

III. CIRCULATION ELEMENT

INTRODUCTION TO THE CIRCULATION ELEMENT

The City of Cypress circulation and transportation system plays an important role in shaping the overall structure and form of the City. Circulation relates not only to the actual physical transportation system such as streets, highways, bicycle routes, and sidewalks, but also to the various modes of transportation, such as cars, buses, trucks (goods movement), rail, bicycles, ridesharing, and walking, as well. These systems are shaped by land use patterns and provide the means to move people and goods through and within the City of Cypress. Land use and circulation must be closely tied to ensure that citizens are able to move in and around the City to locations where they live, work, shop, and spend leisure hours.

PURPOSE

The Circulation Element of the General Plan identifies the existing circulation system, circulation related issues, and goals and policies; and provides a comprehensive circulation plan which incorporates the various modes of transportation. The circulation plan is developed to meet present and future travel demand throughout the City. This Element is a general guide for the planning, development, and enhancement of the City of Cypress circulation system, based on existing and anticipated land uses.

RELATIONSHIP WITH OTHER PLANS AND GENERAL PLAN ELEMENTS

RELATED PLANS AND PROGRAMS

Transportation issues extend beyond the Cypress city limits. As a result, regional agencies have developed programs to forecast and manage countywide and region-wide traffic. The City must consider other transportation system planning efforts as it prepares for buildout of its own General Plan.

Most transportation-related plans and programs are established with the goal of maintaining acceptable operating Levels of Service (LOS) on the City’s transportation system. LOS designations are qualitative descriptions of roadway and intersection operations which range from “A” to “F”. Level of Service designations are analogous to letter grades received in school, where “A” is the best and “F” is the worst. Operating conditions at intersections and on street segments are evaluated using standard analysis methodologies that result in number values, which then correspond to Level of Service letter designations. This description of Level of Service provides a general background for the following discussion of related programs. A more detailed description of Level of Service standards is provided in Appendix A in Technical Appendix A.

Measure M - Growth Management Program (GMP)

As a result of the Orange County Measure M (a ½-percent sales tax increase), passed by Orange County voters in 1988, all Orange County cities are required to develop a Growth Management Program (GMP). The stated purpose of the GMP is to ensure that the planning, management, and implementation of traffic improvements and public facilities are adequate to meet the current and projected mobility needs of Orange County.

A traffic Level of Service (LOS) policy is to be established by each City, whereby LOS "D" or better is to be designated as the overall goal. However, it is recognized that some arterials are influenced by traffic factors beyond the control of the City; therefore, a lower LOS goal may be adopted for certain arterials. A Deficient Intersection List must also be developed for "problem" locations, and if future developments significantly impact these locations, they may provide mitigation in the form of pro-rata share fees.

The overall objective of the GMP is to ensure that new developments provide their fair share of public facilities and that services and infrastructure keep pace with anticipated growth. The program calls for an annual evaluation of compliance with LOS policies, a development phasing program, participation and interaction with other jurisdictions (Growth Management Areas or GMA's) to prioritize and receive funding for regional transportation improvements, provision of a Capital Improvement Program (CIP) to address specific City roadway needs, and development of a Transportation Demand Management (TDM) trip reduction program. In summary, the GMP requires development of a comprehensive program to ensure that improvement of public facilities keeps pace with development, and that new developments provide their fair share of those improvements.

Proposition 111 – Congestion Management Program (CMP)

Assembly Bill (AB) 471 (Proposition 111), as subsequently modified by AB 1791, requires every urbanized county with a population of 50,000 or more to adopt a Congestion Management Program (CMP) in order to be eligible for gasoline tax revenues. The City of Cypress must comply with the Orange County CMP requirements in order to receive its allocated portion of Measure M funds.

The CMP has an established Highway System (CMPHS), which consists of principal local arterials, Smart Streets and State Highways. In the City of Cypress, Valley View Street and Katella Avenue are on the Orange County CMPHS, and the intersection of Valley View/Katella is designated as a CMP intersection. A minimum operating Level of Service of LOS "E" is required on CMP facilities, unless the facility was operating at a worse level when the baseline counts were conducted in 1991. Cities will be required to maintain LOS "E" or better (or baseline levels, if worse than "E") on the CMPHS.

The CMPHS is monitored through CMP requirements and minimum Level of Service standards must be maintained in order to remain eligible for the gas tax revenues. One alternative to physical mitigation (widening streets, adding lanes at intersections, etc.) is to develop a deficiency plan, whereby the CMPHS system as a whole is improved and air quality benefits are provided.

An important aspect of the CMP regulations is the requirement that new developments mitigate any significant traffic impacts to the CMPHS. This means that cities need to develop a review process whereby the traffic impacts of new projects are evaluated and impacts mitigated. This serves to ensure that the LOS standards on the CMPHS are maintained. In addition, the CMP contains requirements similar to the GMP, such as a Capital Improvement Program (CIP) submittal, a trip reduction program (TDM), and the need for inter-jurisdictional coordination.

South Coast Air Quality Management Plan

In 1985, the South Coast Air Quality Management District (SCAQMD) implemented Regulation XV (Rule 1501), which required employers of more than 100 employees to implement trip reduction programs, to reduce peak hour traffic coming to and from the job site. Measures to reduce peak hour traffic included establishment of a Transportation Management Association to promote Transportation Demand Management (TDM) programs, with carpool matching and vanpool programs, transit and parking incentives, provision of on-site daycare facilities, and many other approaches. The SCAQMD has since significantly relaxed its TDM program requirements for most businesses, but as a result of the initial Regulation XV emphasis and also by requirement of the Orange County GMP, all Orange County cities still have an adopted a Trip Reduction Ordinance. Articles XVI, XVII, and XVIII of the City of Cypress Municipal Code provide detailed findings and guidelines for trip reduction air pollution reduction measures to be undertaken by businesses in the Cypress Business Park and throughout the City.

RELATIONSHIP WITH OTHER GENERAL PLAN ELEMENTS

The Circulation Element is related to several other elements of the General Plan, perhaps most closely to the Land Use Element. Circulation facilities are designed around the City's pattern of land use, to ensure safe and efficient access to and from each development. The type and design of the circulation system is determined by the nature and density of surrounding land uses, as well as inter-city access patterns and loads.

