



# FULLERTON PARK-AND-RIDE

## *JOINT DEVELOPMENT STUDY REPORT*

ATTACHMENT E

Fullerton Park-and-Ride  
Orange County Transportation Authority  
Fullerton, CA  
March 2020

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Orange County Transportation Authority

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# 01 EXECUTIVE SUMMARY

## 1.1 EXECUTIVE SUMMARY

The Orange County Transportation Authority (OCTA) is considering development options on its 11.1 acre Fullerton Park-and-Ride property (Site). The property's parking lots are currently underutilized, presenting the potential for development while retaining its role as a multi-modal transit hub. OCTA has retained a consultant team comprised of IBI Group, Economic & Planning Systems, Inc. (EPS) and VCA Engineers to support the transit agency in exploring the Site's development potential.

The facility serves as a regional transfer point for OCTA and Los Angeles County Metropolitan Authority (Metro) bus operations. The facility provides a total of 745 parking spaces, including 29 ADA spaces to Park-and-Ride customers.

OCTA's primary goals for the site's development are as follows:

- Identify land uses that would complement transit and Park-and-Ride usage at the site
- Provide additional revenues for OCTA
- Support the City of Fullerton and local neighborhood with desirable developments
- Provide services to the transit riders

These primary goals are implemented through conceptual land use plans along with parking configurations, an economic market study and recommendations for development options on the site. These concept plans:

- Reflect City and local developer input
- Evaluate the market-rate and affordable/supportive housing types
- Allow design and development flexibility through the use of districts
- Encourage a mixture of uses (retail, residential, offices, affordable housing, supportive services)
- Provide accessible open spaces along the site
- Encourage a refined parking system

Keeping the OCTA parking requirements (409 stalls) in mind, only a portion of the site could be built with surface parking supporting it, as of now. In the near future, structured parking strategies need to be explored in order to support more intense development of the site. A phased approach to development of the site is also recommended with options for shared parking.

Overall, the purpose of this document is to set forth the vision, and present options along with next steps that will help determine the future development potential of the site. Graphic depictions used in this report are for illustrative purposes only. They are not intended to depict actual buildings but are a demonstration of the site development.



Figure 1.1. Fullerton park-and-Ride Site

# 02 INTRODUCTION

## 2.1 INTRODUCTION

*Data Source: EPS*

The Orange County Transportation Authority (OCTA) is considering development options on its Fullerton Park-and-Ride property (Site) at the southwest corner of Orangethorpe and Magnolia Avenues. Although the Site is a functioning Park-and-Ride facility servicing several OCTA and Metro bus routes, the property's parking lots are underutilized, presenting the potential for development while retaining its role as a multi-modal transit hub.

The purpose of this report is to identify redevelopment strategies that will provide a framework for generating revenue, increasing transit ridership for the OCTA Fullerton Park-and-Ride facility and to help meet community needs.

## 2.2 STUDY GOALS

- Identify land uses that would complement transit and Park-and-Ride usage at the site
- Provide additional revenues for OCTA
- Support the City of Fullerton and local neighborhood with desirable developments
- Provide services to the transit riders

## 2.3 SCENARIO OBJECTIVES

The following objectives will be used to achieve the study's goals:

### **Transit and Rideshare Operations**

- Accommodate multimodal connections
- Provide curb drop-off areas
- Support Transit-Oriented Development
- Improve transit amenities

### **Site Development**

- Provide legible and predictable circulation for all modes
- Enhance security
- Provide complementary land-uses that support on-site transit, residential, and office use

### **Economics**

- Generate new revenue streams for OCTA
- Provide economic sustainability and stability
- Flexibility to adapt to market conditions
- Provide housing options that address market needs

### **Community**

- Emphasize the community context
- Provide communal spaces for neighborhood uses



## 2.4 REGIONAL CONTEXT

Site's location is on the north side of the I-5 and SR-91 interchange, providing convenient access to employment and population centers, as well as commercial destinations in Orange County and beyond. Please refer to the appendix section 7.1 for more details.

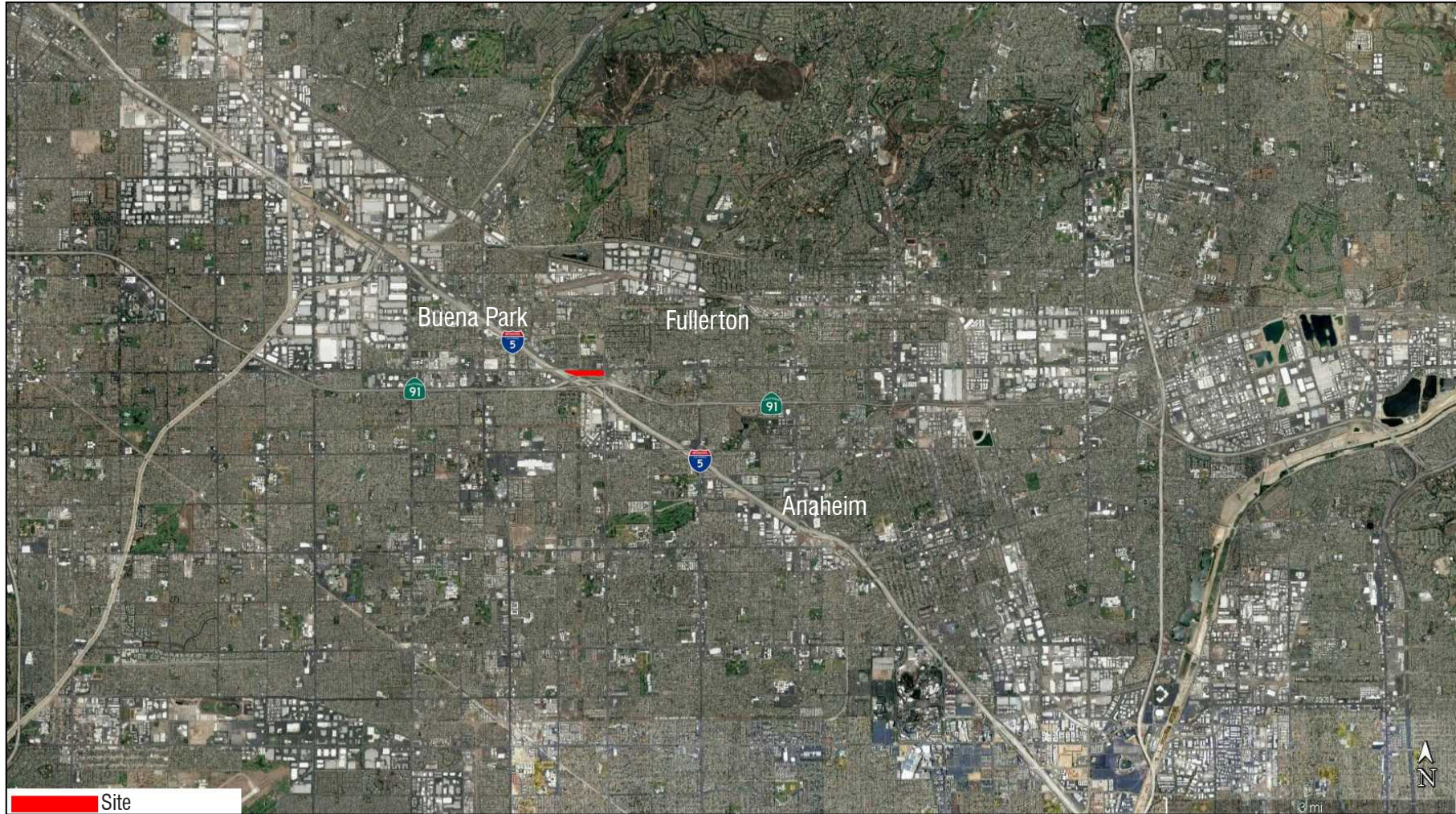


Figure 2.1. Regional Context

Data Source: Google Earth



## 2.5 SITE CONTEXT

The Site is located at the southwest corner of Orangethorpe Avenue and Magnolia Avenue, two major thoroughfares in North Orange County, as illustrated in Figure 2.2. It is a linear site with an overall area of 11.1 acres with 745 surface parking stalls. Please refer to the appendix section 7.1 for more details.

