

III. CIRCULATION

INTRODUCTION

The transportation system of a community is vital to its success. Efficient traffic circulation is important to economic vitality and promotion of a quality living environment. The transportation system is multi-modal, providing a variety of transportation alternatives such as transit, bicycle, and pedestrian systems for citizens and visitors to access the City.

Purpose and Function

The purpose of the Circulation Element of the General Plan is to provide for an efficient, convenient and safe transportation system for the City. In order to meet this objective, the Circulation Element has been designed to accommodate the anticipated transportation needs of the community based on existing and future land use within the region.

In compliance with state law, all City and County general plans must contain a circulation element that designates future road improvements and extensions, addresses non-motorized transportation alternatives, and identifies funding options. The intent of the element is to:

- Identify the transportation needs and issues within the City, as well as regional relationships that affect the City's transportation system.
- Describe the potential circulation system in terms of design elements, operating characteristics, and limits of operation.
- Consider alternatives other than the single-occupant vehicle in providing services and accessing facilities.
- Establish policies that coordinate the circulation system with the General Plan land use map and provide direction for future decision making processes in establishing goals for the Circulation Element.
- Develop strategies and identify funding sources to provide for the timely application of the Circulation Element goals and policies.

INVENTORY OF EXISTING CONDITIONS

The circulation network provides the link between land uses and facilitates access to home, shopping, jobs and recreation. This section of the Element describes the existing transportation system with the City's General Plan study area. A number of transportation systems are described including:

- Streets and Highways
- Non-Motorized Transportation
- Public/Mass Transportation
- Truck Routes

Street and Highway System

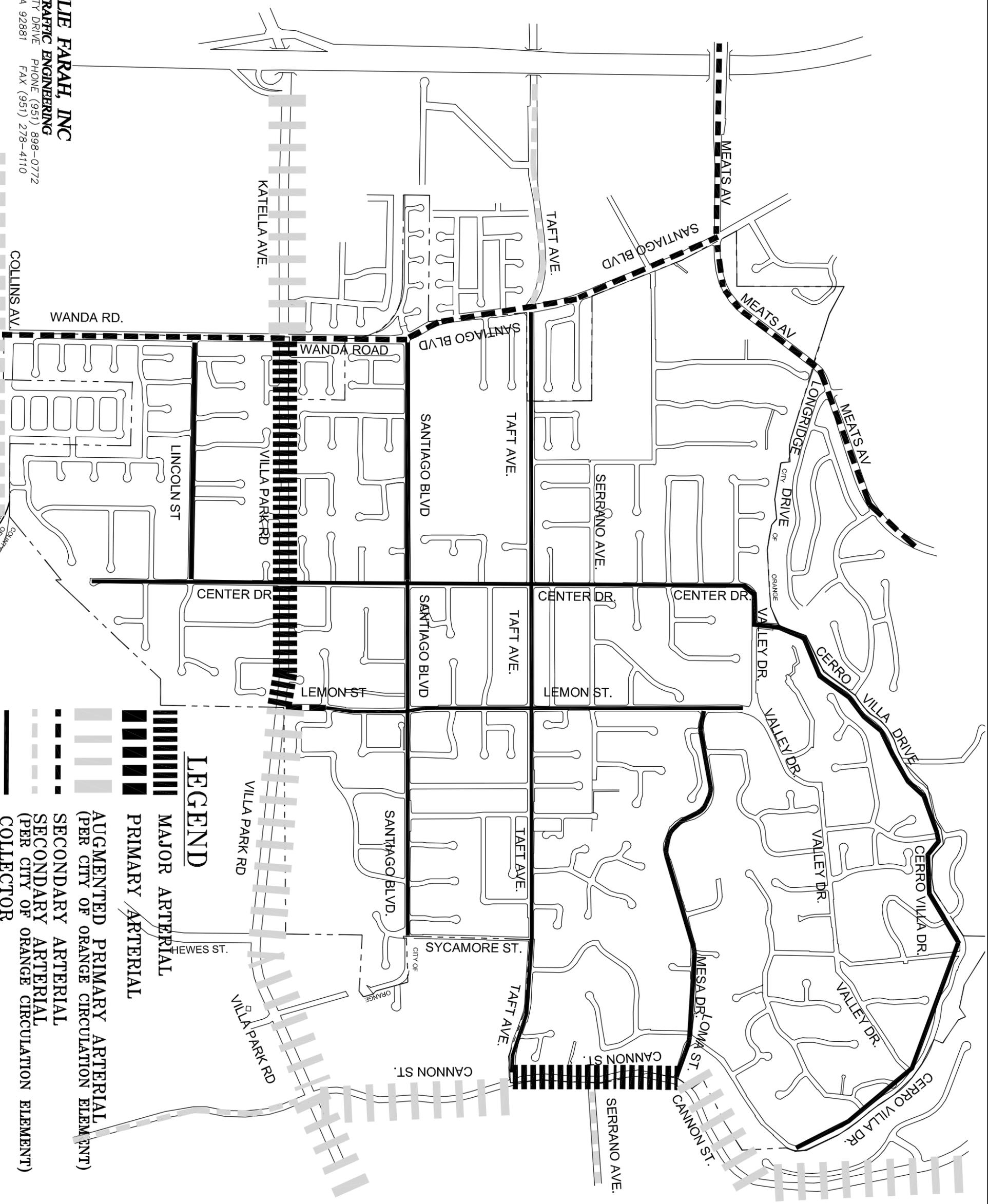
Functional Roadway Classification System