The Circulation Element is also related to the Noise, Air Quality, Conservation/Open Space/ Recreation, and Safety Elements. As described in the Noise Element, the circulation system is one of the major components of urban noise. The circulation system network also has a direct impact on natural resources, particularly air quality. Safety factors affect the location and design of circulation facilities and dictate the need for evacuation and emergency routes.

Because of its transportation-related issues, the Growth Management Element also relates to the Circulation Element. In 1988 Orange County voters approved Measure M, which increased sales tax revenues in order to fund needed transportation improvements throughout the County. To qualify to receive a portion of these revenues, each jurisdiction within the County must adopt a Growth Management Element.

Major components of the required Growth Management Element concern transportation-related issues. For example, the Element must contain a policy that establishes a minimum Level of Service (LOS) to be maintained at intersections impacted by new development. In addition, the Element must contain a policy to promote TDM measures in the City and must contain a Comprehensive Phasing Program to ensure coordination between new development and roadway capacities. These issues will be addressed in a consistent fashion between the Circulation and Growth Management Elements.

SUMMARY OF EXISTING CONDITIONS

REGIONAL ACCESS

The City of Cypress is well served by area freeways, although none are actually located within the City boundaries. The Artesia Freeway (SR-91), Garden Grove Freeway (SR-22), San Diego Freeway (I-405), and San Gabriel River Freeway (I-605) are located to the north, south, and west of the City of Cypress, respectively. Each of these freeways is located within one to two miles from the Cypress City limits.

Bloomfield Street, Moody Street, Valley View Street, and Knott Avenue are all north-south arterials through the City of Cypress, and all have interchanges with the SR-91 Freeway to the north of the City. Valley View Street and Knott Street have interchanges with SR-22/I-405, to the south of the City. To the west of the City, freeway access at the I-605 is provided by Lincoln Avenue, Cerritos Avenue (access to and from the north only), and Katella Avenue.

Valley View Street and Katella Avenue are both regional arterials, which are included on the CMP Highway System (CMPHS). The CMPHS includes the Orange County Transportation Commission (OCTC) adopted Smart Street Network and all State Highways. Under a 20-year traffic improvement program, Orange County will establish 21 "Smart Streets," designed to carry significant volumes of inter-city and intra-city traffic, with enhanced geometrics, including extra travel lanes, limited mid-block access, bus turnouts, left- and right-turn pockets, synchronized signal timing and other improvements. Valley View Street and Katella Avenue are included in the Smart Street Network.

LOCAL ACCESS

EXISTING ARTERIAL SYSTEM

The City of Cypress circulation needs are served by a traditional grid system of arterials, with approximately 1/2-mile spacing, and signals at each arterial intersection. In three areas of the city, this grid street system is interrupted by established land uses, the most significant being the Joint Forces Training Center (JFTC) Los Alamitos (formerly known as the Los Alamitos Armed Forces Reserve Center) at the south edge of the city. Because of the size and location of this military installation, access to and from the south is limited to Bloomfield Street, Valley View Street and Knott Avenue. The Los Alamitos Race Track just north of the JFTC, and the Forest Lawn Cemetery at the north end of the city, also cause some discontinuity in the City's grid street system.

The east-west arterials through the City of Cypress that serve the City's circulation needs are Lincoln Avenue, Orange Avenue, Ball Road, Cerritos Avenue, Katella Avenue, and Orangewood Avenue. Those arterials with a north-south alignment that play an important role in the City's circulation system are Bloomfield Street, Denni Street, Moody Street, Walker Street, Valley View Street, Holder Street, and Knott Avenue.

The existing roadway system in the City of Cypress is presented on Exhibit CIR-1, *Existing Arterial System*. The information presented on this exhibit includes the number of travel lanes, existence or lack of a center street divider, where on-street parking is allowed, and where bicycle lanes are provided.

EXISTING TRAFFIC VOLUMES

Average Daily Traffic (ADT) volumes on City of Cypress arterials were collected by the City of Cypress in 1999. ADT volumes on each roadway segment are shown on Exhibit CIR-2, *Existing Daily Traffic Volumes (1999)*. In general, Valley View Street and Katella Avenue carry the highest volumes of traffic on a daily basis. The street segment that presently carries the most traffic is Valley View Street, between Katella Avenue and Orangewood Avenue, at 51,500 vehicles per day.

INSERT EXHIBIT CIR-1
"Existing Arterial System"

INSERT EXHIBIT CIR-2
"Existing Daily Traffic Volumes (1999)"

A total of 13 intersections located along Valley View Street, Lincoln Avenue, and Katella Avenue were also analyzed for the Circulation Element. Morning and evening peak hour turning movement counts were conducted at each intersection. Peak hours are generally designated as the highest volume hour within the morning peak period (7:00 - 9:00 AM) and the evening peak period (4:00 - 7:00 PM). Peak hour traffic volumes are presented in the intersection analysis worksheets in Appendix A in Technical Appendix A.

EXISTING LEVELS OF SERVICE

A Level of Service (LOS) analysis was conducted to evaluate the existing operating conditions of the City street system and study intersections. The results are presented in the following paragraphs.

The City of Cypress has adopted LOS “D” or better as the desired citywide operating standard for most City streets. However, given the influence of regional traffic on Valley View Street, Lincoln Avenue, and Katella Avenue, which are beyond the control of the City of Cypress, LOS “E” or better has been adopted as the minimum operating Level of Service for street segments and intersections on these arterials.

Exhibit CIR-1 (previously referenced) illustrates the existing roadway configurations in the City. Corresponding roadway capacities for each type of roadway are summarized below on Table CIR-1, *Daily Roadway Capacities*. These daily capacities are based on County of Orange daily roadway capacities, and represent a theoretical maximum number of vehicles that can be accommodated by each type of roadway, at each Level of Service. As described earlier, Levels of Service range from "A" (excellent conditions) to "F" (severely congested conditions), and represents a qualitative description of operating conditions.