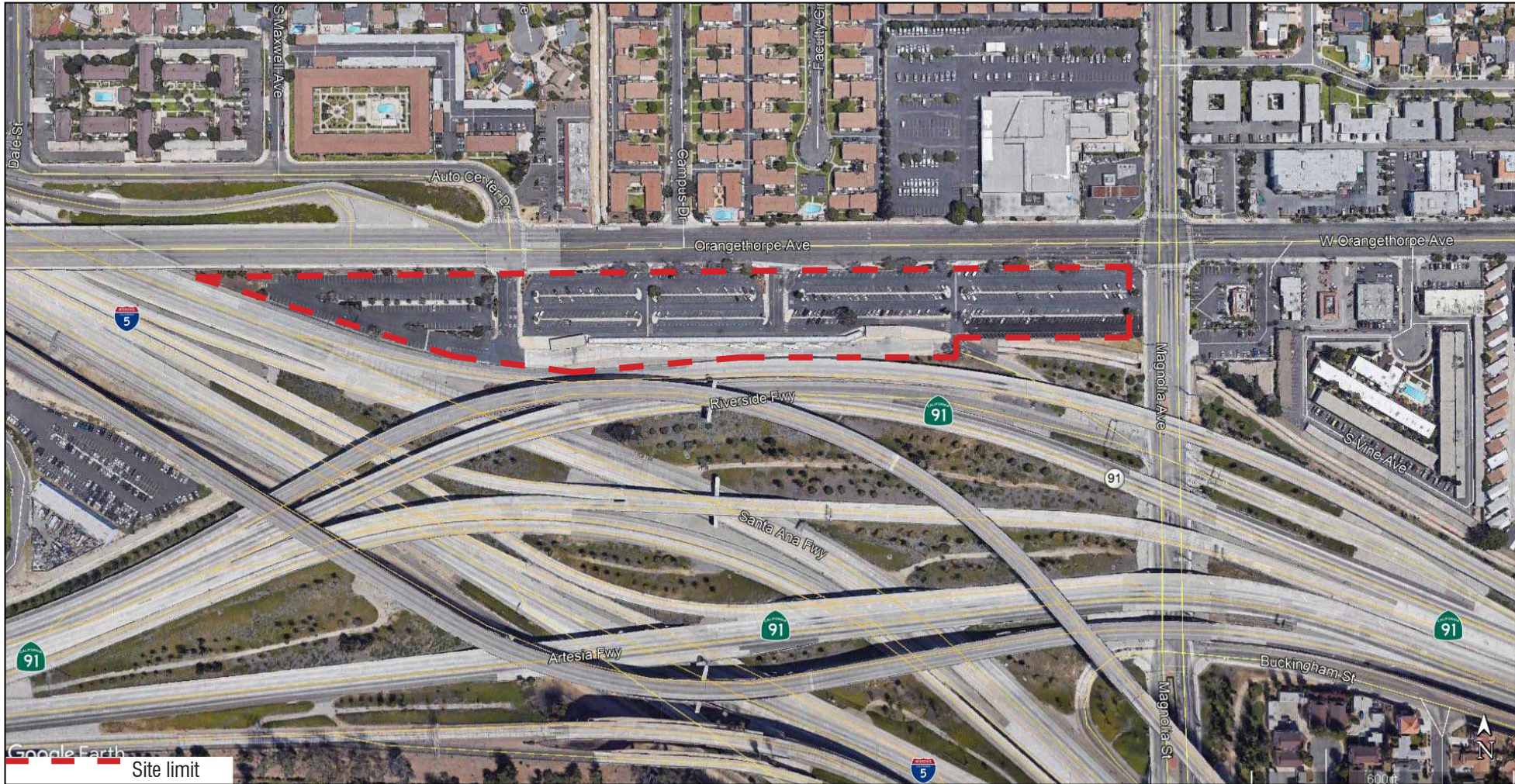


Figure 2.2. Aerial view of Fullerton Park-and-Ride site

Data Source: Google Earth



## 2.6 TRANSIT NETWORK

Seven OCTA bus routes and one LA Metro bus route serve the Fullerton Park-and-Ride site, as illustrated in Figure 2.3. Buses currently enter the site via the 91 West Freeway/Park-and-Ride entrance ramp, just south of the Park-and-Ride off Magnolia Street, or through the access driveways along Orangethorpe Avenue. Route 30 is the only route that does not enter the site, as it passes along Orangethorpe Avenue. Once at the Fullerton Park-and-Ride site, buses dock at one of fourteen existing bus bays located along the southern edge of the site. The Fullerton Park-and-Ride has covered bus bays for seven routes, including routes to Anaheim (including Disneyland), Buena Park (including Knott's Berry Farm), Placentia, Stanton, Westminster, Fountain Valley, Anaheim, Garden Grove, and Huntington Beach. Express bus service is offered to and from Los Angeles six times daily. In addition, OCTA recently introduced the Bravo! 529 rapid bus route that originates at the Fullerton Park-and-Ride and extends south to the Goldenwest Transportation Center. The site is easily accessible from local freeways via the I-5/Magnolia interchange. Please refer to the appendix section 7.1 for more details.

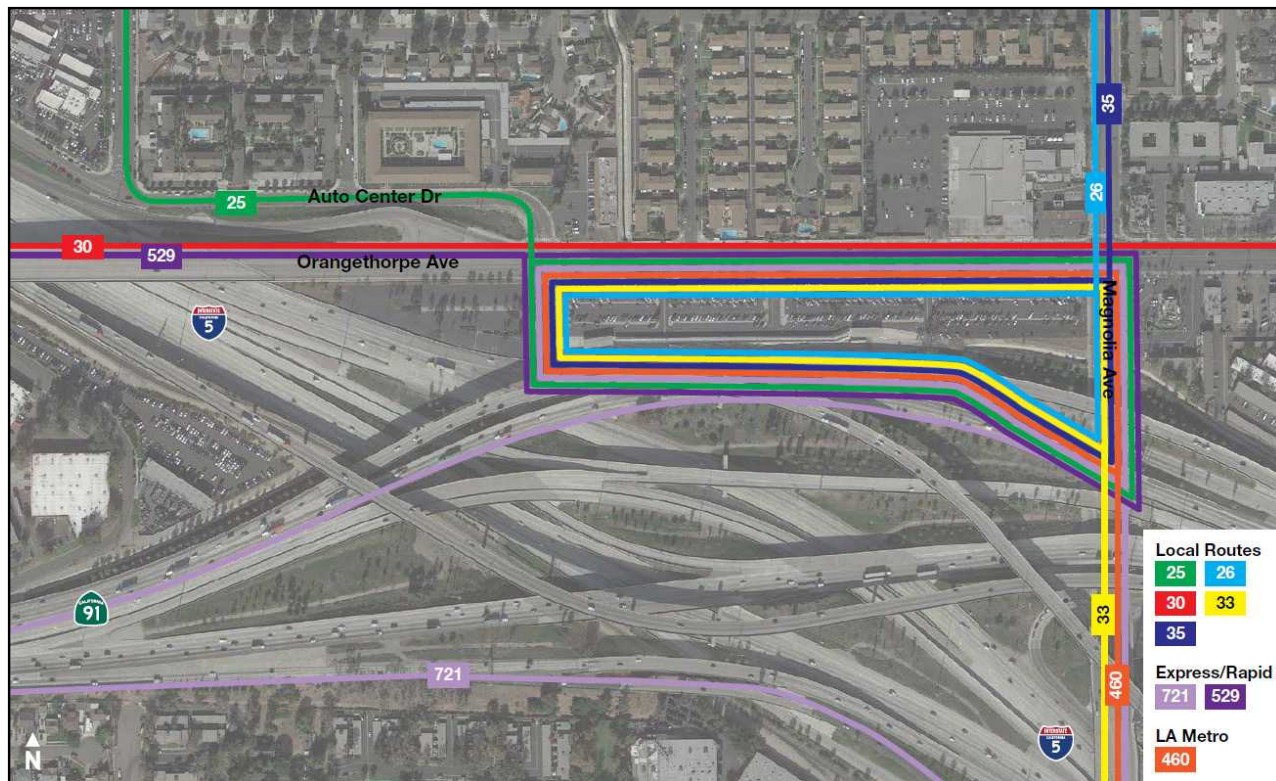


Figure 2.3. Fullerton Park-and-Ride Transit Network

2.7 EXISTING LAND USE

The area within a half-mile radius of the Fullerton Park-and-Ride site consists of mostly commercial, multi-family residential, single family residential, and public facilities uses. Figure 2.4. illustrates the various land uses within a half-mile radius of the Fullerton Park-and-Ride site as set forth by the City of Fullerton Zoning Code. Please refer to the appendix section 7.1 for more details.