Functional classification is the process by which streets and highways are grouped into classes or systems, according to the type of service they are intended to provide. It is with the understanding that most travel involves the movement through a network of roads. The City of Villa Park is guided by the Orange County Transportation Authority (OCTA) for the Master Plan of Arterial Highways (MPAH)¹. Consistency with the MPAH ensures that each City and the County implement the same base transportation network with similar standards and assumptions. **Exhibit III-1** shows the existing roadway network and classifications. The current system of roadways consists of five basic classifications as follows:

- Principal Arterial – is an eight-lane divided roadway, with a typical right of way width of 144 feet with roadway width of 126 feet curb to curb. A principal arterial is designed to accommodate 60,000 vehicle trips per day at Level of Service C. Villa Park has no Principle Arterials.
- Major Arterial – is a six-lane divided roadway, with a typical right-of-way width of 120 feet with roadway width of 102 feet. A major arterial is designed to accommodate 45,000 vehicle trips per day at Level of Service C; Cannon Street falls under this category.
- Primary Arterial – is a four-lane divided roadway, with a typical right-of-way width of 100 feet with roadway width of 84 feet curb to curb. A primary arterial is designed to accommodate 30,000 vehicle trips per day at Level of Service C; Villa Park Road falls under this category.
- *Augmented Primary (City of Orange Classification)* – contains six through travel lanes within a 100-foot right-of-way. Such roads may contain free right turn lanes, additional left turn lanes at intersections, lanes to allow movement in and out of bus bays, and other features designed to increase roadway capacity.
- Secondary Arterial – is a four-lane undivided (no median) roadway, with a typical right-of-way width of 80 feet with roadway width of 64 feet curb to curb. A secondary arterial is designed to carry 20,000 vehicle trips per day at Level of Service C; Santiago Boulevard N/S, Wanda Road, and Meats Avenue are examples that fall under this category.
- Collector – is a two lane undivided roadway with a typical right-of-way width of 56 feet with roadway width of 40 feet curb to curb. A collector is designed to accommodate up to 10,000 local vehicle trips per day at Level of Service C; Taft Avenue, Center Street, and Lemon Street are examples that fall under this category

¹ Guidance for Administration of the Orange County Master Plan of Arterial Highways, Effective Date of MPAH: January 22, 2007

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LEGEND

	MAJOR ARTERIAL
	PRIMARY ARTERIAL
	AUGMENTED PRIMARY ARTERIAL (PER CITY OF ORANGE CIRCULATION ELEMENT)
	SECONDARY ARTERIAL (PER CITY OF ORANGE CIRCULATION ELEMENT)
	COLLECTOR



Level of Service Analysis

In order to evaluate the ability of a roadway to handle existing and future traffic a level of service (LOS) standard is used. The LOS ranks and characterizes traffic congestion on a scale of A to F, with LOS A being a free-flow condition and LOS F considered to be extremely congested. In addition to the LOS ranking, volume to capacity (V/C) is used to provide a quantified description of traffic conditions. The minimum acceptable LOS for roadways is LOS C and for intersections is LOS D. The following provides a definition of the six levels of service for intersections and design capacity of roadways²:

LOS A (V/C ratio of 0.0 to 0.60): Indicates no physical restriction on operating speeds.

LOS B (V/C ratio of 0.61 to 0.70): Indicates stable flow with few restrictions on operating speed.

LOS C (V/C ratio of 0.71 to 0.80): Indicates stable flow, higher volume, and more restrictions on speed and lane changing.

LOS D (V/C ratio of 0.81 to 0.90): Indicates approaching unstable flow, little freedom to maneuver, and conditions intolerable for short periods.

LOS E (V/C ratio of 0.91 to 1.00): Indicates unstable flow, lower operating speeds and some momentary stoppages.

LOS F (V/C ratio greater than 1.00): Indicates forced flow operation with low speeds, where the highway acts as a storage area with many stoppages.

Table III-1 provides roadway capacities for each classification. These capacities are factored by number of intersections, degree of access, sight distance and amount of truck and bus traffic. Average Daily Traffic (ADT) is used as a planning tool to assist in determining arterial highway classification to meet future traffic demand.

**Table III-1
Roadway Level of Service Capacity**

Roadway Classification	Level of Service				
	A	B	C	D	E
Principal	45,000	52,500	60,000	67,500	75,000
Major	33,900	39,400	45,000	50,600	56,300
Primary	22,500	26,300	30,000	33,800	37,500
Secondary	15,000	17,500	20,000	22,500	25,000
Collector	7,500	8,800	10,000	11,300	12,500

² Source: County of Orange, Advance Planning Program, Transportation Element, Appendix 4

Current Average Daily Traffic Volumes are shown in **Exhibit III-2. Table III-2** summarizes existing conditions as well as level of service for the studied roadways.