**Table CIR-1
DAILY ROADWAY CAPACITIES**

Type of Arterial	Description	Level of Service				
		A	B	C	D	E
Collector	2-Lane Undivided	7,500	8,800	10,000	11,300	12,500
Secondary	4-Lane Undivided	15,000	17,500	20,000	22,500	25,000
Primary	4-Lane Divided	22,500	26,300	30,000	33,800	37,500
Major – 6	6-Lane Divided	33,900	39,400	45,000	50,600	56,300
Major – 8	8-Lane Divided	45,000	52,500	60,000	67,400	75,000

Existing daily traffic volumes and daily roadway are shown on Exhibit CIR-2 (previously referenced). This provides a general comparison of existing traffic volumes to the roadway carrying capacity, and offers an overview of the operating conditions of the existing arterial system. Review of Exhibit CIR-2 shows that the existing daily volumes for most street segments are within the daily LOS “D” or “E” capacity limits. The segment of Knott Avenue from Cerritos to Katella Avenue is currently carrying a daily volume of 38,100 vehicles, which is slightly in excess of its LOS “E” capacity of 37,500 vehicles. A tabular summary of existing roadway operating conditions for all city street segments is provided on Table CIR-2, *Summary of Roadway Operations for Existing Conditions (1999)*.

**Table CIR-2
SUMMARY OF ROADWAY OPERATIONS FOR
EXISTING CONDITIONS (1999)**

Roadway Segment	Existing Conditions	LOS "E" Capacity	ADT	V/C Ratio	LOS
CRESCENT AVENUE:					
West of Bloomfield Street	Secondary	25,000	12,200	0.49	A
Bloomfield Street to Moody Street	Secondary	25,000	12,300	0.49	A
Moody Street to Walker Street	Secondary	25,000	14,600	0.58	A
LINCOLN AVENUE:					
Bloomfield Street to Denni Street	Major	56,300	21,800	0.39	A
Denni Street to Moody Street	Major	56,300	25,700	0.46	A
Moody Street to Walker Street	Major	56,300	20,100	0.36	A
Walker Street to Valley View Street	Major	50,600	24,000	0.47	A
East of Valley View Street	Major	56,300	21,300	0.38	A
ORANGE AVENUE:					
Bloomfield Street to Denni Street	Secondary	25,000	7,100	0.28	A
Denni Street to Moody Street	Secondary	25,000	10,600	0.42	A
Moody Street to Walker Street	Secondary	25,000	13,300	0.53	A
Walker Street to Valley View Street	Secondary	25,000	12,900	0.52	A
Valley View Street to Holder Street	Secondary	25,000	13,200	0.53	A
BALL ROAD:					
Bloomfield Street to Denni Street	Primary	37,500	18,100	0.48	A
Denni Street to Moody Street	Primary	37,500	15,300	0.41	A
Moody Street to Walker Street	Primary	37,500	20,300	0.54	A
Walker Street to Valley View Street	Primary	37,500	18,400	0.49	A
Valley View Street to Holder Street	Primary	37,500	18,600	0.50	A
CERRITOS AVENUE:					
Bloomfield Street to Denni Street	Primary	37,500	23,100	0.62	B
Denni Street to Moody Street	Primary	37,500	21,800	0.58	A
Moody Street to Walker Street	Primary	37,500	24,000	0.64	B
Walker Street to Valley View Street	Primary	37,500	20,600	0.55	A
Valley View Street to Holder Street	Primary	37,500	14,800	0.39	A
Holder Street to Knott Avenue	Primary	37,500	15,100	0.40	A
KATELLA AVENUE:					
West of Valley View Street	Major	56,300	41,300	0.73	C
Valley View Street to Holder Street	Major	56,300	31,500	0.56	A
Holder Street to Knott Avenue	Major	56,300	31,200	0.55	A
ORANGEWOOD AVENUE:					
West of Valley View Street	Primary	37,500	2,200	0.06	A
Valley View Street to Holder Street	Primary	37,500	8,900	0.24	A
Holder Street to Knott Avenue	Primary	37,500	8,000	0.21	A
BLOOMFIELD STREET:					
Lincoln Avenue to Orange Avenue	Secondary	25,000	11,400	0.46	A
Orange Avenue to Ball Road	Secondary	25,000	11,200	0.45	A
Ball Road to Cerritos	Secondary	25,000	11,200	0.45	A

**Table CIR-2
SUMMARY OF ROADWAY OPERATIONS FOR
EXISTING CONDITIONS (1999) – CONTINUED**

Roadway Segment	Existing Conditions	LOS "E" Capacity	ADT	V/C Ratio	LOS
DENNI STREET:					
Lincoln Avenue to Orange Avenue	Secondary	25,000	5,800	0.23	A
Orange Avenue to Ball Road	Secondary	25,000	6,300	0.25	A
Ball Road to Cerritos	Secondary	25,000	5,100	0.20	A
MOODY STREET:					
North of Lincoln Avenue	Primary	37,500	18,800	0.50	A
Lincoln Avenue to Orange Avenue	Primary	37,500	15,900	0.42	A
Orange Avenue to Ball Road	Primary	37,500	13,600	0.36	A
Ball Road to Cerritos Avenue	Primary	37,500	10,100	0.27	A
WALKER STREET:					
North of Lincoln Avenue	Secondary	25,000	16,600	0.66	B
Lincoln Avenue to Orange Avenue	Secondary	25,000	17,100	0.68	B
Orange Avenue to Ball Road	Secondary	25,000	17,200	0.69	B
Ball Road to Cerritos Avenue	Secondary	25,000	13,100	0.52	A
Cerritos Avenue to Katella Avenue	Secondary	25,000	15,300	0.61	B
VALLEY VIEW STREET:					
Lincoln Avenue to Orange Avenue	Major	56,300	38,800	0.69	B
Orange Avenue to Ball Road	Major	56,300	39,100	0.69	B
Ball Road to Cerritos Avenue	Major	56,300	39,800	0.71	C
Cerritos Avenue to Katella Avenue	Major	50,600	40,800	0.72	C
Katella Avenue to Orangewood Avenue	Major	56,300	51,500	0.91	D
South of Orangewood Avenue	Major	56,300	46,200	0.82	D
HOLDER STREET:					
Lincoln Avenue to Orange Avenue	Secondary	25,000	8,300	0.33	A
Orange Avenue to Ball Road	Secondary	25,000	7,800	0.31	A
Cerritos Avenue to Katella Avenue	Secondary	25,000	7,300	0.29	A
Katella Avenue to Orangewood Avenue	Secondary	25,000	2,200	0.09	A
South of Orangewood Avenue	Secondary	25,000	6,200	0.25	A
KNOTT AVENUE:					
Cerritos Avenue to Katella Avenue	Primary	37,500	38,100	1.02	F
Katella Avenue to Orangewood Avenue	Primary	37,500	32,000	0.85	D
South of Orangewood Avenue	Primary	37,500	32,100	0.86	D
Note: V/C Ratio = Volume-to-Capacity Ratio Source: City of Cypress 1999 Traffic Flow Map					

