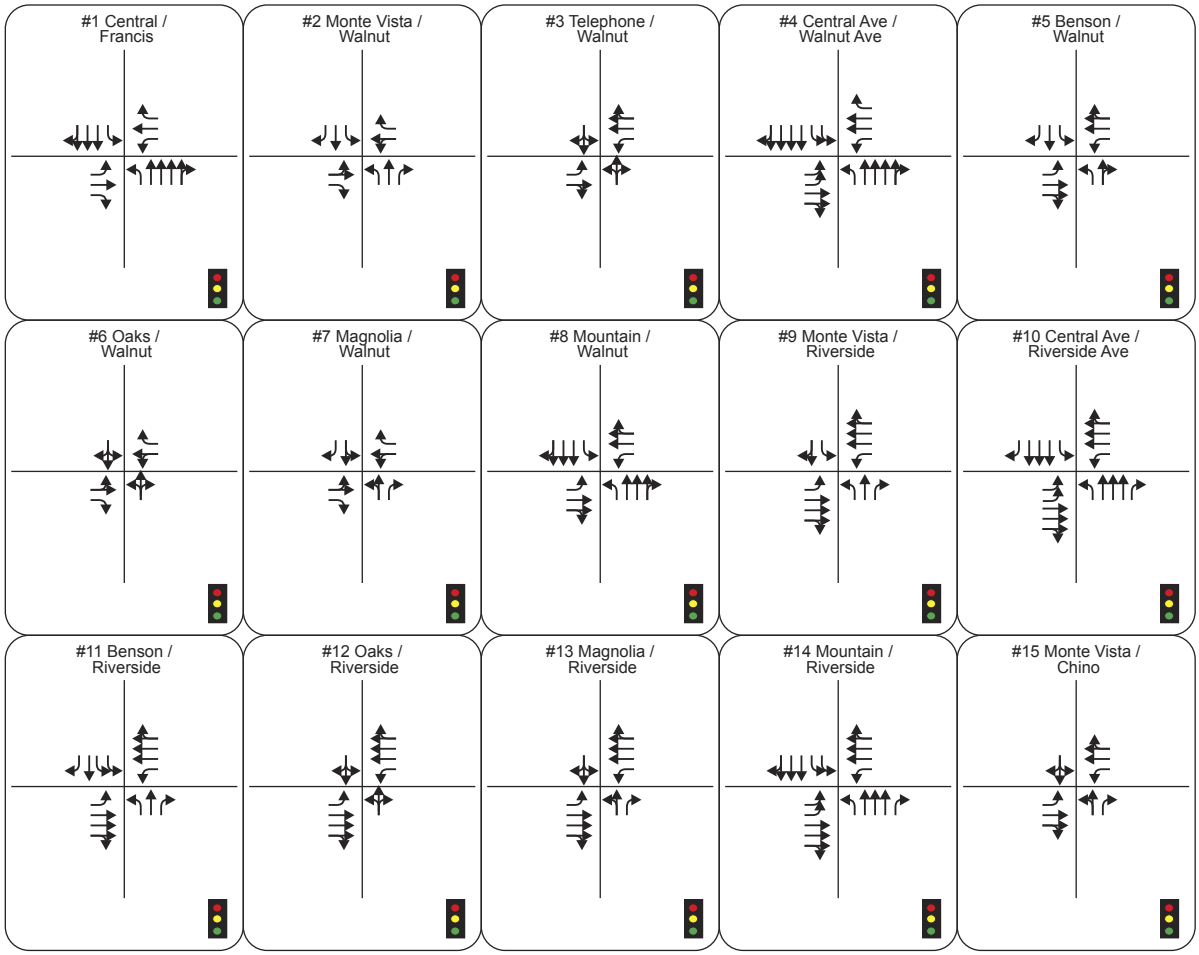
b. Intersection Volumes and Operation—Proposed General Plan

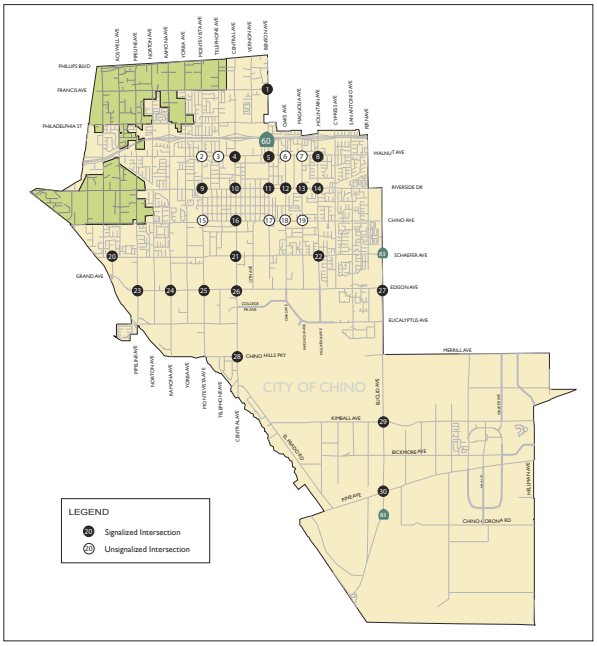
The projected turning movement volumes associated with the Proposed General Plan are shown on Figures 4.13-12a and 4.13-12b. These volumes were derived using the City of Chino General Plan travel demand model, and all trips associated with the full buildout of the proposed General Plan.

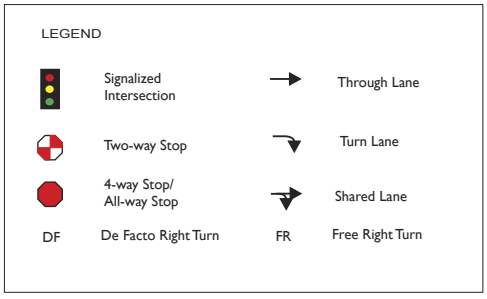
Level of service calculations using the proposed intersection improvements under the Proposed General Plan are shown below in Table 4.13-7. As shown, none of the study intersections are projected to operate at LOS E or F.

c. Intersection Volumes and Operation—Focused Growth Plan

The turning movement volumes associated with the Focused Growth Plan are shown on Figures 4.13-13A and 4.13-13B. These volumes were derived using the City of Chino General Plan travel demand model, and all trips associated with the Focused Growth Plan.