**Table III-2
Existing 2008 Conditions for Roadways**

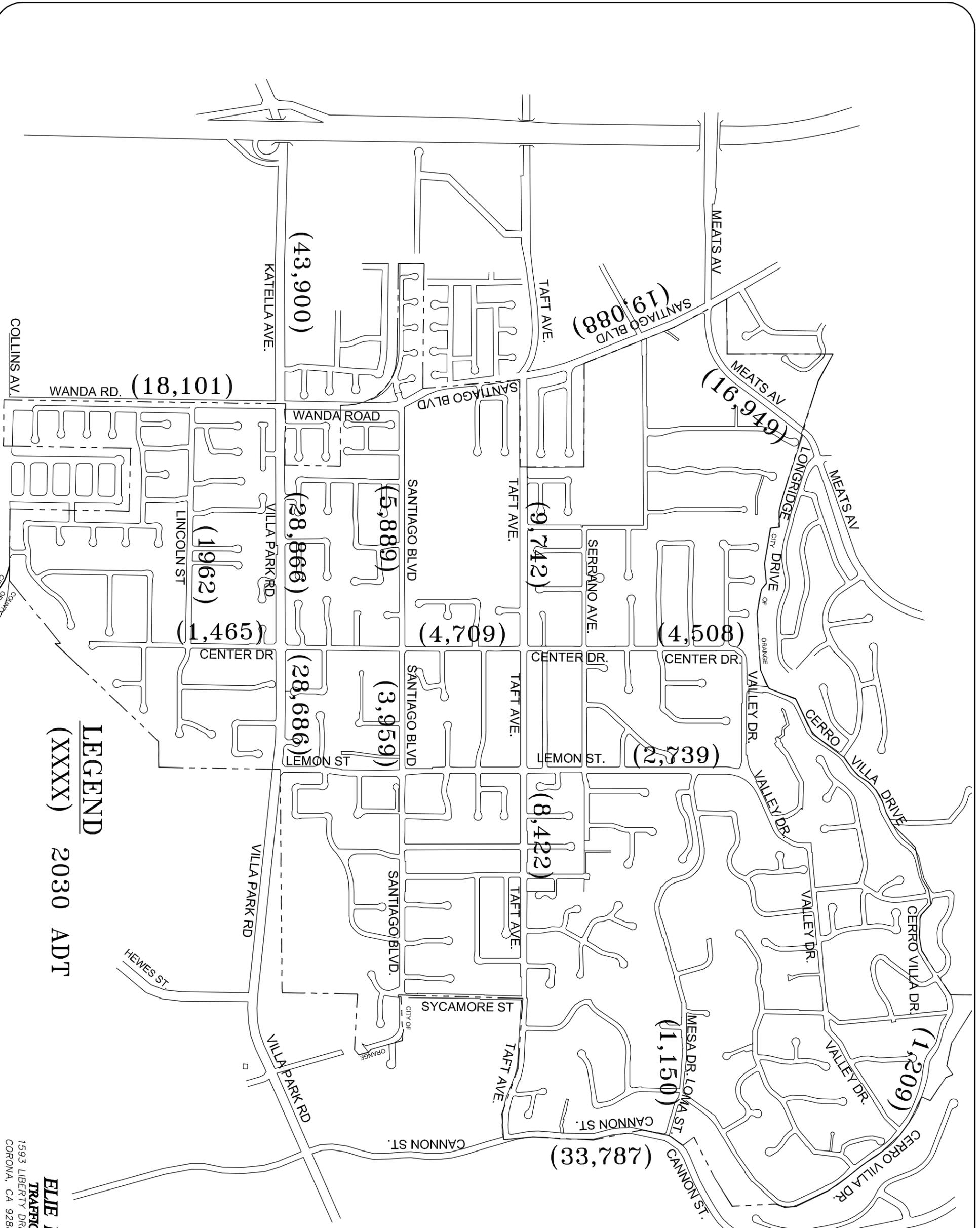
Roadway	Classification	Existing ADT	V/C	LOS
Cannon Street: Loma St to Taft Ave	Major	29,586	0.526	A
Center Dr: Valley Dr to Serrano Ave	Collector	3,149	0.252	A
Center Dr: Serrano Ave to Villa Park Rd	Collector	3,437	0.275	A
Center Dr: Villa Park Rd to South End	Collector	1,201	0.096	A
Cerro Villa: Center Dr to Mesa Dr	Collector	991	0.079	A
Lemon St: Villa Park Rd to Valley Dr	Collector	2,245	0.180	A
Lincoln St: Wanda Rd to East End	Collector	1,608	0.128	A
Meats Ave: Santiago Blvd to Longridge Dr	Secondary	10,955	0.438	A
Mesa Dr: Lemon St to Cannon St	Collector	943	0.075	A
Santiago Blvd (N/S): Meats Ave to Villa Park Rd	Secondary	18,039	0.721	C
Santiago Blvd (E/W): Santiago NS to Center Dr	Collector	4,827	0.386	A
Santiago Blvd (E/W): Center Dr to Sycamore St	Collector	3,245	0.259	A
Taft Ave: Santiago Blvd to Center Dr	Collector	10,222	0.818	D
Taft Ave: Center Dr to Cannon St	Collector	6,020	0.482	A
Villa Park Rd: Wanda Rd to Center Dr	Major	23,877	0.424	A
Villa Park Rd: Center Dr to Lemon St	Major	22,906	0.407	A
Wanda Rd: Santiago Blvd to Collins Ave	Secondary	11,523	0.461	A