Intersection analyses were also conducted at the 13 study intersections located along Valley View Street, Lincoln Avenue, and Katella Avenue in the City of Cypress. The Intersection Capacity Utilization (ICU) methodology was used, as specified by the Orange County CMP and GMP. The ICU methodology provides a comparison of intersection volumes to the intersection capacity and the results are then related to LOS values, ranging from "A" to "F", according to the following corresponding chart:

Intersection Capacity Utilization	Corresponding Level of Service
0.00 – 0.60	LOS A
0.61 – 0.70	LOS B
0.71 – 0.80	LOS C
0.81 – 0.90	LOS D
0.91 – 1.00	LOS E
Greater than 1.00	LOS F

A summary of the existing intersection operating conditions is presented on Table CIR-3, *Intersection Analysis – Existing Conditions (1999)*. With the exception of one intersection, all study intersections are operating at LOS “D” or better. The intersection of Katella Avenue and Knott Avenue is currently operating at LOS “E” in the evening peak hour. The City LOS standard for this intersection is LOS “E”, since it is located along Katella Avenue, one of the regional arterials through the City.

**Table CIR-3
INTERSECTION ANALYSIS
EXISTING CONDITIONS (1999)**

Intersection	Existing Conditions			
	AM Peak Hour		PM Peak Hour	
	ICU	LOS	ICU	LOS
Lincoln / Bloomfield	0.48	A	0.49	A
Lincoln / Moody	0.53	A	0.69	B
Lincoln / Walker	0.59	A	0.87	D
Lincoln / Valley View	0.64	B	0.78	C
Valley View / Orange	0.72	C	0.74	C
Valley View / Ball	0.90	D	0.82	D
Valley View / Cerritos	0.62	B	0.68	B
Valley View / Katella	0.72	C	0.84	D
Valley View / Oranewood	0.77	D	0.62	B
Katella / Lexington	0.58	A	0.59	A
Katella / Walker	0.71	C	0.74	C
Katella / Holder	0.43	A	0.65	B
Katella / Knott	0.75	C	0.92	E

The CMP LOS standard is "E" or "baseline", if it was measured worse than "E" in 1991 when the "baseline" counts were conducted. All intersections are currently operating within CMP standards. The general LOS goal under GMP requirements is a Level of Service "D" or better operations. However, certain streets/intersections can be designated to have lower LOS standards, if certain conditions exist, as described earlier. For the City of Cypress, a Level of Service "E" standard applies to Valley View Street and Katella Avenue, given that they serve regional, as well as local, traffic. All other roadways in the City have a LOS "D" standard. These standards are consistent with the GMP.

BUS SYSTEM

The City of Cypress is currently served by five Orange County Transportation Association (OCTA) bus lines (Routes 21, 25, 42, 46, and 50), as illustrated in Exhibit CIR-3, *Existing Bus Routes*. Routes 21 and 50 serve the Cypress Business Park along Valley View and Katella, respectively; Route 42 serves the Lincoln Avenue corridor, Route 46 provides east-west service generally through the middle of the city, and Route 25 provides north-south service along Knott Avenue. All of the routes, with the exception of Route 25, operate 7 days a week, including holidays. Route 25 operates Monday through Saturday, with no Sunday or holiday service. Service frequencies and times are reviewed and modified by OCTA from time to time. Up-to-date route schedules and information for all OCTA services are posted on the OCTA web site at "www.octa.net".

OCTA routes connect with other transit providers from other cities, including Long Beach Transit and Long Angeles Metropolitan Transportation Authority (MTA). OCTA also provides the ACCESS Service, which is a shared-ride service for people with functional limitations caused by a disability.

BIKEWAY SYSTEM

Existing bikeways in the City of Cypress are shown on Exhibit CIR-4, *Existing Bikeways*. Bicycle trails provide access to schools, parks, open space areas, as well as commercial and employment centers within the community. A bikeway can either be an on-road bikeway, which would include both striped bike lanes and signed-only bikeways; or an off-road paved bikeway. In some cases, off-road bikeways utilize City sidewalks, where there is sufficient width to accommodate both bicycles and pedestrians.

The trail system within the City includes Class I, II, and III paths. Class I bike paths are separate from the street and are the highest quality bike path. Class II and III are both located on the street. Class II paths include a designated bike lane and Class III paths are only marked by a sign.

RAIL TRANSPORTATION

Existing rail lines in the City of Cypress are illustrated on Exhibit CIR-5, *Existing Truck Routes and Rail Lines*. The existing Southern Pacific Rail Line, with a northwest-southeast alignment, crosses the northeast corner of the City. The right-of-way was purchased some years ago by the Orange County Transportation Authority (OCTA) for potential use as a commuter rail line. This purchase precludes freight use of the east-west rail line, which crosses through the Cypress Business Park at the south end of the City, since it is a spur line off of the purchased main line.

Cypress is a member of The Western Orange County Cities Association (WOCCA), which is evaluating the feasibility of an urban rail system serving the cities of West Orange County. No specific alignment for this potential urban rail system has yet been established.

INSERT EXHIBIT CIR-3
"Existing Bus Routes"

INSERT EXHIBIT CIR-4
"Existing Bikeways"

INSERT EXHIBIT CIR-5
“Existing Truck Routes And Rail Lines”

TRUCK CIRCULATION

Designated truck routes through the City of Cypress are illustrated on Exhibit CIR-5 (referenced previously). Truck routes are established to designate specific roadways on which trucks may travel within and through the City. These routes direct trucks away from streets which are inappropriate or inadequate to serve substantial truck traffic. Trucks are allowed to access locations on Secondary and Local Streets for site deliveries (i.e. goods delivery or moving vans), however, they must take the most direct route to and from the designated truck routes.

KEY CIRCULATION ISSUES

A comprehensive network of regional freeways, local roadways, public transit routes, and rail lines serve the transportation needs of Cypress and surrounding jurisdictions. The following section identifies local and regional issues as they relate to the transportation system. Future traffic volumes under General Plan buildout are projected, and the ability of the General Plan circulation system to accommodate this traffic is evaluated.