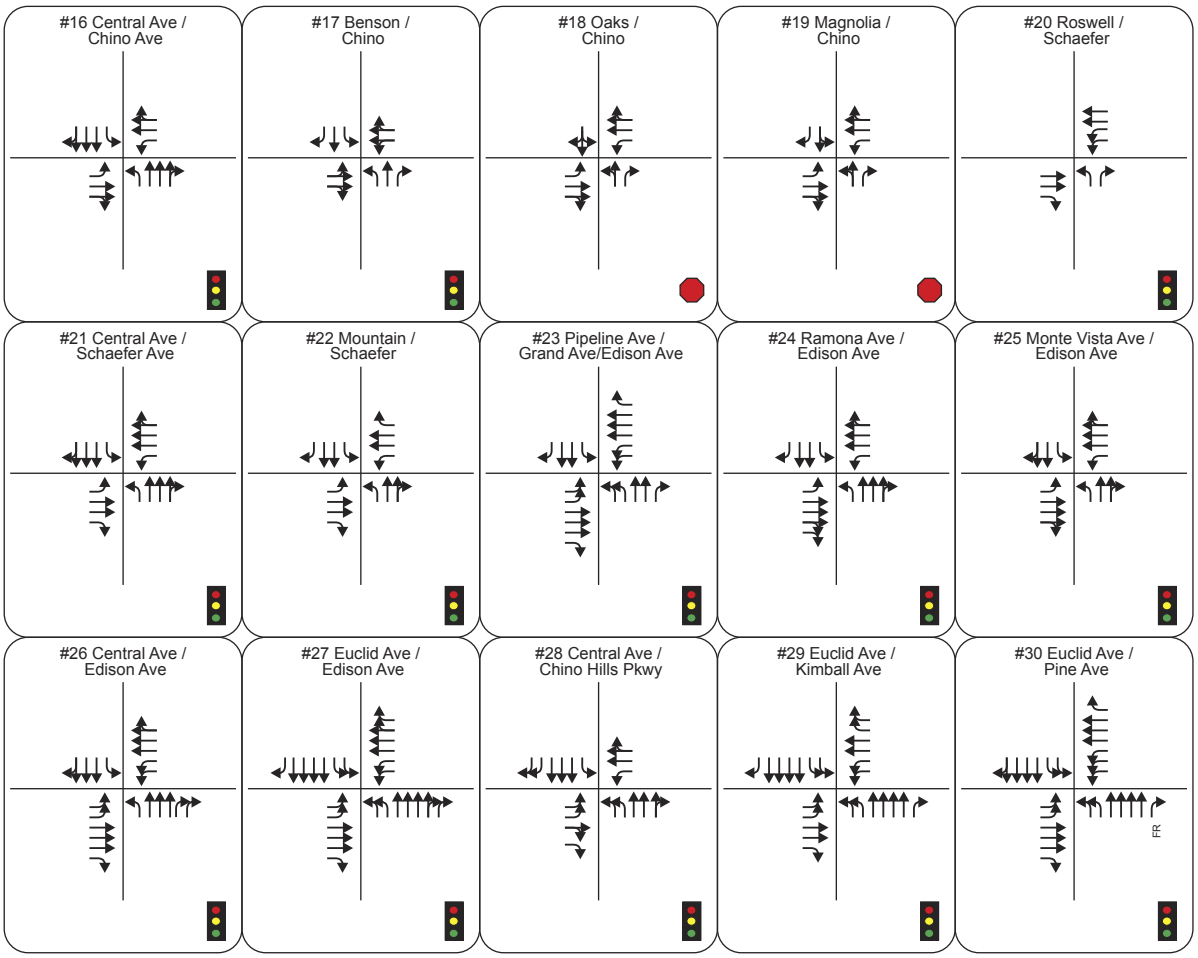


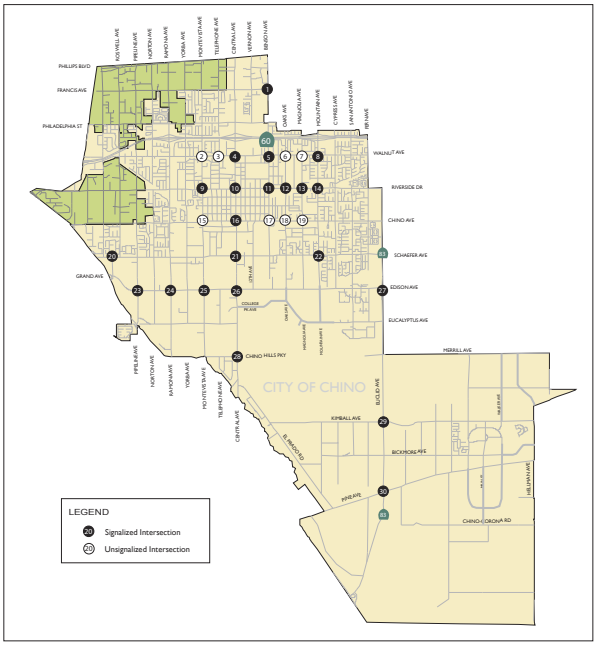


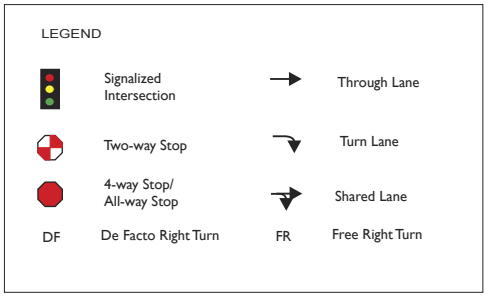
NORTH

FIGURE 4.13-10a

PROPOSED GENERAL PLAN INTERSECTION LANE CONFIGURATIONS



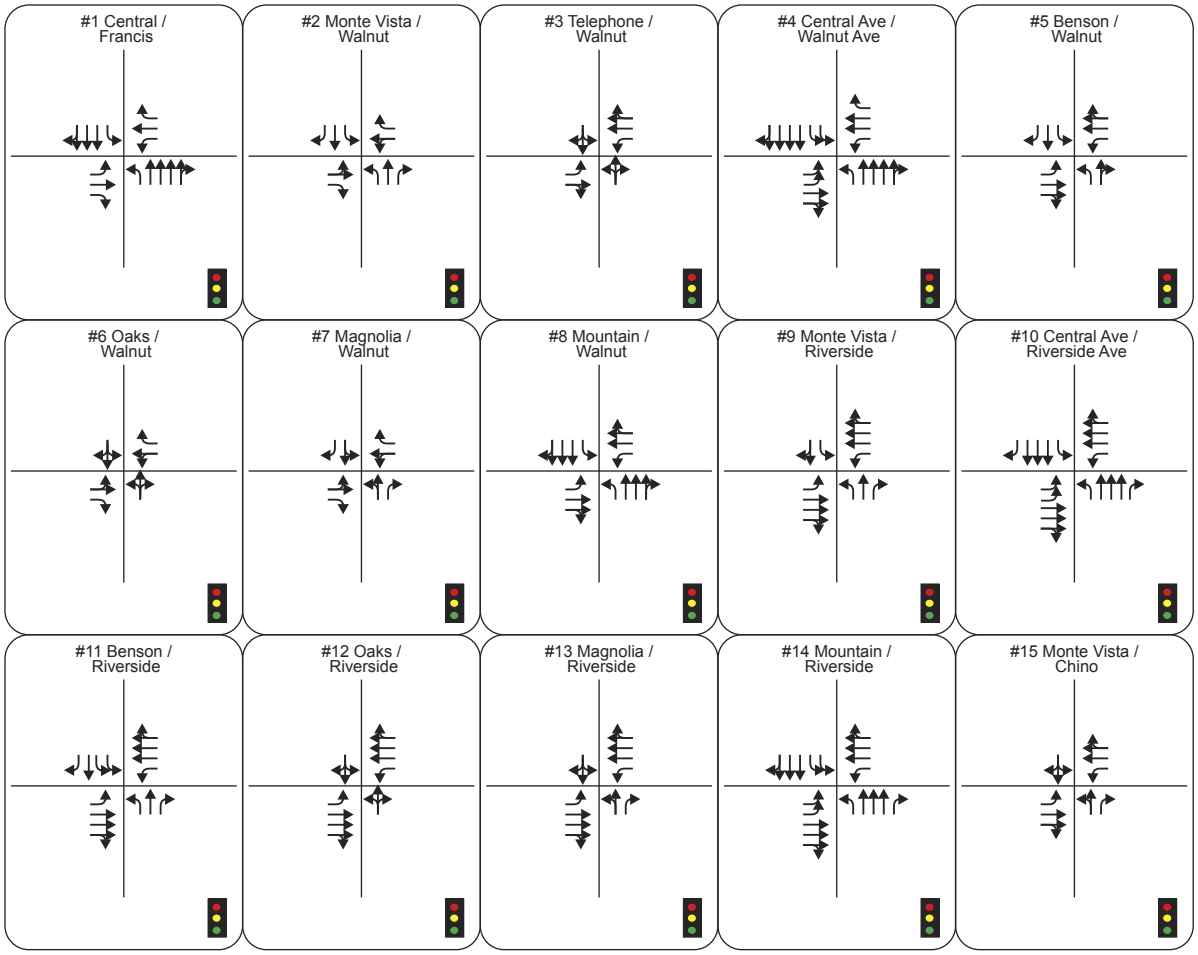


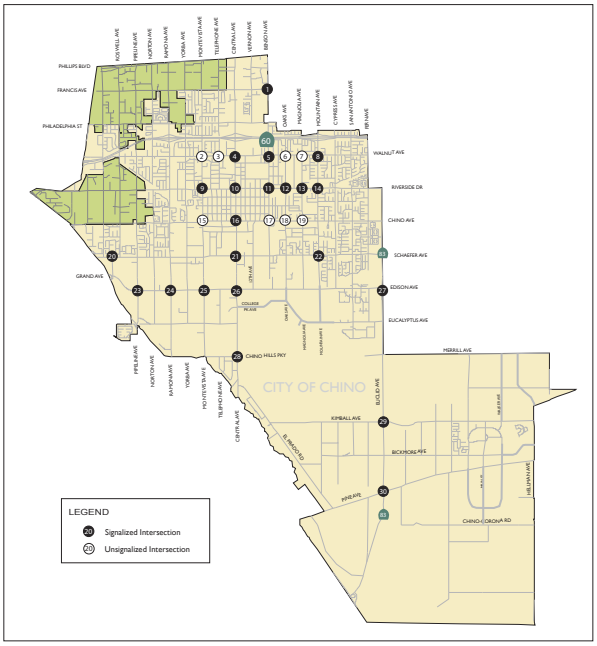


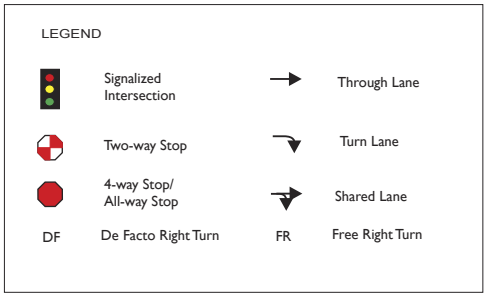
NORTH

FIGURE 4.13-10b

PROPOSED GENERAL PLAN INTERSECTION LANE CONFIGURATIONS



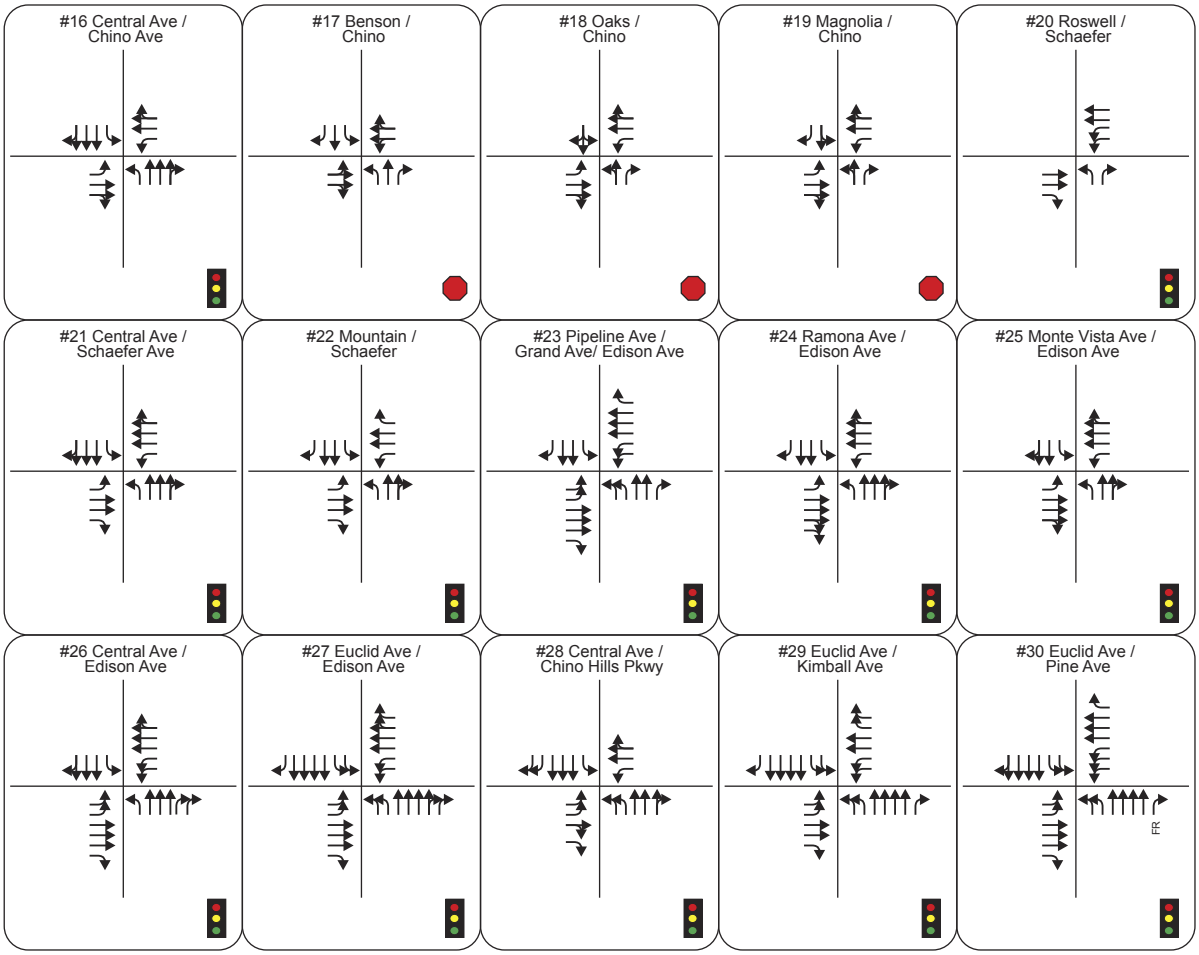


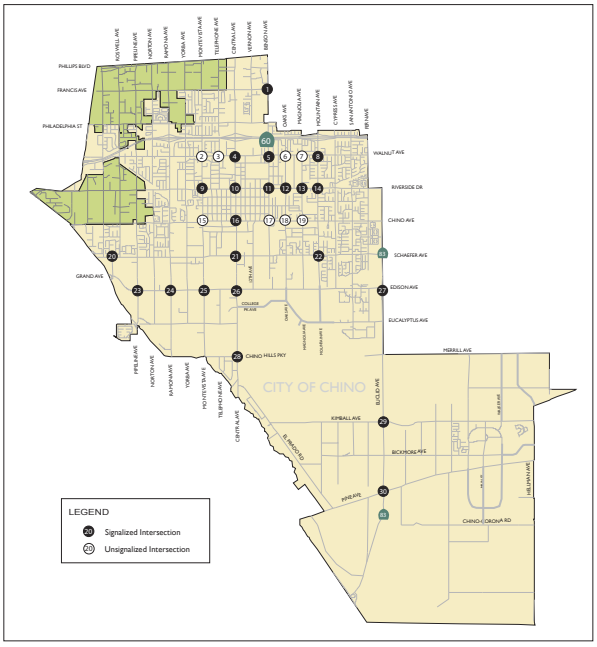


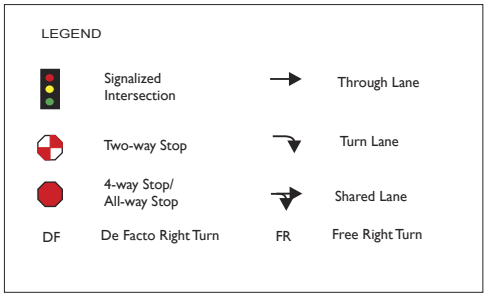
NORTH

FIGURE 4.13-11a

FOCUSED GROWTH PLAN INTERSECTION LANE CONFIGURATIONS







NORTH

FIGURE 4.13-11b

FOCUSED GROWTH PLAN INTERSECTION LANE CONFIGURATIONS

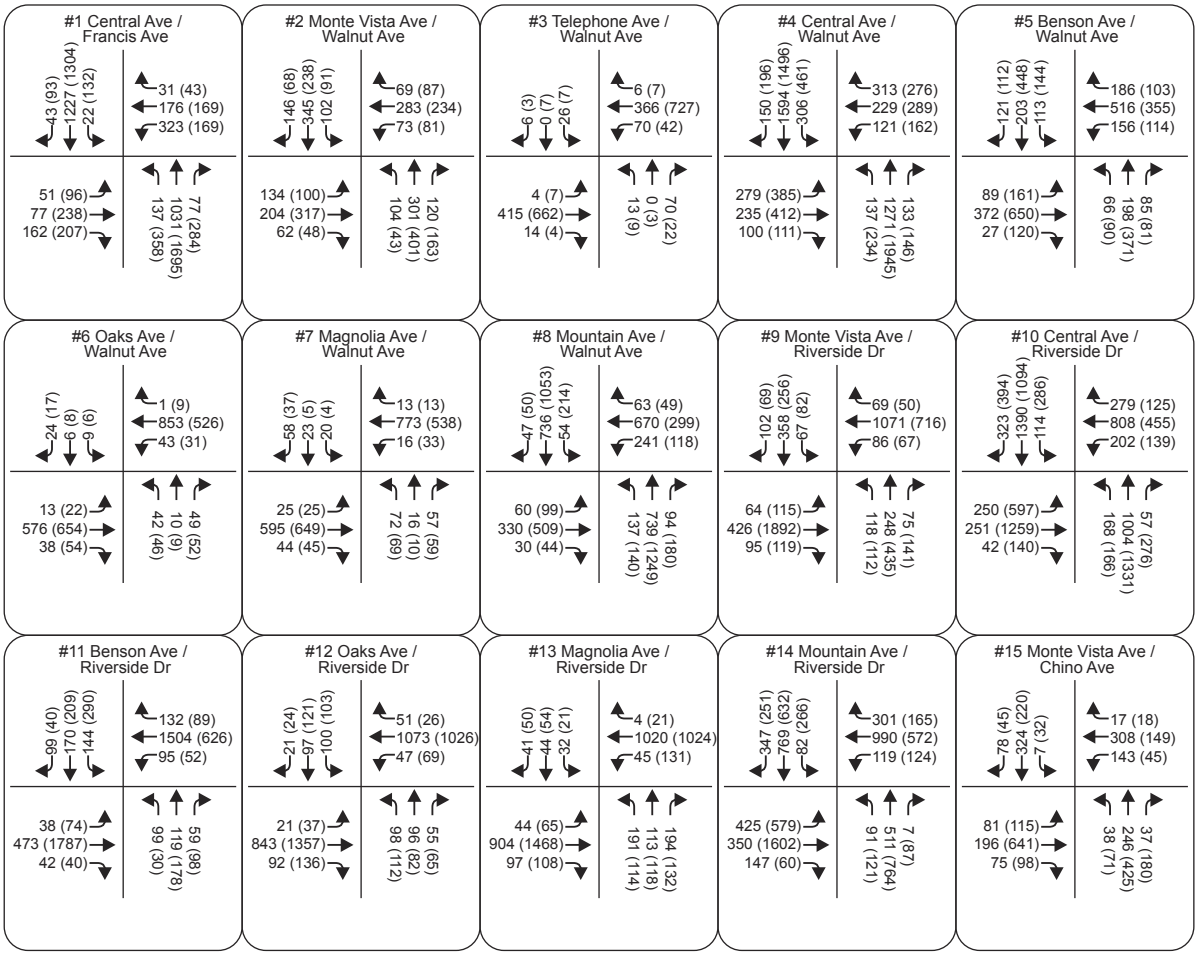


FIGURE 4.13-12a

PROPOSED GENERAL PLAN INTERSECTION VOLUMES

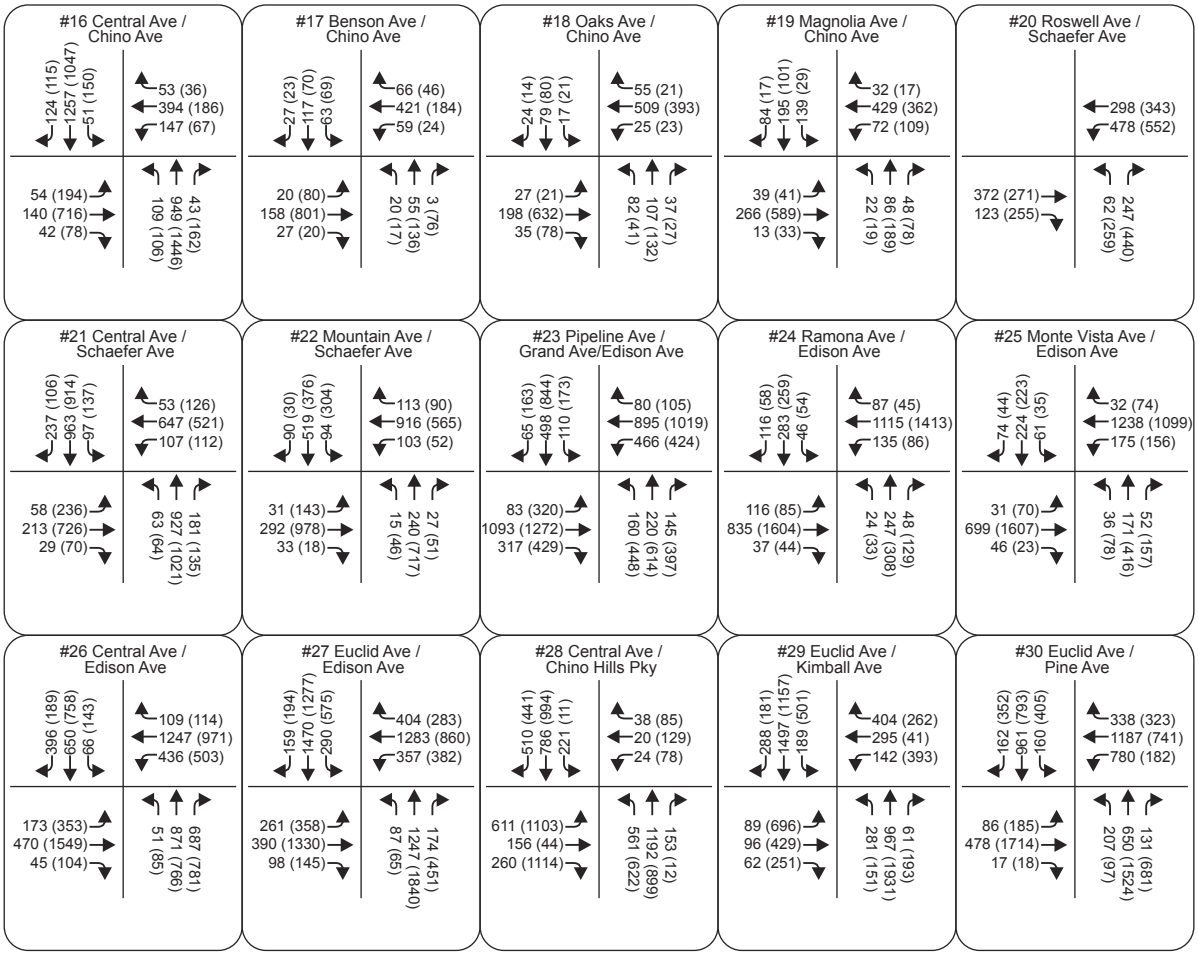