Future Traffic Demand

New development as a result of regional growth east of Villa Park will result in an increase in traffic volumes along City streets. In order to estimate the effect of future traffic on the City's arterial roadway system, the Orange County Transportation Authority (OCTA) Traffic Model was used. The model provides a forecast of ADT for the year 2030. These volumes were adjusted or post-processed to account for the growth between the model base year of 2000 and existing conditions. For those segments not represented in the OCTA traffic model, a one percent ambient growth rate was applied to existing 2008 traffic volumes to the year 2030. These volumes and the adjusted 2030 ADT are presented in **Table III-3. Exhibit III-3** presents the 2030 Average Daily Traffic Volume for each studied roadway segment.

**Table III-3
2030 Conditions for Roadways**

Roadway	Classification	2030 ADT	V/C	LOS
Cannon Street: Loma St to Taft Ave	Major	33,787	0.600	A
Center Dr: Valley Dr to Serrano Ave	Collector	4,508	0.361	A
Center Dr: Serrano Ave to Villa Park Rd	Collector	4,709	0.376	A
Center Dr: Villa Park Rd to South End	Collector	1,465	0.117	A
Cerro Villa: Center Dr to Mesa Dr	Collector	1,209	0.097	A
Lemon St: Villa Park Rd to Valley Dr	Collector	2,739	0.219	A
Lincoln St: Wanda Rd to East End	Collector	1,962	0.156	A
Meats Ave: Santiago Blvd to Longridge Dr	Secondary	16,949	0.677	B
Mesa Dr: Lemon St to Cannon St	Collector	1,150	0.092	A
Santiago Blvd (N/S): Meats Ave to Villa Park Rd	Secondary	19,088	0.763	C
Santiago Blvd (E/W): Santiago NS to Center Dr	Collector	5,889	0.471	A
Santiago Blvd (E/W): Center Dr to Sycamore St	Collector	3,959	0.316	A
Taft Ave: Santiago Blvd to Center Dr	Collector	9,742	0.779	C
Taft Ave: Center Dr to Cannon St	Collector	8,422	0.674	B
Villa Park Rd: Wanda Rd to Center Dr	Primary	28,866	0.770	C
Villa Park Rd: Center Dr to Lemon St	Primary	28,686	0.765	C
Wanda Rd: Santiago Blvd to Collins Ave	Secondary	14,101	0.564	A



LEGEND
 (XXXX) 2030 ADT

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Results of the segment analysis for the Year 2030 indicate that the majority of segments will be operating at acceptable LOS A thru LOS C.

In November of 2009 the City of Villa Park initiated discussions with the OCTA, the County of Orange, and the City of Orange regarding modifying the classification of VPR in the MPAH. OCTA took the lead on the project and contracted Austin Foust Associates Inc. to initiated a cooperative study to determine the effects of downgrading VPR on roadway and intersections within the study area and what mitigation measures should be implemented to offset any impacts created.

By July of 2010 the OCTA Board of Directors, County of Orange, and City of Orange approved an amendment to the MPAH to reclassify Villa Park Road from a Major Arterial, as shown on Table III-2 - Existing 2008 Roadway Conditions and Exhibit III-1, to a Primary Arterial as shown on Table III-3 - 2030 Conditions for Roadways and Exhibit III-4 – Road Network and Classification.

As future volumes increase due to development in adjacent communities roadways with a LOS of D or worse would need to be improved in order to encourage regional traffic to use primary roadways and discourage the use of alternative routes through residential neighborhoods with collector or local street designations. **Exhibit III-4** shows the future roadway network and classifications.