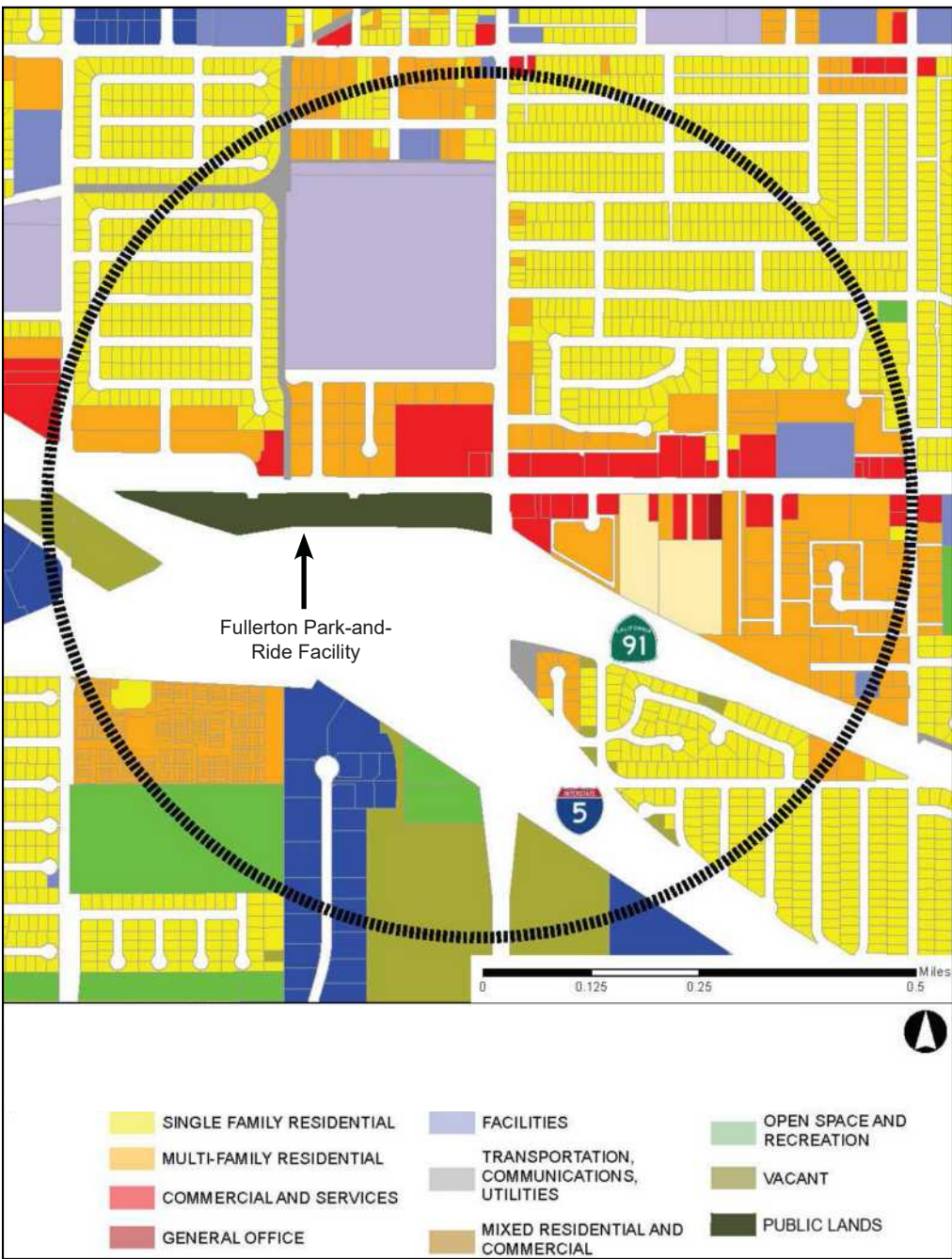


Figure 2.4. Fullerton Park-and-Ride Adjacent Land Use

## 2.8 PARKING OCCUPANCY

The survey reported peak parking demand occurred from 8:00 AM to 11:00 AM with an occupancy rate of approximately 46%, as illustrated in Table 2.1.

## 2.9 SITE ACCESS MODE SPLIT

An evaluation of the AM peak period shows a majority of users, approximately 54%, drove and parked at the Fullerton Park-and-Ride site before riding transit. In contrast, during the PM peak period, a majority of users, approximately 57%, were dropped off at the Fullerton Park-and-Ride site, as illustrated in Figure 2.5. and Figure. 2.6.

TIME	09/19/2018 SURVEY	
	OCCUPIED SPACES	PERCENTAGE
7:00 AM	311	42%
8:00 AM	345	46%
9:00 AM	346	46%
10:00 AM	337	45%
11:00 AM	341	46%
12:00 PM	330	44%
1:00 PM	332	45%
2:00 PM	319	43%
3:00 PM	305	41%
4:00 PM	266	36%
5:00 PM	188	25%
6:00 PM	144	19%