FIGURE 4.13-12b

PROPOSED GENERAL PLAN INTERSECTION VOLUMES

TABLE 4.13-7 **PROPOSED GENERAL PLAN LEVEL OF SERVICE**

		Proposed General Plan					
		AM Peak Hour			PM Peak Hour		
	Intersection	LOS	Average Delay/ Vehicle	V/C	LOS	Average Delay/ Vehicle	V/C
1	Central Avenue/ Francis Avenue	C	23.9	0.536	C	23.6	0.637
2	Monte Vista Avenue/ Walnut Avenue	B	16.0	0.402	B	16.2	0.442
3	Telephone Avenue/ Walnut Avenue	A	6.5	0.298	A	2.8	0.405
4	Central Avenue/ Walnut Avenue	C	30.0	0.632	C	33.6	0.766
5	Benson Avenue/ Walnut Avenue	B	15.1	0.366	B	17.1	0.483
6	Oaks Avenue/ Walnut Avenue	A	6.0	0.607	A	6.2	0.477
7	Magnolia Avenue/ Walnut Avenue	A	7.9	0.534	A	6.8	0.459
8	Mountain Avenue/ Walnut Avenue	C	29.8	0.460	C	29.7	0.664
9	Monte Vista Avenue/ Riverside Drive	B	17.5	0.485	B	16.0	0.638
10	Central Avenue/ Riverside Drive	C	31.2	0.688	D	36.0	0.818