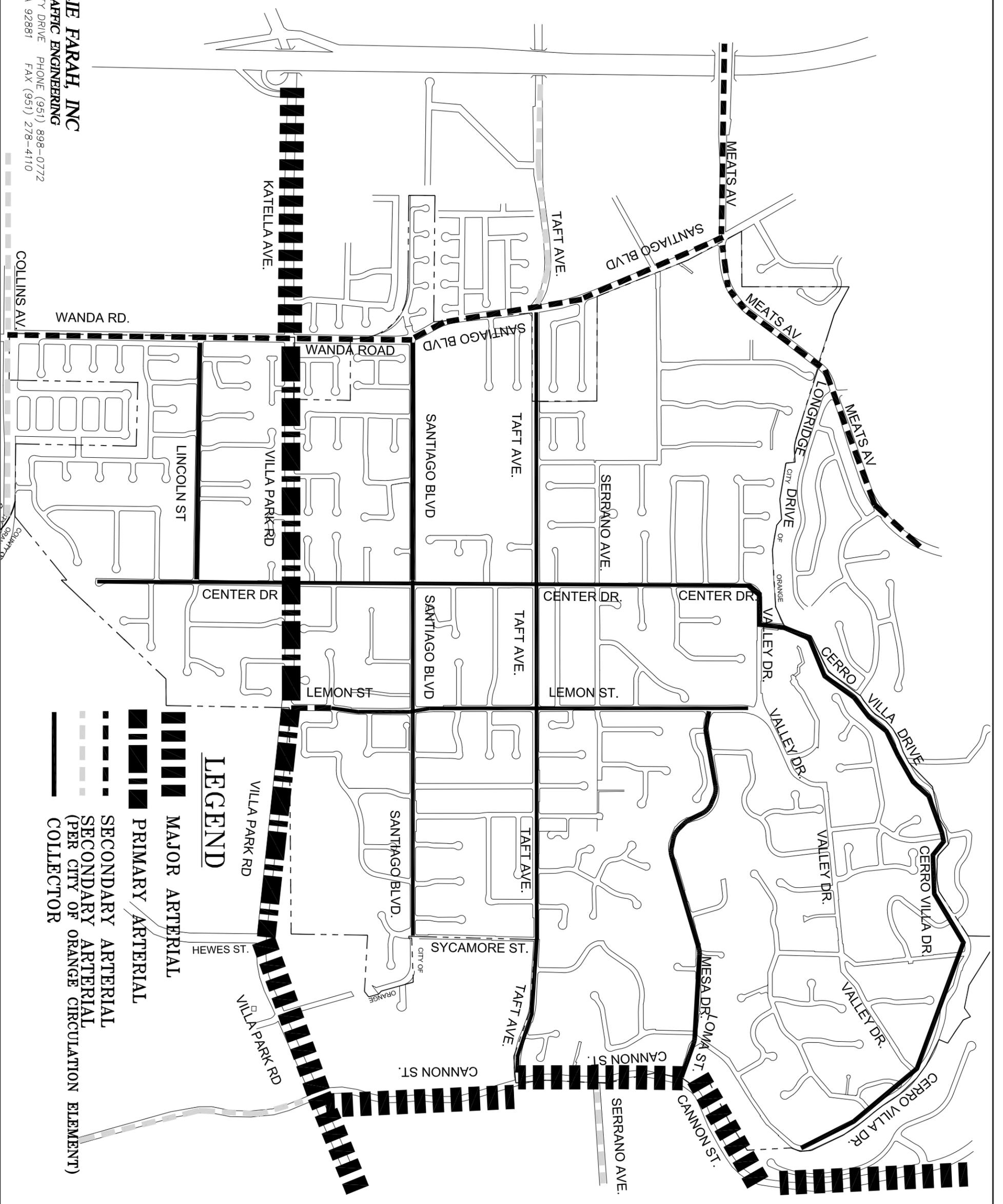
The Regional Circulation map is included as **Exhibit III-5** and is available at City Hall.

Vehicular Improvements

The following would serve to improve segment LOS to acceptable levels of LOS “C” or better.

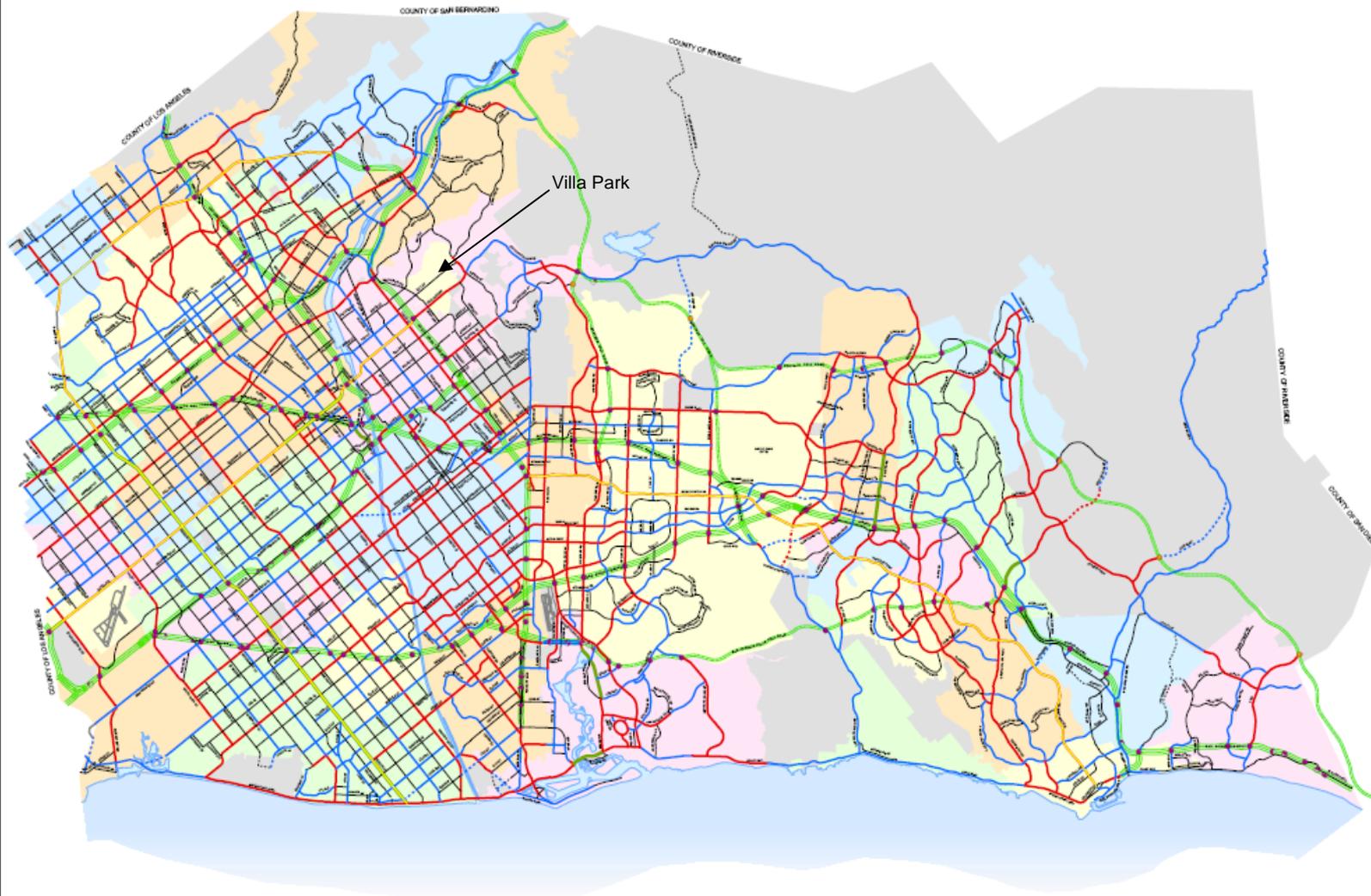
- Upgrade roadways with improvements that will promote the flow of through traffic. This can be done with improvements such as synchronization of signals along the route, adding exclusive turn lanes where feasible, restrict parking or minimize access during peak hours.