REGIONAL ACCESS

Cypress enjoys good regional access via area freeways to the north, west, and south of the City. Access to these freeways is by arterial streets such as Katella Avenue, Valley View Street, Lincoln Avenue, and Knott Street. The greatest traffic volumes are borne by Katella Avenue and Valley View Street, which carry volumes approaching or in excess of their LOS "E" capacity. As employment increases in the Business Park and retail use expands along Lincoln Avenue, peak period congestion is anticipated that may in turn diminish the ease of freeway access. This is anticipated to be especially noticeable on Valley View and Knott Streets because of the interruption of the north-south grid pattern caused by the JFTC Los Alamitos.

ARTERIAL STREET SYSTEM

ROADWAY CLASSIFICATIONS

The existing City of Cypress arterial system and classifications are based on the County Master Plan of Arterial Highways (MPAH). The three classifications of arterials in Cypress are "Major", "Primary", and "Secondary". Brief descriptions of these classifications are provided below and street sections are illustrated in Exhibit CIR-6, *Standard Street Sections*.

Major Roadway

This classification calls for a 104-foot curb-to-curb width within a 120 feet of right-of-way. A six-lane, divided roadway can be provided within this street section. Based on County of Orange EMA standards, the estimated daily volume capacity for LOS "D" operations is 50,600 vehicles per day (vpd), and 56,300 vpd for LOS "E". Within the City of Cypress, Valley View Street, Lincoln Avenue, and Katella Avenue are classified as Major Roadways.

Primary Roadway

A Primary Roadway provides an 84-foot curb-to-curb width within 100 feet of right-of-way. This street section provides a four-lane, divided street with a LOS "D" capacity of 33,800 vehicles per

INSERT EXHIBIT CIR-6
"Standard Street Sections"

INSERT EXHIBIT CIR-7
"General Plan Arterial System"

day. Within the City of Cypress, Moody Street, Knott Avenue, Ball Road, and Cerritos Avenue are classified as Primary Roadways.

Secondary Roadway

A Secondary Roadway provides a 64-foot curb-to-curb width within 84 feet of right-of-way. A Secondary Roadway is a four-lane, undivided roadway with a daily LOS "D" capacity of 22,500 vehicles per day. City of Cypress streets that currently have a Secondary Roadway designation are Bloomfield Street, Denni Street, Walker Street, Holder Street, Crescent Avenue, Orange Avenue and Oranewood Avenue.

Exhibit CIR-7, *General Plan Arterial System*, illustrates the City's General Plan roadway designations and identifies locations where street segments have not yet been constructed. The analyses below evaluates the ability of the City's existing arterial system to accommodate the anticipated development allowed under the General Plan Land Use Plan.

FUTURE TRAFFIC VOLUMES

The Circulation Plan incorporates data from a number of sources, most importantly the Land Use Element, to design a balanced, functional, and efficient transportation system. The following section describes the assumptions utilized in the traffic study to determine the City's future transportation needs.

The Land Use Element is directly related to the Circulation Plan. To evaluate the ability of the Circulation Element to accommodate Buildout of the Land Use plan, the City was first divided into 35 land use areas. For traffic analysis purposes, these areas are referred to as Traffic Analysis Zones (TAZ). The layout of the TAZ system is shown on Exhibit CIR-8, *Transportation Analysis Zones*.

Within each TAZ, vacant and underutilized parcels were identified, and the type and quantity of potential land uses allowed by buildout of the General Plan Land Use Plan was quantified. Trip generation estimates of the amount of traffic that would be generated by this potential development were developed, using the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (6th Edition). The trip generation rates utilized in the analyses are summarized on Table 2 in Technical Appendix A. A summary of the potential development at buildout by TAZ, and the associated trip generation for that development is provided on Table 3 in Technical Appendix A.

TDM reductions were applied to the business park uses, reflecting the City's commitment to the development of alternatives to the single-person vehicle commute trip. In addition, reductions for "passby" traffic were applied to the retail trip generations. "Passby" traffic is a documented occurrence which accounts for vehicles that are already on the road system and simply make a mid-trip stop at a retail use (i.e. on the way home from work, a person stops at the grocery store or at a drive-through restaurant).

Net traffic generation was then distributed from each TAZ to other TAZ's in the city, and to areas outside the City of Cypress. Trip distribution assumptions were based on the locations of trip producers (residential areas) and trip attractors (employment, shopping, school, entertainment, and other uses), and the interrelationships between the two. Trip distribution assumptions also took into account the street system in place to carry project traffic, and accessibility to the area freeways.

INSERT EXHIBIT CIR-8
"Transportation Analysis Zones"

The resulting future daily traffic volumes on the arterial street system, assuming the buildout of the General Plan Land Use Plan are shown on Exhibit CIR-9, *Future Daily Traffic Volumes (2020)*. Buildout peak hour traffic volumes, which serve as a basis for the intersection analysis, are provided in the ICU worksheets contained in Appendix A in Technical Appendix A.

FUTURE LEVELS OF SERVICE

The City’s General Plan arterial system is shown on Exhibit CIR-7 (presented previously). The buildout roadway and right-of-way widths (shown in Exhibit CIR-6) are assumed to be in place for this future condition. A buildout analysis was conducted to determine if the future roadway system can accommodate the anticipated traffic volumes under buildout of the General Plan Land Use plan. As shown in Table CIR-4, *Summary of Roadway Operations for Buildout Conditions (2020)*, with the exception of one roadway segment, the projected traffic volumes do not exceed the planned roadway capacities, and the City’s roadway system will operate within the designated Level of Service standard for each roadway segment, when built out to its General Plan designations. The segment of Knott Avenue, between Cerritos and Katella Avenues will continue to operate at LOS “F” with the addition of buildout traffic. This segment of Knott Avenue is already built to its primary standards.