Table 2.1. Parking Occupancy Survey

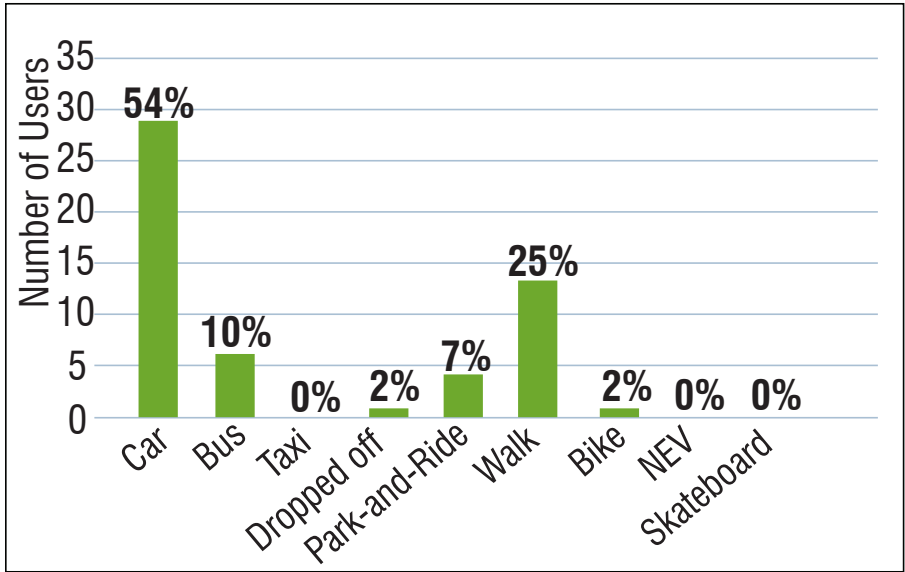


Figure 2.5. Modal Share – AM Peak

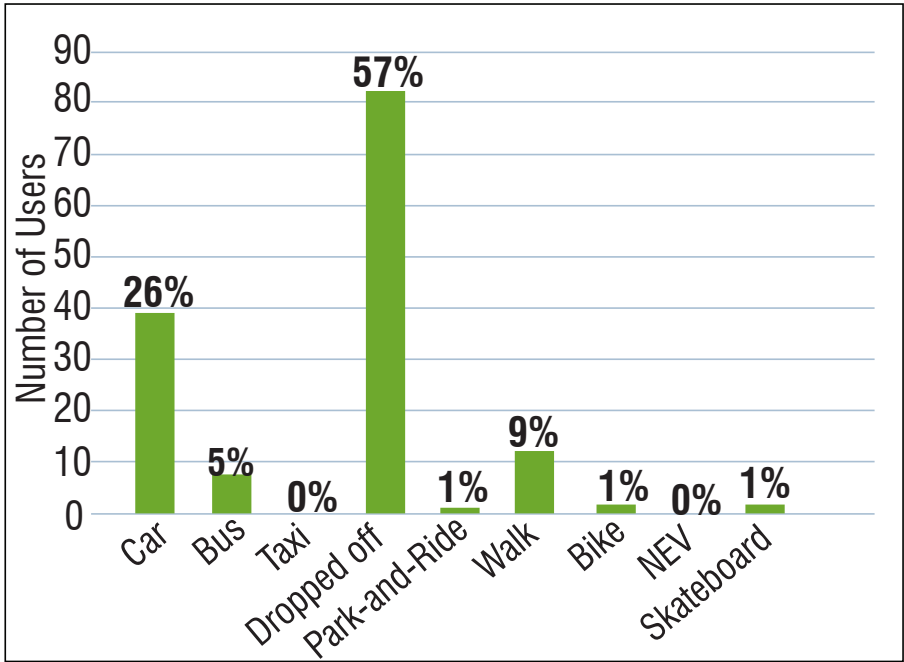


Figure 2.6. Modal Share – PM Peak



## 2.10 SITE CONSTRAINTS

- OCTA doesn't own the land around the Park-and-Ride
- Free parking encourages driving and doesn't allow for revenue capture from parking fees
- Multiple parties are not communicating their interests and needs for this site, missing joint planning opportunities
- Private transit operators function separately
- OCTA may be financially constrained to buy more land for transit parking
- The site is physically constrained by the freeway and existing development and there is no undeveloped land in the vicinity

## 2.11 SITE OPPORTUNITIES

- Excess parking supply can be redeveloped
- Community and local employer participation in the planning process
- Convert a portion of parking for a Park and Fly operation
- 'Redesign Fullerton Park-and-Ride to better serve future bus operation
- Adjust parking to meet current and future needs while promoting flexibility in design
- Explore the potential of revenue capture opportunities
- Formalize shared use agreements with various transit operators
- Improve the environment and public health with more opportunities to walk and bicycle
- Integrate facilities, amenities, and signage for all users into redevelopment plans



Figure 2.7. Axonometric view of the site

Data Source: Google Earth

## 2.12 STUDY AREA



Figure 2.8. Site, looking east from the existing facilities



Figure 2.9. Site, looking east from Magnolia Avenue



Figure 2.10. Site, looking east from Orangethorpe Avenue



Figure 2.11. Site, looking north east from Orangethorpe Avenue





Figure 2.12. North view from site, looking across Orangethorpe Avenue



Figure 2.13. Site, looking north west from existing facilities



Figure 2.14. Existing Facilities



Figure 2.15. Site, looking north east from existing facilities

# 03 CONCEPTS

## 3.1 CONCEPTS

Concepts were initially crafted and then narrowed to the final seven presented in this section of the report. These seven concepts:

- Evaluate market-rate and affordable/supportive housing types
- Reflect City and local developer input
- Create a range of configurations by creating districts which can be interchanged, phased, and adjusted to allow versatility for potential future development partners
- Encourage a mixture of uses (retail, residential, offices, affordable housing, supportive services) which not only complements the neighborhood built scale but also reflect the market study
- Allow for phased, efficient development that can be adjusted according to the market demand
- Provide accessible open spaces along the site for short term programming for the community
- Encourage a refined parking system to accommodate existing services and future development requirements



Figure 3.1. Site, looking east from existing facilities



3.2 LINEAR



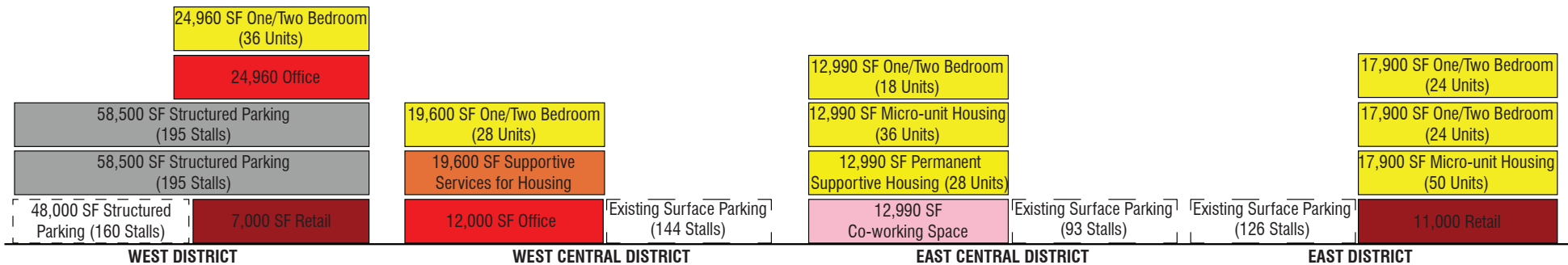
Figure 3.2. Rendered view, looking west from Orangethorpe Avenue

ELEMENT	STRENGTHS	WEAKNESSES
BUS OPERATIONS	Retains the existing bus circulation layout	-
CIRCULATION	Retains the existing bus parking (10 bus pads)	-
COMMUNITY	Addresses the goal of community by satisfying demands of affordable housing and supportive services	Lack of proper transition between areas with different types of land uses
DEVELOPMENT DENSITY	Consistent with the market study demand analysis	Difficult to meet the criteria of +/- 150 Units/district
ECONOMICS	-	Requires shared land-uses between districts to meet +/- 150 unit requirement
PARK-AND-RIDE	Distinct Park-and-Ride allocated near the bus parking	-
PARKING	Retains the existing surface parking	Large, uninviting parking areas
PUBLIC SPACE	-	Core of activity missing around the bus parking

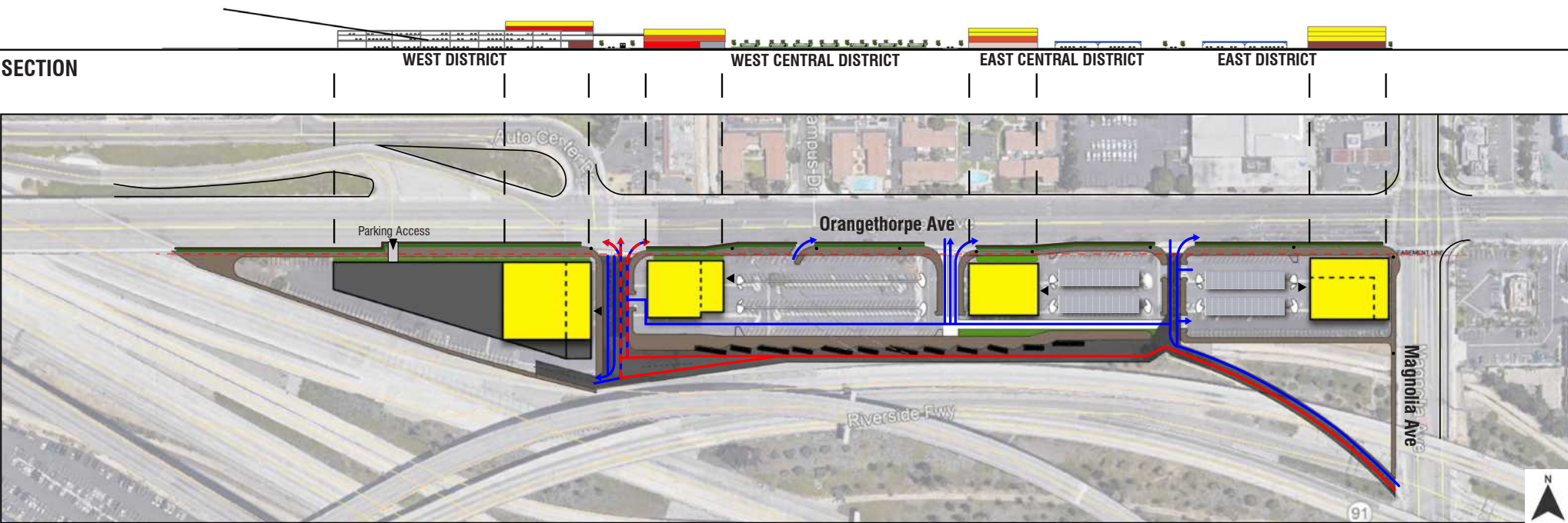
Table 3.1. Strength and Weakness Analysis