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MASTER PLAN OF ARTERIAL HIGHWAYS

Orange County, California

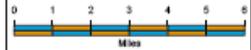


LEGEND

- ARTERIAL HIGHWAYS**
- ESTABLISHED ALIGNMENT
 - PROPOSED ALIGNMENT
 - PRINCIPAL
 - MAJOR
 - PRIMARY
 - SECONDARY
 - COLLECTOR
 - ROADS OUTSIDE OF OC SHOWN FOR CONTINUITY
 - FREEWAY
 - TRANSPORTATION CORRIDOR
 - SMART STREET 8 LANE
 - SMART STREET 6 LANE
 - SMART STREET 4 LANE
 - EXISTING INTERCHANGE
 - PROPOSED INTERCHANGE
 - RIGHT-OF-WAY RESERVE

- CLASSIFICATION**
- PRINCIPAL**
8 Lane Divided Roadway
Accommodates 45,000 to 60,000 ADT
 - MAJOR**
6 Lane Divided Roadway
Accommodates 30,000 to 45,000 ADT
 - PRIMARY**
4 Lane Divided Roadway
Accommodates 20,000 to 30,000 ADT
 - SECONDARY**
4 Lane Undivided Roadway
Accommodates 10,000 to 20,000 ADT
 - COLLECTOR**
2 Lane Undivided Roadway
Accommodates 7,500 to 10,000 ADT

EFFECTIVE DATE:
JULY 15, 2007



CITY BOUNDARY UPDATE:
January 2007
MAP UPDATE:
August 27, 2007



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Exhibit III-5

Non-Motorized Transportation

Bicycling and walking are key elements of Villa Park's planned circulation system. Maintaining a system of bicycle facilities is important for both recreation and transportation purposes. Bikeways provide links to schools, civic and neighborhood shopping centers within the region. The City's Master Plan of bikeways is shown in **Exhibit III-6**. The Plan includes both local trails, bikeways and regional trails that provide connections to Orange County bicycle routes. The City uses the following bicycle facility classifications:

- Class I (Bike Path/ Regional trail): are facilities at least 8 feet in width that are physically separated from vehicular roadways. These facilities can be used by both bicycles and pedestrians.
- Class II (Bike Lanes): consist of a painted stripe reserving at least five feet nearest the curb for bicycle use.
- Class III (Bike Routes): are designated only with signs.

The majority of the City of Villa Parks roadways with a collector or above classification are striped with a Class II bike lane, with the exception of Meats Avenue. All residential or local streets are considered to be Class III bike routes.