**Table CIR-4
SUMMARY OF ROADWAY OPERATIONS FOR
BUILDOUT CONDITIONS (2020)**

Roadway Segment	Existing Conditions	LOS “E” Capacity	ADT	V/C Ratio	LOS
CRESCENT AVENUE:					
West of Bloomfield Street	Secondary	25,000	12,596	0.50	A
Bloomfield Street to Moody Street	Secondary	25,000	12,740	0.51	A
Moody Street to Walker Street	Secondary	25,000	14,888	0.60	A
LINCOLN AVENUE:					
Bloomfield Street to Denni Street	Major	56,300	24,656	0.44	A
Denni Street to Moody Street	Major	56,300	29,000	0.52	A
Moody Street to Walker Street	Major	56,300	24,020	0.43	A
Walker Street to Valley View Street	Major	50,600	26,260	0.52	A
East of Valley View Street	Major	56,300	22,086	0.39	A
ORANGE AVENUE:					
Bloomfield Street to Denni Street	Secondary	25,000	10,866	0.43	A
Denni Street to Moody Street	Secondary	25,000	12,996	0.52	A
Moody Street to Walker Street	Secondary	25,000	15,484	0.62	B
Walker Street to Valley View Street	Secondary	25,000	15,548	0.62	B
Valley View Street to Holder Street	Secondary	25,000	15,570	0.62	B
BALL ROAD:					
Bloomfield Street to Denni Street	Primary	37,500	20,090	0.54	A
Denni Street to Moody Street	Primary	37,500	19,388	0.52	A
Moody Street to Walker Street	Primary	37,500	22,448	0.60	A
Walker Street to Valley View Street	Primary	37,500	20,520	0.55	A
Valley View Street to Holder Street	Primary	37,500	18,900	0.50	A
CERRITOS AVENUE:					
Bloomfield Street to Denni Street	Primary	37,500	24,276	0.65	B
Denni Street to Moody Street	Primary	37,500	23,038	0.61	B
Moody Street to Walker Street	Primary	37,500	26,266	0.70	B
Walker Street to Valley View Street	Primary	37,500	22,214	0.59	A
Valley View Street to Holder Street	Primary	37,500	16,498	0.44	A
Holder Street to Knott Avenue	Primary	37,500	16,114	0.43	A

**Table CIR-4
SUMMARY OF ROADWAY OPERATIONS FOR
BUILDOUT CONDITIONS (2020) - CONTINUED**

Roadway Segment	Existing Conditions	LOS "E" Capacity	ADT	V/C Ratio	LOS
KATELLA AVENUE:					
West of Valley View Street	Major	56,300	48,652	0.86	D
Valley View Street to Holder Street	Major	56,300	33,892	0.60	A
Holder Street to Knott Avenue	Major	56,300	32,312	0.57	A
ORANGEWOOD AVENUE:					
West of Valley View Street	Primary	37,500	2,200	0.06	A
Valley View Street to Holder Street	Primary	37,500	10,486	0.28	A
Holder Street to Knott Avenue	Primary	37,500	9,048	0.24	A
BLOOMFIELD STREET:					
Lincoln Avenue to Orange Avenue	Secondary	25,000	11,400	0.46	A
Orange Avenue to Ball Road	Secondary	25,000	14,966	0.60	A
Ball Road to Cerritos	Secondary	25,000	11,200	0.45	A
DENNI STREET:					
Lincoln Avenue to Orange Avenue	Secondary	25,000	8,014	0.32	A
Orange Avenue to Ball Road	Secondary	25,000	7,142	0.29	A
Ball Road to Cerritos	Secondary	25,000	8,536	0.34	A
MOODY STREET:					
North of Lincoln Avenue	Primary	37,500	20,756	0.55	A
Lincoln Avenue to Orange Avenue	Primary	37,500	21,206	0.57	A
Orange Avenue to Ball Road	Primary	37,500	16,170	0.43	A
Ball Road to Cerritos Avenue	Primary	37,500	11,130	0.30	A
WALKER STREET:					
North of Lincoln Avenue	Secondary	25,000	21,930	0.88	D
Lincoln Avenue to Orange Avenue	Secondary	25,000	22,042	0.88	D
Orange Avenue to Ball Road	Secondary	25,000	21,362	0.85	D
Ball Road to Cerritos Avenue	Secondary	25,000	18,712	0.75	C
Cerritos Avenue to Katella Avenue	Secondary	25,000	21,180	0.85	D
VALLEY VIEW STREET:					
Lincoln Avenue to Orange Avenue	Major	56,300	40,798	0.72	C
Orange Avenue to Ball Road	Major	56,300	42,592	0.76	C
Ball Road to Cerritos Avenue	Major	56,300	42,858	0.76	C
Cerritos Avenue to Katella Avenue	Major	50,600	47,478	0.84	D
Katella Avenue to Oranewood Avenue	Major	56,300	56,100	1.00	E
South of Oranewood Avenue	Major	56,300	51,518	0.92	E
HOLDER STREET:					
Lincoln Avenue to Orange Avenue	Secondary	25,000	8,632	0.35	A
Orange Avenue to Ball Road	Secondary	25,000	9,230	0.37	A
Cerritos Avenue to Katella Avenue	Secondary	25,000	8,730	0.35	A
Katella Avenue to Oranewood Avenue	Secondary	25,000	4,314	0.17	A
South of Oranewood Avenue	Secondary	25,000	6,200	0.25	A
KNOTT AVENUE:					
Cerritos Avenue to Katella Avenue	Primary	37,500	39,594	1.06	F
Katella Avenue to Oranewood Avenue	Primary	37,500	33,456	0.89	D
South of Oranewood Avenue	Primary	37,500	34,278	0.91	E
Note: V/C Ratio = Volume-to-Capacity Ratio					

INSERT EXHIBIT CIR-9
"Future Daily Traffic Volumes (2020)"

For the buildout intersection analysis, programmed intersection improvements are assumed to be in place. These include the addition of a southbound right-turn lane at the intersection of Ball Road and Valley View Street, and the addition of a fourth eastbound through lane at the intersection of Katella Avenue and Valley View Street. Buildout intersection analyses results are presented on Table CIR-5, *Intersection Analysis – Buildout Conditions (2020)*. The ICU worksheets are provided in Appendix A in Technical Appendix A. It should be remembered that the study intersections are located along Valley View Street, Lincoln Avenue, and Katella Avenue, for which the City has adopted an LOS standard of E. All intersections are projected to operate at LOS “E” or better in both peak hours. Even with buildout traffic added, 10 of the 13 intersections meet LOS “D” or better operations in both peak hours.