Required	+/- (37-44) Stalls	31 Stalls	71 Stalls	OCTA 265 Stalls	139 Stalls Available	34 Stalls	56 Stalls	+/- (28-34) Stalls	OCTA 144 Stalls	+/- (48-55) Stalls	39 Stalls	+/- (129-84) Stalls	49	
Provided	550 Stalls					124 Stalls Required	144 Stalls		93 Stalls		7 Stalls Required			126

PARKING ALLOCATION



BREAKDOWN BY LEVELS



PLAN (linear)

- Bus movements
- Auto movements
- Shared lane
- Sidewalk
- One way bike lane
- Planting strip/buffer
- Pedestrian bridge
- Building access
- Flood control easement
- Powerline pole
- Pick up / drop off zone
- Solar carports
- Structured parking
- Proposed bus park with transition plaza
- Plaza/ Event space/ Multipurpose area
- Transit facilities
- Office
- Residential
- Community retail
- Co-working Space
- Supportive Services for Housing

Summary	Area (SF)	Area/Unit or Stall (SF)	Units	Stalls
One/Two Bedroom Unit	93,350	700	130	160
Micro-unit	30,890	350	88	44
Permanent Supportive Housing	12,990	450	28	14
Supportive Services for Housing	32,590			93
General & Community Retail	18,000	-	-	79
Co-working Space	12,990	-	-	37
Office	36,960	-	-	105
OCTA Stalls Required	-	-	-	409
Non OCTA Stalls Required	-	300	-	497
Total Stalls Required	-	-	-	906
Total Stalls Provided	-	-	-	913

Not To Scale

### 3.2.1 PROFORMA (LINEAR OPTION)\*

Data Source: IBI Group, CoStar, Saylor's Current Construction Costs 2018, EPS

Item	Land Use						
	Apartments	Micro Units	Permanent Supportive Housing	Office	Retail	Private Structured Parking	OCTA Structured Parking
<b>Revenues</b>							
Annual Net Operating Income	\$1,909,309	\$720,762	\$0	\$1,284,449	\$393,984		
Desired Yield on Cost*	5.50%	5.50%	5.50%	7.50%	7.50%		
Net Building Value (Supportable Development Costs)	\$34,714,716	\$13,104,756	\$0	\$17,125,992	\$5,253,120		
Net Building Value per Unit/Building SF	<b>\$267,036</b>	<b>\$152,381</b>	<b>\$0</b>	<b>\$246.24</b>	<b>\$291.84</b>	<b>N/A</b>	<b>N/A</b>
<b>Costs</b>							
Total Development Costs	\$29,672,994	\$10,715,940	\$4,176,533	\$15,829,024	\$3,509,818	\$16,153,800	\$1,831,200
TDC per Residential Unit/Commercial SF/Stall	<b>\$228,254</b>	<b>\$124,604</b>	<b>\$149,162</b>	<b>\$227.59</b>	<b>\$194.99</b>	<b>\$32,700</b>	<b>\$32,700</b>
<b>Land Value</b>							
Supportable Residual Land Value	<b>\$5,041,722</b>	<b>\$2,388,816</b>	<b>\$0</b>	<b>\$1,296,968</b>	<b>\$1,743,302</b>	<b>-\$16,153,800</b>	<b>-\$1,831,200</b>
Land Value per Unit or Bldg SF	\$38,782	\$27,777	\$0	\$18.65	\$96.85		
<b>SUM OF TOTAL PROGRAM LAND VALUES</b>				PRIVATE	<b>\$10,470,808</b>	PARKING	<b>-\$17,985,000</b>
Starting Annual Ground Lease at 6% of Value					\$628,248		
Annual Debt Service on Parking Costs**							-\$1,169,950
Years of Ground Lease Payment until OCTA Parking Costs are Repaid***							38
<b>NPV of OCTA Revenues over 50 Years at 5% Discount Rate</b>							<b>-\$1,958,727</b>

Table 3.2. Proforma Summary (Linear Option)

\*Based on recent property sale transactions in the area and EPS professional judgment.

\*\*Assumes OCTA issues debt for full structured parking cost at 5% interest with 30-year amortization.

\*\*\*Assumes ground lease payments escalate 2% annually while debt service payment remain constant.

## ASSUMPTIONS

*Data Source: IBI Group, CoStar, Saylor's Current Construction Costs 2018, EPS*

[1] For these calculations, the parking costs for housing and commercial spaces are assumed to be provided as structured parking. Site plan shows 550 structured parking spaces and 363 retained surface spaces.

[2] Based on CoStar market research for smaller units, with 10% premium for new construction.

[3] All Building Direct Costs assume prevailing wage requirements and are based on the following sources:

- Residential based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Apartment, 4-7 stories, plus a 10% premium per sq. ft. for micro units.

- Office based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles.

- Retail based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Store, Retail, less an assumed savings of \$25 because the proposed retail is in the ground floor of residential and garage buildings.

- Structured parking based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Garage, Parking



*Figure 3.3. Rendered view of the proposed bus parking*



### 3.3 LAYERED



Figure 3.4. Built form context

ELEMENT	STRENGTHS	WEAKNESSES
<b>BUS OPERATIONS</b>	14 bus pads with a layered parking layout	Requires a disruption to existing bus service to change operational configuration
<b>CIRCULATION</b>	Centralizes bus operations thereby reducing the walking distances from parking areas.	Disrupts the existing bus layout
<b>COMMUNITY</b>	Addresses the goal of community by satisfying demands of affordable housing and supportive services	-
<b>DEVELOPMENT DENSITY</b>	High-density development allowing for more residents and employees thereby increasing transit ridership	-
<b>ECONOMICS</b>	-	Requires structured parking for full buildout
<b>PARK-AND-RIDE</b>	-	Requires a parking structure to support the density
<b>PARKING</b>	Parking structure wrapped with active uses. Distinct parking areas defined by uses	-
<b>PUBLIC SPACE</b>	Increased open space opportunities	Core of activity missing around the bus parking