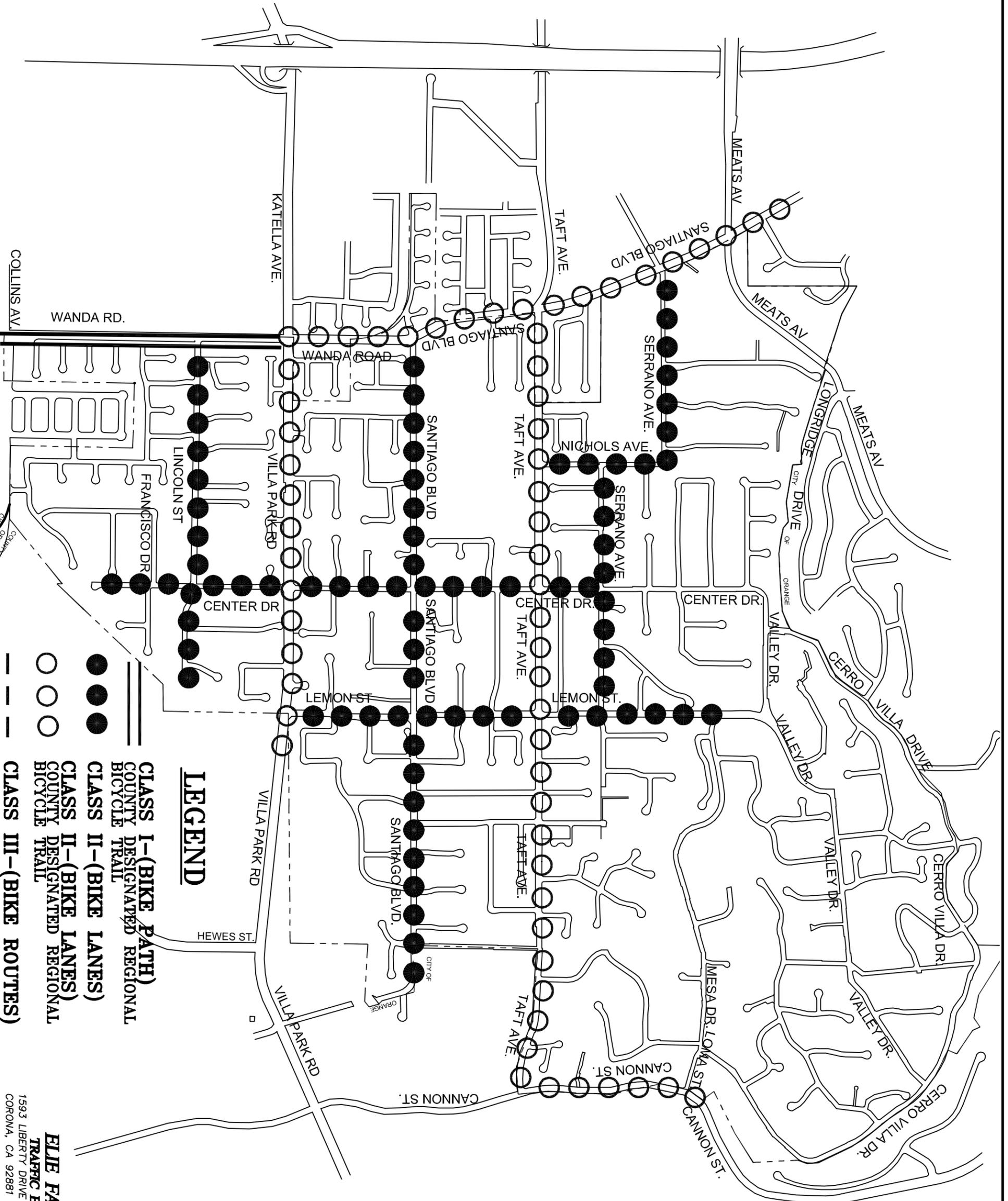
The Regional Non-Motorized Trail map is included as **Exhibit III-7**.

Truck Routes

The movement of goods and services throughout the City is an integral part of the economy of the City. Directing truck traffic to specially designated truck routes minimizes impacts that could occur on local roadways. The City has designated the following streets as truck routes with weight limitations:

- Wanda Road
- Villa Park Road
- Santiago Boulevard N/S
- Cannon Street

The City will monitor and examine dedicated truck routes periodically to ensure the safety of residents, neighborhoods and pedestrians.



LEGEND

- CLASS I-(BIKE PATH)
COUNTY DESIGNATED REGIONAL BICYCLE TRAIL
- CLASS II-(BIKE LANES)
- CLASS II-(BIKE LANES)
COUNTY DESIGNATED REGIONAL BICYCLE TRAIL
- CLASS III-(BIKE ROUTES)