11	Benson Avenue/ Riverside Drive	B	16.0	0.483	B	17.2	0.559
12	Oaks Avenue/ Riverside Drive	B	13.5	0.368	B	12.2	0.445
13	Magnolia Avenue/ Riverside Drive	B	15.9	0.382	B	10.8	0.444
14	Mountain Avenue/ Riverside Drive	C	33.2	0684	C	31.5	0.667
15	Monte Vista Avenue/ Chino Avenue	C	31.8	0.520	C	31.0	0.711
16	Central Avenue/ Chino Avenue	C	20.9	0.471	C	23.5	0.643
17	Benson Avenue/ Chino Avenue	B	11.8	0.229	B	11.5	0.346

TABLE 4.13-7 **PROPOSED GENERAL PLAN LEVEL OF SERVICE** (CONTINUED)

		Proposed General Plan					
		AM Peak Hour			PM Peak Hour		
	Intersection	LOS	Average Delay/ Vehicle	V/C	LOS	Average Delay/ Vehicle	V/C
18	Oaks Avenue/ Chino Avenue *	B	14.5	0.550	C	20.6	0.736
19	Magnolia Avenue/ Chino Avenue*	C	18.7	0.758	C	20.1	0.710
20	Roswell Avenue/ Schaefer Avenue*	B	15.8	0.306	C	20.4	0.493
21	Central Avenue/ Schaefer Avenue	C	26.3	0.458	C	31.4	0.609
22	Mountain Avenue/ Schaefer Avenue	C	27.0	0.461	D	36.2	0.752
23	Pipeline Avenue/ Schaefer Avenue	C	30.2	0.580	D	36.7	0.806
24	Ramona Avenue/ Edison Avenue	C	25.5	0.403	C	20.6	0.499
25	Monte Vista Avenue/ Edison Avenue	B	18.8	0.357	C	22.3	0.586
26	Central Avenue/ Edison Avenue	C	27.8	0.601	C	32.0	0.724
27	Euclid Avenue/ Edison Avenue	C	30.8	0.596	D	37.1	0.866
28	Central Avenue/ Chino Hills	C	29.9	0.725	D	35.8	0.844
29	Euclid Avenue/ Kimball Avenue	C	26.3	0.478	C	33.0	0.706
30	Euclid Avenue/ Pine Avenue	C	29.0	0.506	C	32.9	0.753

Note: * = Unsignalized Intersection.
Source: Iteris, Inc., 2009.

Level of service calculations using the proposed intersection improvements under the Focused Growth Plan are shown below in Table 4.13-8. As shown, none of the study intersections are projected to operate at LOS E or F.