**Table CIR-5
INTERSECTION ANALYSIS
BUILDOUT CONDITIONS (2020)**

Intersection	Buildout Conditions			
	AM Peak Hour		PM Peak Hour	
	ICU	LOS	ICU	LOS
Lincoln / Bloomfield	0.49	A	0.52	A
Lincoln / Moody	0.58	A	0.80	C
Lincoln / Walker	0.69	B	0.99	E ⁽¹⁾
Lincoln / Valley View	0.69	B	0.85	D
Valley View / Orange	0.78	C	0.89	D
Valley View / Ball	0.92	E ⁽¹⁾	0.91	E ⁽¹⁾
Valley View / Cerritos	0.70	B	0.79	C
Valley View / Katella	0.77	C	0.88	D
Valley View / Oranewood	0.85	D	0.68	B
Katella / Lexington	0.58	A	0.59	A
Katella / Walker	0.82	D	0.84	D
Katella / Holder	0.45	A	0.67	B
Katella / Knott	0.78	C	0.95	E ⁽²⁾

(1) Intersection worsens from LOS “D” under Existing Conditions to LOS “E” with Buildout Traffic.
(2) Intersection remains at LOS “E”.

CMP, GMP, AND AQMP

The City of Cypress is eligible for Proposition 111 (CMP) and Measure M (GMP) funding, as long as it demonstrates compliance with program requirements. Both programs are directly linked to transportation issues, with requirements that new developments mitigate their traffic impacts on the surrounding street system.

Although the specific requirements of the CMP and GMP differ, both include issues such as Level of Service (LOS) standards, coordination with other jurisdictions, Transportation Demand Management (TDM) ordinances and application, monitoring of conditions, and mitigation of impacts. The AQMP supplements these two programs, although its focus is on achieving and maintaining air quality standards.

Overall, these programs acknowledge that land use, transportation, and air quality issues are all interrelated. The requirements under each of these programs serve to ensure a safe and efficient transportation system, which is a primary goal of the Circulation Element of a General Plan.

HOLDER AND DENNI STREETS

With a few exceptions, the street system within the City of Cypress is largely built out. Short sections of Holder Street and Denni Street are the two uncompleted connections of the arterial system identified in the Circulation Element. The incomplete segment of Denni Street (Lexington Drive) is a ¼-mile segment between the current terminus of Lexington Drive and Katella Avenue. Holder Street is incomplete over the Stanton Storm Channel, between Katella Avenue and Orangewood Avenue. Both links would provide additional north-south travel parallel to Valley View Street and Knott Avenue in the southern portion of the City.

The City of Cypress conforms to a typical grid street system, with generally ½-mile spacing between arterials. However, the city’s north-south arterials are interrupted by the Forest Lawn Cemetery, in the northwest corner of the City; and the Los Alamitos Race Track and the Joint Forces Training Center (JFTC) Los Alamitos at the south end of the City. Currently, there are no north-south streets connecting Katella Avenue and Cerritos Avenue between Walker Street and Bloomfield Street (a distance of about 1-1/2 miles). The Denni Street connection, at the west edge of the Los Alamitos Race Track would improve north-south circulation in this part of the City.

The Holder Street connection would help to mitigate circulation constraints caused by the JFTC Los Alamitos. The JFTC precludes north-south connections between Katella Avenue and the SR-22/I-405 Freeways to the west of Valley View Street, and the missing Holder Street bridge precludes same to the east of Valley View Street. As a result, access to the freeway, and north-south movement through the southern area of the City is limited to Valley View Street and Knott Avenue. Valley View Street is currently carrying over 51,000 vehicles per day (vpd) south of Orangewood. The completion of Holder Street over the Stanton Storm Channel would complete an arterial link, which would provide an alternative parallel route to Valley View Street and Knott Avenue, both of which currently meet relatively high traffic demands.

LINCOLN AVENUE

In recent years, the Lincoln Avenue corridor, which runs through the northern part of the city, has undergone a redevelopment and streetscape project to revitalize the area. The Lincoln Avenue Redevelopment Project Area extends from Bloomfield Street to Valley View Street. Streetscape features include landscaped medians, on-street parking, enhanced pedestrian features, and street chokers (or bulb-outs) with planters which effectively narrow the travel width of the street to four through lanes. These features are intended to reduce through traffic, slow visitor traffic, and enhance pedestrian movement through the revitalized shopping district. Lincoln Street remains classified as a six-lane major roadway, consistent with the County of Orange Master Plan of Arterial Highways (MPAH). City policy would allow removal of the bulb-outs to return the street to six-lane operation, should future traffic volumes warrant.

BUS SYSTEM

Exhibit CIR-3 (previously referenced) shows that the business park and retail uses along Katella Avenue and Valley View Street have existing bus services. As these areas develop in the future and efforts are increased to reduce dependence on the single occupancy vehicle, there may be an increased need for expanded bus service. As urban rail develops in the West Orange County

area, expanded bus service can also provide feeder service between rail stations, park-and-ride lots, and the Cypress Business Park area.

BIKEWAY SYSTEM

Generally, the existing bikeway system serves most areas of the City, including the Cypress Business Park area. Completion of the bikeway system, to include all schools, community civic centers, service areas, parks, employment centers and regional bike paths should be strived for.

JOINT FORCES TRAINING CENTER (JFTC) LOS ALAMITOS

In the strictest sense, Joint Forces Training Center (JFTC) Los Alamitos is not a major regional transportation facility because it does not directly service the City's civilian population, and is limited exclusively to military aircraft operations. The facility does serve as a major emergency evacuation point for the region, and as such should be regarded as a significant element in the City's overall transportation and circulation system.

DESCRIPTION OF THE CIRCULATION PLAN

The "Circulation Issues" section in this Element identifies the long-term transportation and circulation concerns in Cypress. This section describes the strategies that the City will pursue to address these issues and to develop a balanced transportation system that meets the future mobility needs of Cypress residents, as well as the business sector's demand to move goods most efficiently and effectively.

MASTER PLAN OF STREETS

The City's existing General Plan Arterial System is presented in Exhibit CIR-7.

Review of projected daily traffic volumes and evaluation of intersection capacities under General Plan buildout indicate the City's current Master Plan of Streets is adequate to accommodate future growth. While one roadway segment on Knott Avenue will exceed the LOS "E" daily traffic volume capacity, the adjacent intersection of Katella Avenue and Knott Avenue will operate at LOS "E" or better with buildout traffic volumes.

The intersection analysis indicates that minimum LOS "E" or better operations can be provided at all study intersections. Many of the intersections are projected to operate at LOS "C" or better under buildout conditions.