Table 3.3. Strength and Weakness Analysis

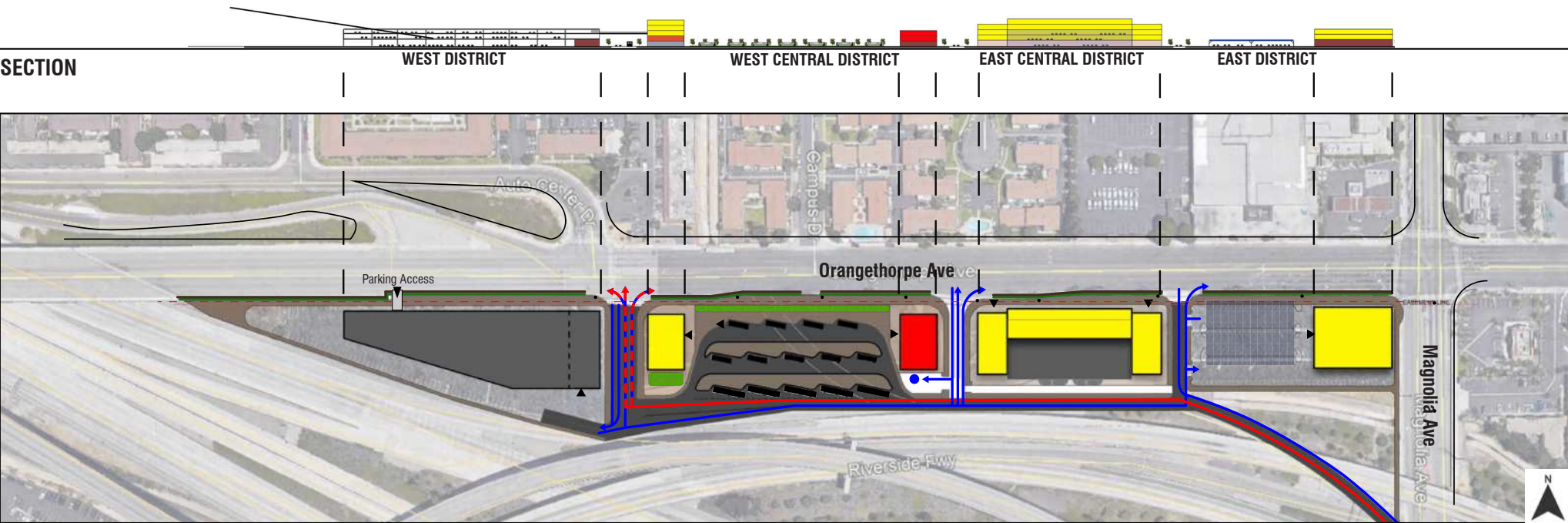


Required	+/- (15-18) Stalls	66 Stalls	41 Stalls	OCTA 409 Stalls	20 Stalls	+/- (164-188) Stalls	53 Stalls	4 Stalls Available	+/- (46-59) Stalls	77 Stalls
Provided	550 Stalls				4 Stalls Required	241 Stalls		140 Stalls		

PARKING ALLOCATION

				26,600 SF One/Two Bedroom (38 Units)						
				26,600 SF One/Two Bedroom (38 Units)						
58,500 SF Structured Parking (195 Stalls)	7,200 SF Permanent Supportive Housing (16 Units)	7,200 Office	26,600 SF One/Two Bedroom (38 Units)	26,400 SF Structured Parking (88 stalls)	17,370 SF One/Two Bedroom (50 Units)					
58,500 SF Structured Parking (195 Stalls)	7,200 SF Micro unit Housing (20 Units)	7,200 Office	26,600 SF One/Two Bedroom (38 Units)	26,400 SF Structured Parking (88 stalls)	17,370 SF One/Two Bedroom (50 Units)					
48,000 SF Structured Parking (160 Stalls)	7,600 SF Retail	7,200 SF Supportive Services for Housing	7,200 Retail	18,290 SF Co-working Space	19,500 SF Structured Parking (65 stalls)	Existing Surface Parking (126 Stalls)	17,370 Retail			
WEST DISTRICT			WEST CENTRAL DISTRICT		EAST CENTRAL DISTRICT		EAST DISTRICT			

BREAKDOWN BY LEVELS



PLAN (layered)

- Bus movements
- Auto movements
- Shared lane
- Sidewalk
- One way bike lane
- Planting strip/buffer
- Pedestrian bridge
- Building access
- Flood control easement
- Powerline pole
- Pick up / drop off zone
- Solar carports
- Structured parking
- Proposed bus park with transition plaza
- Plaza/ Event space/ Multipurpose area
- Transit facilities
- Office
- Residential
- Community retail
- Co-working Space
- Supportive Services for Housing

Summary	Area (SF)	Area/Unit or Stall (SF)	Units	Stalls
One/Two Bedroom Unit	141,140	700	200	246
Micro-unit	7,200	350	20	10
Permanent Supportive Housing	7,200	450	16	8
Supportive Services for Housing	7,200			20
General & Community Retail	32,170	-	-	142
Co-working Space	18,290	-	-	52
Office	14,400	-	-	41
OCTA Stalls Required	-	-	-	409
Non OCTA Stalls Required	-	300	-	519
Total Stalls Required	-	-	-	928
Total Stalls Provided	-	-	-	931

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### 3.3.1 PROFORMA (LAYERED OPTION)\*

Data Source: IBI Group, CoStar, Saylor's Current Construction Costs 2018, EPS

Item	Land Use						
	Apartments	Micro Units	Permanent Supportive Housing	Office	Retail	Private Structured Parking	OCTA Structured Parking
<b>Revenues</b>							
Annual Net Operating Income	\$2,919,925	\$170,932	\$0	\$736,689	\$704,137		
Desired Yield on Cost*	5.50%	5.50%	5.50%	7.50%	7.50%		
Net Building Value (Supportable Development Costs)	\$53,089,554	\$3,107,847	\$0	\$9,822,514	\$9,388,493		
Net Building Value per Unit/Building SF	<b>\$265,448</b>	<b>\$155,392</b>	<b>\$0</b>	<b>\$246.24</b>	<b>\$291.84</b>	<b>N/A</b>	<b>N/A</b>
<b>Costs</b>							
Total Development Costs	\$45,379,200	\$2,541,330	\$2,314,937	\$9,078,645	\$6,272,825	\$16,971,300	\$8,894,400
TDC per Residential Unit/Commercial SF/Stall	<b>\$226,896</b>	<b>\$127,066</b>	<b>\$144,684</b>	<b>\$227.59</b>	<b>\$194.99</b>	<b>\$32,700</b>	<b>\$32,700</b>
<b>Land Value</b>							
Supportable Residual Land Value	<b>\$7,710,355</b>	<b>\$566,518</b>	<b>\$0</b>	<b>\$743,869</b>	<b>\$3,115,668</b>	<b>-\$16,971,300</b>	<b>-\$8,894,400</b>
Land Value per Unit or Bldg SF	\$38,552	\$28,326	\$0	\$18.65	\$96.85		
<b>SUM OF TOTAL PROGRAM LAND VALUES</b>				PRIVATE	<b>\$12,136,409</b>	PARKING	<b>-\$25,865,700</b>
Starting Annual Ground Lease at 6% of Value					\$728,185		
Annual Debt Service on Parking Costs**							-\$1,682,601
Years of Ground Lease Payment until OCTA Parking Costs are Repaid***							44
<b>NPV of OCTA Revenues over 50 Years at 5% Discount Rate</b>							<b>-\$7,290,113</b>

Table 3.4. Proforma Summary (Layered Option)

\*Based on recent property sale transactions in the area and EPS professional judgment.

\*\*Assumes OCTA issues debt for full structured parking cost at 5% interest with 30-year amortization.

\*\*\*Assumes ground lease payments escalate 2% annually while debt service payment remain constant.

# ASSUMPTIONS

*Data Source: IBI Group, CoStar, Saylor's Current Construction Costs 2018, EPS*

[1] For these calculations, the parking costs for housing and commercial spaces are assumed to be provided as structured parking. Site plan shows 791 structured parking spaces and 140 retained surface spaces.

[2] Based on CoStar market research for smaller units, with 10% premium for new construction. Micro-units get another 10% premium. PSH units are priced at 30% AMI for a 1-person household.

[3] All Building Direct Costs assume prevailing wage requirements and are based on the following sources:

- Residential based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Apartment, 4-7 stories, plus a 10% premium per sq. ft. for micro units.

- Office based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles.

- Retail based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Store, Retail, less an assumed savings of \$25 because the proposed retail is in the ground floor of residential and garage buildings.