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Orange County Bikeways Map

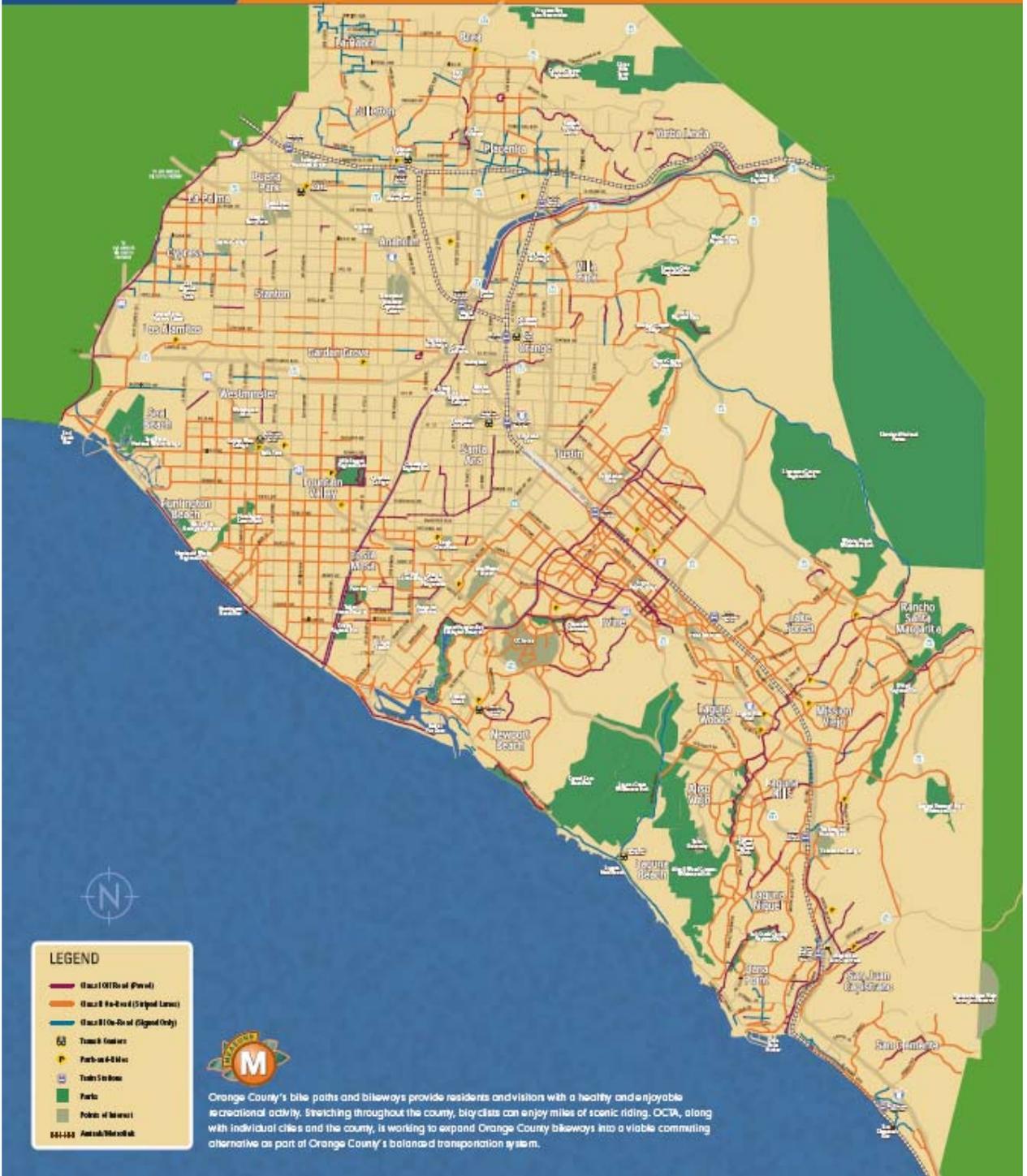


Exhibit III-7

Transit Service

Villa Park is served by the Orange County Transportation Authority (OCTA). OCTA provides public transit service, which links major employment centers and residential areas. Bus stops are provided along Wanda Road and Santiago Boulevard. In addition to the fixed route bus system, OCTA provides a paratransit service for frail elderly and special needs persons who are unable to utilize fixed route buses.

Local and Regional Public Transportation maps are available at City Hall.

Railroads

There are no railroads or stations within the City of Villa Park. The closest station is located in the City of Orange on Chapman Avenue, west of the traffic circle.

Airports

There are no airports within Villa Park or adjacent to the City. The Orange County John Wayne Airport (JWA) is located 8.7 miles south of Villa Park.

GOALS, POLICIES AND PROGRAMS

Circulation Goal #1: To provide a comprehensive transportation system that will address future growth and development within the City and in adjacent communities and minimize congestion.

Circulation Policies:

- C #1: Work with Caltrans and adjacent jurisdictions to improve the operational performance of highways within and adjacent to the City.
- C# 2: Maintain a peak level of service at intersections of “D” or better and along roadway segments of “C” or better.
- C #3: Discourage through traffic on local streets.
- C #4: Coordinate and cooperate with neighboring jurisdictions and Regional, State and Federal agencies to improve regional access for residents and workers.
- C #5: Assign street classifications to provide an acceptable level of service based on projected traffic demands, circulation functions and the areas that they are intended to serve.

Action Programs:

1. Support freeway improvements that divert through traffic from local and arterial streets.
2. Improve intersection operations by providing traffic signal maintenance and improvement measures such as synchronization of signals, left and right turn lanes, protected left turn phasing.
3. Improve roadway operations on major segments by minimizing interruption to traffic flow during peak commute periods with peak hour parking restrictions.
4. Provide adequate sight distances for safe vehicular movement on roadways at intersections and driveways.
5. Advocate regional arterial roadway alignment planning and construction that will divert regional traffic around the City of Villa Park.

6. Put in place traffic calming measures on local streets such as chokers, turn restrictions, road narrowing devices, curb extensions and added speed signage to discourage cut-through traffic.
7. Maintain Villa Park Road as a Primary Arterial to reflect intended function and operation.
8. Encourage the City of Orange to provide additional or enhanced routes to/from new development in East Orange.

Circulation Goal #2: Encourage the use of alternative means of transportation.

Circulation Policies:

- C #6: Support bicycle routes that minimize cyclist/motorist conflicts.
- C #7: Support Regional, State and Federal agencies in providing additional local fixed route bus and para-transit service to the City.
- C #8: Encourage the use of carpools and van pools whenever possible.

Action Programs:

9. Maintain a bikeway system that provides links to routes in neighboring communities and regional bicycle routes.
10. Encourage business and larger employment centers to provide bike racks and safe storage facilities at major parking areas.
11. Develop attractive bus stops that are accessible and convenient to use.