As the City's circulation system is anticipated to be operating at capacity conditions at certain key locations, it will be imperative to closely evaluate and monitor development as it occurs to determine its impacts on the surrounding street system. The specific types and sizes of future projects will influence the related traffic impacts. This indicates the need to balance land use decisions with the potential traffic impacts.

PUBLIC TRANSPORTATION PLAN

The proposed urban rail system within Orange County could have significant beneficial effect on traffic conditions in Cypress, given the substantial employment base along Katella Avenue and Valley View Street. Benefits could be expanded by the West Orange County Cities Association, which is investigating the feasibility of an urban rail system serving western Orange County. The

actual location of the rail lines and accompanying stations will also greatly influence future bus routes.

Given the TDM goals adopted by the City, particularly in the Business Park area of the City, public transportation is anticipated to play a vital role. With regard to bus service, city planners and developers will need to take an active role in incorporating bus stops into new development, and expanding bus service which will meet future travel demands. Development of the rail systems will also need to be monitored to determine how they can be best utilized to meet the TDM goals.

TRUCK ROUTE PLAN

The existing Truck Route Plan, shown on Exhibit CIR-5, serves the needs of the City and no beneficial modifications are apparent at this time.

BIKEWAYS AND SIDEWALK FACILTIES PLAN

While the existing bikeway system serves most areas of the City, a goal should be to provide the highest quality of bikeways possible along these routes, given the individual needs. For example, under existing conditions, there are individual locations where bicycle lanes and on-street parking occur at the same location, with each allowed at different times of the day. While this is allowable by Caltrans standards, wherever possible, as the Bikeway System is built out, the bikeway should be upgraded to either an exclusive bicycle lane, or an off-road bikeway. Future extensions to the Bike Path Systems are illustrated on Exhibit CIR-10, *Bike Path Plan*. The proposed systems provide additional access to recreation and open space resources, as well as to commercial and employment centers in the City.

It also should be noted that some bicycle paths are currently designated on sidewalks, which is acceptable per the California Vehicle Code, given that a City ordinance has been passed to allow this operation. Sufficient sidewalk width should be provided to serve both bicycles and pedestrians. The County of Orange assumes that a 10-foot sidewalk indicates a bicycle route on the sidewalk.

Sidewalks should be provided along all arterials to promote walking as an alternative to vehicle transportation. As mentioned above, adequate sidewalk widths will be required, if it is also planned to facilitate bicycles. If new development occurs where sidewalks are not provided, they should be included as a condition of the development, unless there are special circumstances.

GOALS AND POLICIES

Circulation Element goals and policies define the City's vision for a balanced, efficient circulation system which incorporates many modes of travel and which allows for the safe movement of people and goods in and around Cypress. These goals recognize the constraints posed by the existing built environment, but also capitalize upon the opportunities created by established transportation routes. Through these goal statements, the City also lends it support to regional, long-range efforts to manage congestion and reduce pollutant emissions within the South Coast Air Basin.

INSERT EXHIBIT CIR-10
"Bike Path Plan"

BALANCED, FUNCTIONAL, AND EFFICIENT STREET SYSTEM

- CIR-1: Maintain a safe, efficient, economical, and aesthetically pleasing transportation system providing for the movement of people, goods, and services to serve the existing and future needs of the City of Cypress.
 - CIR-1.1: Respond to transportation problem areas with efforts to implement both interim and long-term solutions.
 - CIR-1.2: Participate in transportation planning efforts which involve other governmental agencies, mandated programs, and regulations in order to minimize environmental impacts related to transportation and to enhance transportation systems.
 - CIR-1.3: Encourage development which contributes to a balanced land use, which in turn serves to reduce overall trip lengths (i.e. jobs/housing balance, locate retail in closer proximity to resident/patrons).
 - CIR-1.4: Require new development to conform to the standards and criteria of the City of Cypress and other mandated programs. This includes mitigation of traffic impacts to the surrounding street system.
 - CIR-1.5: The City of Cypress will continue involvement in plans and programs related to the Circulation Element. This involvement is anticipated to result in traffic studies to be undertaken by City staff, to identify specific circulation programs and improvements to be implemented, in order to satisfy the various related programs.
 - CIR-1.6: Encourage the development of aesthetic streetscapes to promote a positive City image and provide visual relief.
 - CIR-1.7: Maintain consistency between the City Circulation Element and the Orange County Master Plan of Arterial Highways (MPAH).

Related Goals and Policies: Refer to Goal GM-1 and GM-2 and their associated policies in the Growth Management Element. Goal GM-1 addresses reducing traffic congestion, while Goal GM-2 addresses adequate transportation facilities.

ALTERNATIVE MODES OF TRANSPORTATION

- CIR-2: To facilitate alternative modes of transportation, including public transportation, bicycles, ridesharing, and pedestrians, to support the land use plans and related transportation needs.
 - CIR-2.1: Encourage development and improvements which incorporate innovative methods of accommodating transportation demands.
 - CIR-2.2: Give high priority to the establishment of a high-quality public transit system that minimizes dependency on the automobile.

- CIR-2.3: Ensure that effective Transportation Demand Management (TDM) measures and programs are being implemented.
- CIR-2.4: Encourage development and site design which facilitate implementation of high quality, desirable bicycle routes which meet or exceed established standards.
- CIR-2.5: Implement adequate sidewalks to meet the required uses and needs, which serves to encourage alternative modes of transportation. Bicycle routes which utilize sidewalks require establishment of a City ordinance, per the Vehicle Code.
- CIR-2.6: Respond to increases in demand for additional bus service through interaction with OCTA and other available resources.
- CIR-2.7: Implement plan to install handicap access ramps to improve disabled access to transportation facilities.
- CIR-2.8: Enhance the sidewalk environment to encourage pedestrian activities through streetscape and transit enhancement programs.
- CIR-2.9: Enhance transit environment by improving passenger loading sites by providing bus benches, safety lighting and other projects to enhance bus stops.

Related Goals and Policies: Refer to Policy LU-13.5 and Goal LU-19 and its associated policies in the Land Use Element. Policy LU-13.5 calls for the City of Cypress to support rail feasibility, while Goal LU-19 and Policies LU-19.1 through LU-19.3 address the need to diversify transportation choices. Also refer to Goal AQ-1 and Policies AQ-1.3 through AQ-1.6, which call for ways to reduce vehicle trips through land use planning.