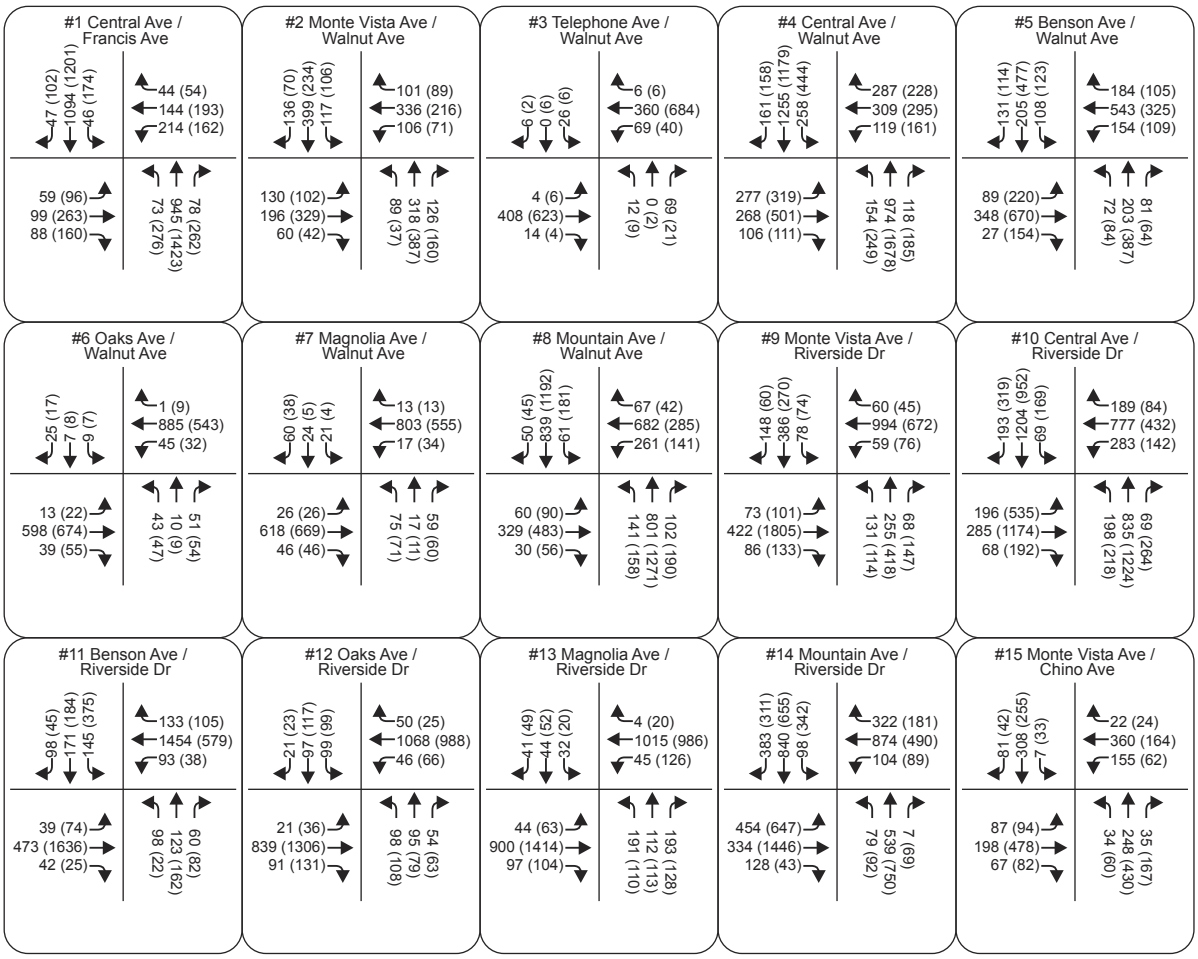


FIGURE 4.13-13a

FOCUSED GROWTH PLAN INTERSECTION VOLUMES

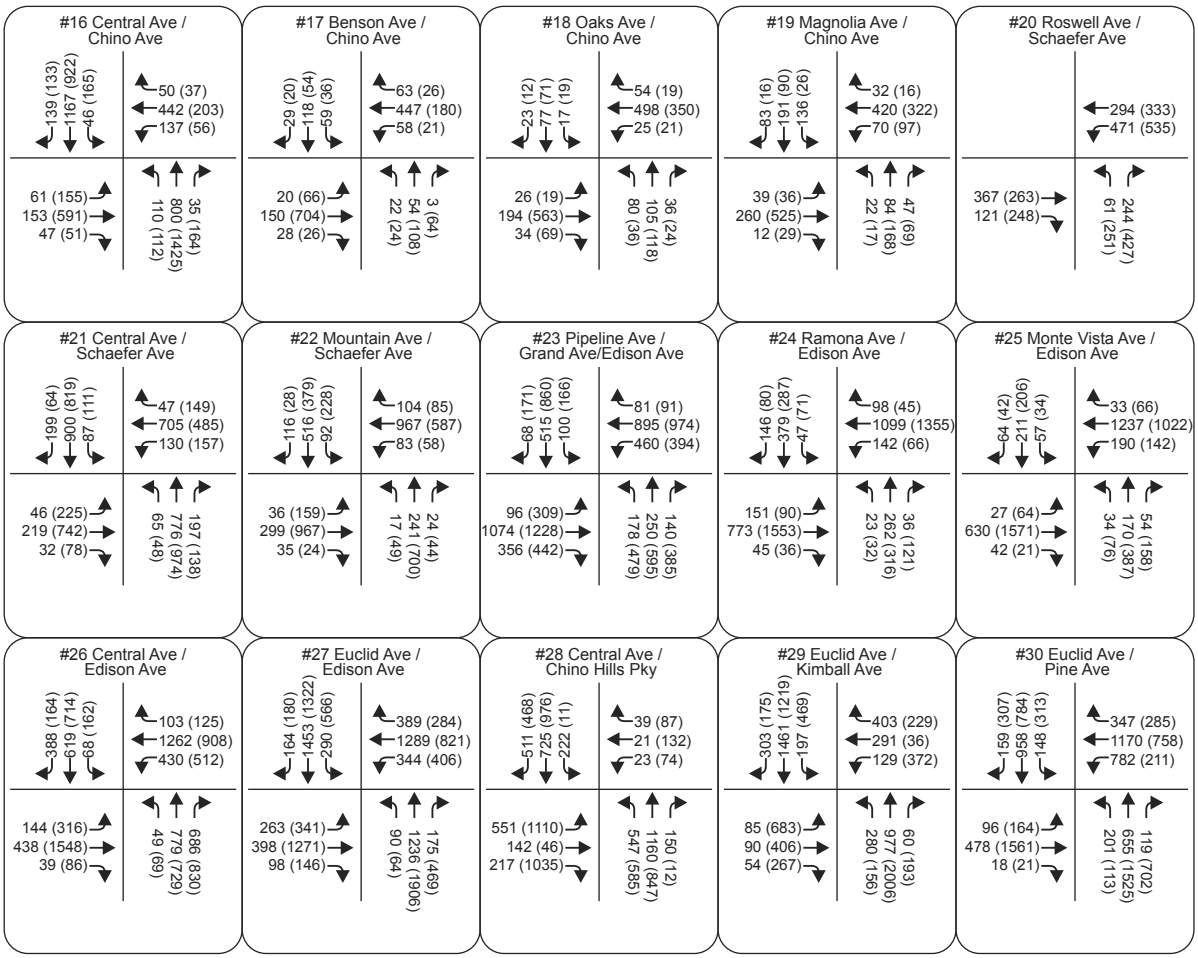


FIGURE 4.13-13b

FOCUSED GROWTH PLAN INTERSECTION VOLUMES

TABLE 4.13-8 **FOCUSED GROWTH PLAN LEVEL OF SERVICE**

		Proposed General Plan					
		AM Peak Hour			PM Peak Hour		
	Intersection	LOS	Average Delay/ Vehicle	V/C	LOS	Average Delay/ Vehicle	V/C
1	Central Avenue/ Francis Avenue	B	17.7	0.403	C	24.1	0.583
2	Monte Vista Avenue/ Walnut Avenue	B	16.6	0.482	B	16.2	0.437
3	Telephone Avenue/ Walnut Avenue	A	6.5	0.293	A	2.7	0.381
4	Central Avenue/ Walnut Avenue	C	30.5	0.577	C	33.4	0.716
5	Benson Avenue/ Walnut Avenue	B	15.0	0.374	B	17.3	0.513
6	Oaks Avenue/ Walnut Avenue	A	6.2	0.630	A	6.2	0.491
7	Magnolia Avenue/ Walnut Avenue	A	8.1	0.556	A	6.9	0.473
8	Mountain Avenue/ Walnut Avenue	C	30.0	0.484	C	29.6	0.660
9	Monte Vista Avenue/ Riverside Drive	B	18.4	0.511	B	15.8	0.614
10	Central Avenue/ Riverside Drive	C	31.5	0.627	C	33.7	0.718
11	Benson Avenue/ Riverside Drive	B	16.2	0.474	B	18.5	0.545
12	Oaks Avenue/ Riverside Drive	B	13.5	0.366	B	12.1	0.429
13	Magnolia Avenue/ Riverside Drive	B	15.9	0.381	B	10.7	0.428
14	Mountain Avenue/ Riverside Drive	C	33.6	0.689	C	31.3	0.608
15	Monte Vista Avenue/ Chino Avenue	C	31.0	0.534	C	31.1	0.675
16	Central Avenue/ Chino Avenue	C	21.9	0.470	C	22.8	0.604
17	Benson Avenue/ Chino Avenue	B	12.2	0.496	C	17.4	0.711