- Structured parking based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Garage, Parking



Figure 3.5. Rendered view of the proposed transition plaza



3.4 HORSE-SHOE I



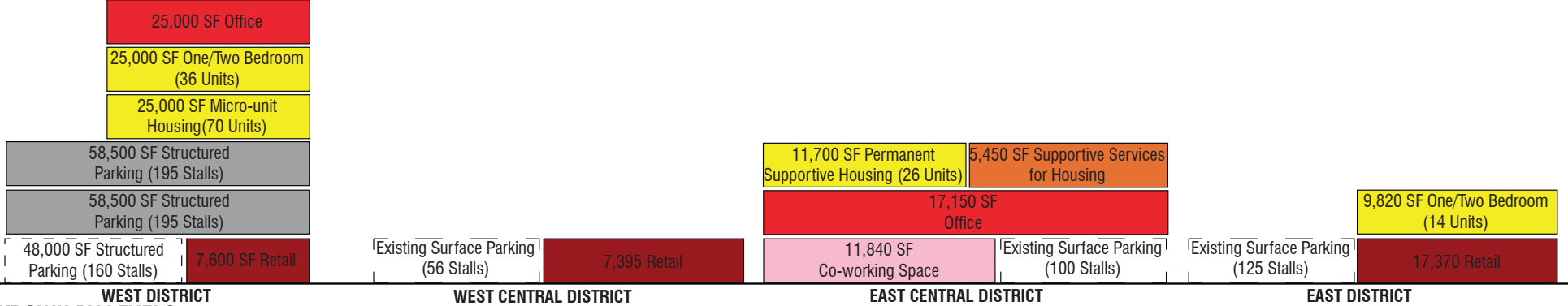
Figure 3.6. Proposed Retail (East District)

ELEMENT	STRENGTHS	WEAKNESSES
BUS OPERATIONS	Compact bus parking layout	Requires a disruption to existing bus service to change operational configuration
CIRCULATION	Centralizes bus operations thereby reducing the walking distances from parking areas	Disrupts the existing bus layout
COMMUNITY	Addresses the goal of community by satisfying demands of affordable housing and supportive services	-
DEVELOPMENT DENSITY	High activity non-residential uses engage the street. Local retail adjacent to the bus parking	Difficult to meet the criteria of +/- 150 Units/district
ECONOMICS	-	Requires a parking structure to support the density
PARK-AND-RIDE	Distinct Park-and-Ride allocated near the bus parking	-
PARKING	-	Requires structured parking for full buildout
PUBLIC SPACE	Increased open space opportunities around the bus plaza	Public space concentrated in west central district

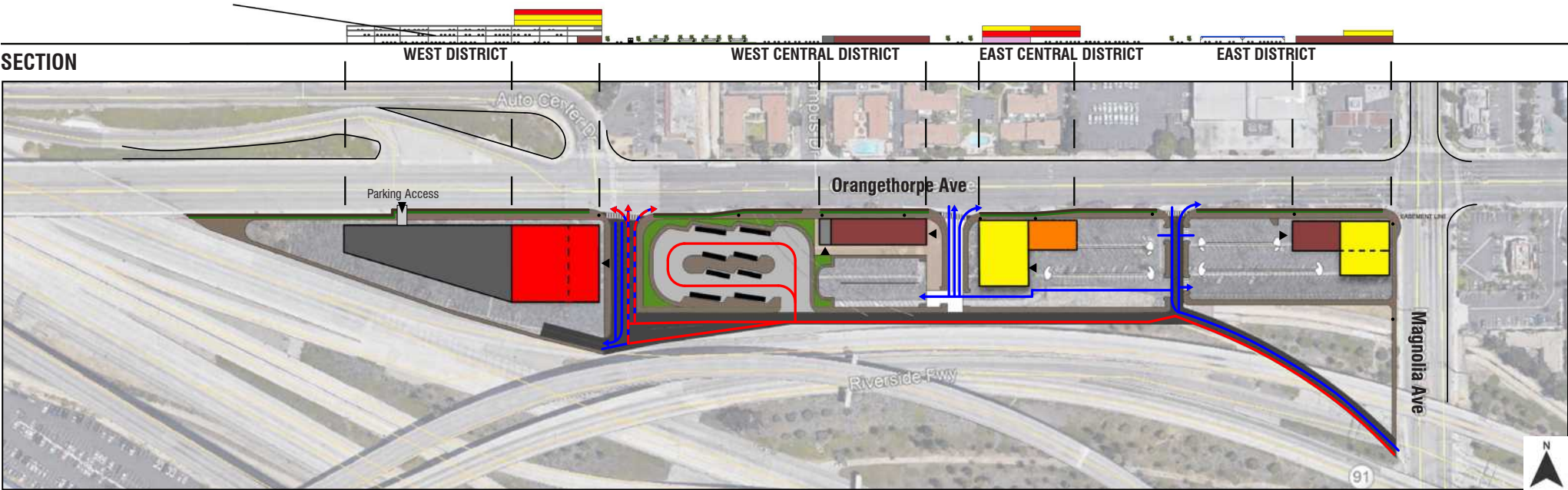
Table 3.5. Strength and Weakness Analysis

Required	+/- (67-79) Stalls	34 Stalls	71 Stalls	OCTA 409 Stalls	33 Stalls	23 Stalls Available	+/- (10-13) Stalls	34 Stalls	49 Stalls	15 Stalls	31 Stalls Available	+/- (14-17) Stalls	77 Stalls
Provided	550 Stalls	43 Stalls Required	56 Stalls	100 Stalls	11 Stalls Required	125 Stalls							

PARKING ALLOCATION



BREAKDOWN BY LEVELS



PLAN (Horseshoe 1)

- Bus movements
- Auto movements
- Shared lane
- Sidewalk
- One way bike lane
- Planting strip/buffer
- Pedestrian bridge
- Building access
- Flood control easement
- Powerline pole
- Pick up / drop off zone
- Solar carports
- Structured parking
- Proposed bus park with transition plaza
- Plaza/ Event space/ Multipurpose area
- Transit facilities
- Office
- Residential
- Community retail
- Co-working Space
- Supportive Services for Housing

Summary	Area (SF)	Area/Unit or Stall (SF)	Units	Stalls
One/Two Bedroom Unit	34,820	700	50	62
Micro-unit	25,000	350	70	35
Permanent Supportive Housing	11,700	450	26	13
Supportive Services for Housing	5,450			15
General & Community Retail	32,365	-	-	143
Co-working Space	11,840	-	-	34
Office	42,150	-	-	120
OCTA Stalls Required	-	-	-	409
Non OCTA Stalls Required	-	300	-	421
Total Stalls Required	-	-	-	830
Total Stalls Provided	-	-	-	831

Not To Scale

### 3.4.1 PROFORMA (HORSESHOE I OPTION)\*

Data Source: IBI Group, CoStar, Saylor's Current Construction Costs 2018, EPS

Item	Land Use						
	Apartments	Micro Units	Permanent Supportive Housing	Office	Retail	Private Structured Parking	OCTA Structured Parking
<b>Revenues</b>							
Annual Net Operating Income	\$720,361	\$593,513	\$0	\$1,097,738	\$708,405		
Desired Yield on Cost*	5.50%	5.50%	5.50%	7.50%	7.50%		
Net Building Value (Supportable Development Costs)	\$13,097,480	\$10,791,136	\$0	\$14,636,506	\$9,445,402		
Net Building Value per Unit/Building SF	<b>\$261,950</b>	<b>\$154,159</b>	<b>\$0</b>	<b>\$246.24</b>	<b>\$291.84</b>	<b>N/A</b>	<b>N/A</b>
<b>Costs</b>							
Total Development Costs	\$11,195,294	\$8,824,062	\$3,761,773	\$13,528,068	\$6,310,848	\$13,766,700	\$4,218,300
TDC per Residential Unit/Commercial SF/Stall	<b>\$223,906</b>	<b>\$126,058</b>	<b>\$144,684</b>	<b>\$227.59</b>	<b>\$194.99</b>	<b>\$32,700</b>	<b>\$32,700</b>
<b>Land Value</b>							
Supportable Residual Land Value	<b>\$1,902,186</b>	<b>\$1,967,075</b>	<b>\$0</b>	<b>\$1,108,437</b>	<b>\$3,134,554</b>	<b>-\$13,766,700</b>	<b>-\$4,218,300</b>
Land Value per Unit or Bldg SF	\$38,044	\$28,101	\$0	\$18.65	\$96.85		
<b>SUM OF TOTAL PROGRAM LAND VALUES</b>				<b>PRIVATE</b>	<b>\$8,112,252</b>	<b>PARKING</b>	<b>-\$17,985,000</b>
Starting Annual Ground Lease at 6% of Value					\$486,735		
Annual Debt Service on Parking Costs**							-\$1,169,950
Years of Ground Lease Payment until OCTA Parking Costs are Repaid***							46
<b>NPV of OCTA Revenues over 50 Years at 5% Discount Rate</b>							<b>-\$5,568,655</b>

Table 3.6. Proforma Summary (Horseshoe 1 Option)

\*Based on recent property sale transactions in the area and EPS professional judgment.

\*\*Assumes OCTA issues debt for full structured parking cost at 5% interest with 30-year amortization.