TABLE 4.13-8 **FOCUSED GROWTH PLAN LEVEL OF SERVICE** (CONTINUED)

		Proposed General Plan					
		AM Peak Hour			PM Peak Hour		
	Intersection	LOS	Average Delay/ Vehicle	V/C	LOS	Average Delay/ Vehicle	V/C
18	Oaks Avenue/ Chino Avenue*	B	14.1	0.534	C	16.3	0.625
19	Magnolia Avenue/ Chino Avenue*	C	17.9	0.737	C	16.2	0.598
20	Roswell Avenue/ Schaefer Avenue*	B	15.8	0.301	C	20.3	0.479
21	Central Avenue/ Schaefer Avenue	C	27.1	0.442	C	31.8	0.617
22	Mountain Avenue/ Schaefer Avenue	C	27.1	0.480	C	33.6	0.697
23	Pipeline Avenue/ Grand Avenue	C	28.6	0.585	D	36.5	0.819
24	Ramona Avenue/ Edison Avenue	C	27.5	0.465	C	21.2	0.487
25	Monte Vista Avenue/ Edison Avenue	B	18.7	0.347	C	21.8	0.562
26	Central Avenue/ Edison Avenue	C	27.5	0.587	C	31.8	0.703
27	Euclid Avenue/ Edison Avenue	C	30.8	0.596	D	37.1	0.869
28	Central Avenue/ Chino Hills	C	29.3	0.698	C	34.4	0.832
29	Euclid Avenue/ Kimball Avenue	C	25.3	0.471	C	32.1	0.701
30	Euclid Avenue/ Pine Avenue	C	28.9	0.503	C	31.7	0.699

Note: * = Unsignalized Intersection.
Source: Iteris, Inc., 2009.

2. Emergency Access and Roadway Design—Both Projects

The Chino Valley Independent Fire District reviews plans of all public and private streets, alleys, drives and access ways within its service district, and has design standards that must be met which ensure adequate emergency access

throughout the City. Neither project conflicts with the design standards, nor with ongoing implementation of the Fire District Master Plan.

The City of Chino reviews all changes to roadway systems, to ensure that plans follow standard policies and guidelines. Implementation of the Transportation Element would not result in increased hazards due to design features or incompatible land uses, so the impact would be *less than significant.*

3. Parking Capacity—Both Projects

Both projects include an update to the Zoning Ordinance, which includes a full update to the City's parking regulations.

The Transportation Element includes strategies to ensure that adequate parking is supplied along with proposed development. Goal TRA-8 focuses on the provision of parking. The first objective focuses on public parking. Policies 1 through 5 support enforcement of parking rules, provision of handicapped parking, information about parking, efficient parking strategies, and creation of parking benefit/assessment districts, where necessary.

In addition, the Element includes Policy 10 under Objective TRA-1.1 to ensure that sufficient handicapped parking is provided along with new development.

Together, these strategies ensure that the Proposed General Plan and Focused Growth Plan would have a positive impact on parking capacity and therefore would have a *less-than-significant* impact.

4. Alternative Transportation—Both Projects

Development under the proposed projects is not expected to generate any significant negative impacts associated with bicycle, pedestrian, and transit facilities. In fact, the Proposed General Plan includes numerous policies in support of expanding opportunities for alternative modes of transportation. For example, in the Transportation Element Goal TRA-9 and all of its associated objectives, policies, and actions, focuses on ensuring that public transportation is a safe and effective mode of travel in Chino. Goal TRA-10 focuses

on bicycling and Goal TRA-11 focuses on walking. Action A1 under Objective TRA-10.2 calls for the creation of a city-wide bicycling master plan. Action A1 under Objective TRA-11.1 calls for the creation of a city-wide pedestrian master plan. The Land Use Element supports the use of walking and bicycling to travel around the City. For example, under Goal LU-1 Objective LU-1.2 calls for the development of neighborhoods that support walking and bicycling as primary modes of travel. The third policy in this section supports walking and bicycling by encouraging land uses that people need to meet their daily needs. Through these strategies, the proposed projects would provide strong support for alternative modes of transportation, resulting in a *less-than-significant* impact.

5. Air Traffic—Both Projects

The policies of the Proposed General Plan and the Focused Growth Plan are internally consistent and are consistent with other adopted plans and programs supporting the provision of aviation facilities or services in the City of Chino. Demand for aviation facilities or services, which may increase slightly with population and employment growth in the City, is not expected to cause a change in air traffic patterns or traffic levels that would result in substantial safety risk. It is anticipated that flight operations at the Chino Airport would grow from a projected 243,523 takeoffs and landings in 2015 to a projected 260,448 in 2025, and it is expected that the airport could accommodate these increases. Therefore, implementation of the Proposed General Plan and the Focused Growth Plan would have *less-than-significant* impacts to aviation transportation.

E. Cumulative Impacts

A version of the Southern California Association of Governments/San Bernardino Associated Governments Comprehensive Transportation Plan (CTP) travel demand model adapted for use in the City of Chino was used to assess impacts associated with regional cumulative growth.

Based on the analysis contained in this Section, implementation of the Proposed General Plan and Focused Growth Plan would allow the City to maintain its level of service objectives for the local road network over the long term. Impact on the local road network would be less than significant.

With regard to the State Route 60 and State Route 71 freeways, the regional travel demand model used in this analysis indicates that implementation of the Proposed General Plan and Focused Growth Plan would result in additional trips on both the State Route 60 and State Route 71 freeways. However, when combined with the regional traffic already included in the travel demand model, the contribution of trips associated with the Proposed General Plan and Focused Growth Plan are minimal. Therefore, the cumulative impacts associated with traffic would be *less than significant*.

As described above, the proposed projects would have a generally positive impact on parking capacity and alternative transportation, so the cumulative impacts in these areas would be *less than significant*.

Growth in air traffic at the Chino Airport would contribute to regional air traffic in Southern California. However, the region is already planning for significant growth through development of an updated Master Plan for the Ontario Airport. Because of this planning and the finding above that the Chino Airport can accommodate the expected takeoffs and landings, cumulative impacts associated with air traffic would be *less than significant*.

F. Impacts and Mitigation Measures

Since no significant impacts to transportation and parking were identified as a result of the Proposed General Plan or the Focused Growth Plan, no mitigation measures are required.