\*\*\*Assumes ground lease payments escalate 2% annually while debt service payment remain constant.



# ASSUMPTIONS

*Data Source: IBI Group, CoStar, Saylor's Current Construction Costs 2018, EPS*

[1] For these calculations, the parking costs for housing and commercial spaces are assumed to be provided as structured parking. Site plan shows 550 structured parking spaces and 281 retained surface spaces.

[2] Based on CoStar market research for smaller units, with 10% premium for new construction. Micro-units get another 10% premium. PSH units are priced at 30% AMI for a 1-person household.

[3] All Building Direct Costs assume prevailing wage requirements and are based on the following sources:

- Residential based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Apartment, 4-7 stories, plus a 10% premium per sq. ft. for micro units.

- Office based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles.

- Retail based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Store, Retail, less an assumed savings of \$25 because the proposed retail is in the ground floor of residential and garage buildings.

- Structured parking based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Garage, Parking



*Figure 3.7. Rendered view of the proposed transition plaza along Orangethorpe Ave*



3.5 HORSE-SHOE II



Figure 3.8. View of the proposed retail and surface parking with carports from Orangethorpe Avenue

ELEMENT	STRENGTHS	WEAKNESSES
BUS OPERATIONS	Compact bus parking layout	Requires a disruption to existing bus service to change operational configuration
CIRCULATION	Centralizes bus operations thereby reducing the walking distances from parking areas	-
COMMUNITY	Addresses the goal of community by satisfying demands of affordable housing and supportive services	-
DEVELOPMENT DENSITY	High activity non-residential uses engage the street	Difficult to meet the criteria of +/- 150 Units/district
ECONOMICS	-	Doesn't meet the requirement of +/- 150 units/district
PARK-AND-RIDE	Distinct Park-and-Ride allocated near the bus parking	-
PARKING	Retains some of the existing parking layout	Requires structured parking for full buildout
PUBLIC SPACE	Consolidated open space around the bus operations	-

Table 3.7. Strength and Weakness Analysis

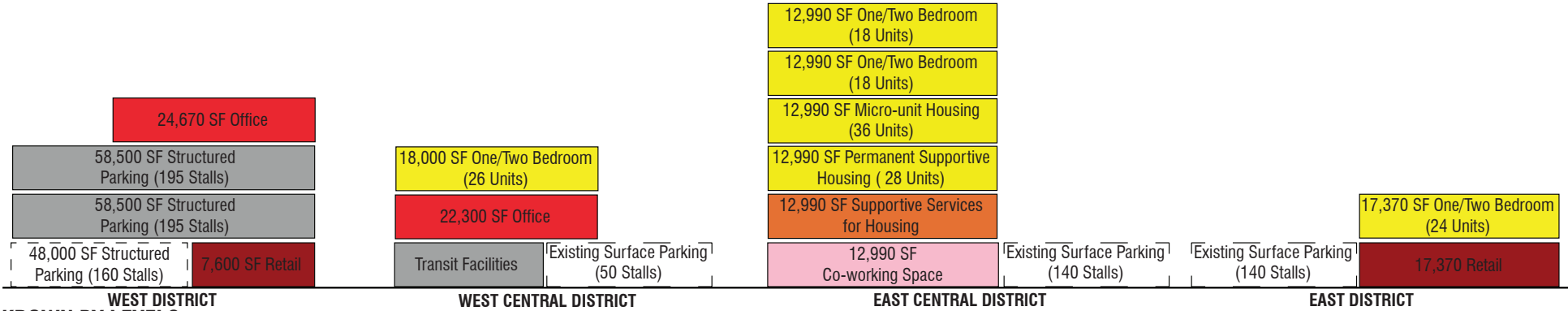
Required 34 Stalls 70 Stalls OCTA 409 Stalls 37 Stalls Available  
 Provided 550 Stalls

63 Stalls +/- (27-32) Stalls  
 45 Stalls Required 50 Stalls

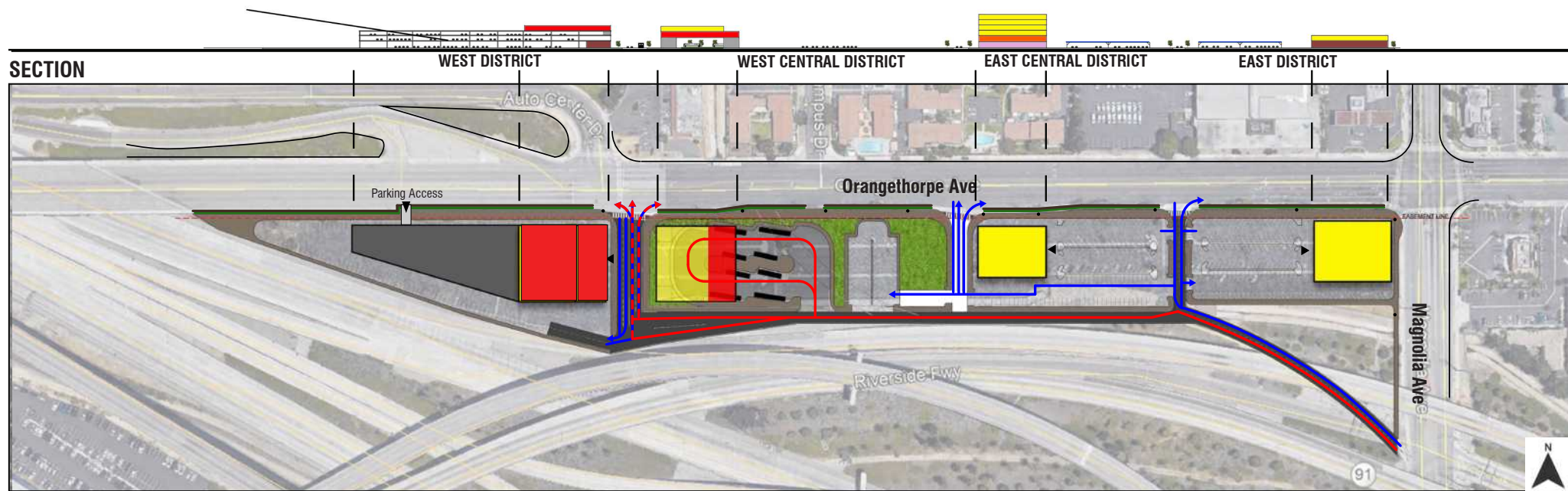
+/- (67-79) Stalls 37 Stalls 37 Stalls  
 140 Stalls 12 Stalls Required

32 Stalls Available +/- (26-31) Stalls 77 Stalls  
 140 Stalls

## PARKING ALLOCATION



## BREAKDOWN BY LEVELS



## PLAN (Horseshoe II)

- Bus movements
- Auto movements
- Shared lane
- Sidewalk
- One way bike lane
- Planting strip/buffer
- Pedestrian bridge
- Building access
- Flood control easement
- Powerline pole
- Pick up / drop off zone
- Solar carports
- Structured parking
- Proposed bus park with transition plaza
- Plaza/ Event space/ Multipurpose area
- Transit facilities
- Office
- Residential
- Community retail
- Co-working Space
- Supportive Services for Housing

Summary	Area (SF)	Area/Unit or Stall (SF)	Units	Stalls
One/Two Bedroom Unit	46,970	700	82	108
Micro-unit	12,990	350	36	19
Permanent Supportive Housing	12,990	450	28	14
Supportive Services for Housing	12,990			37
General & Community Retail	24,970	-	-	143
Co-working Space	12,990	-	-	37
Office	46,970	-	-	133
OCTA Stalls Required	-	-	-	409
Non OCTA Stalls Required	-	300	-	458
Total Stalls Required	-	-	-	867
Total Stalls Provided	-	-	-	880

Not To Scale

3.6 DEVELOPER I



Figure 3.9. Rendered view of the existing bus parking from Orangethorpe Avenue

ELEMENT	STRENGTHS	WEAKNESSES
BUS OPERATIONS	Retains the existing bus operations layout	-
CIRCULATION	Retained the existing bus parking (10 bus pads)	-
COMMUNITY	-	Lacks gathering spaces for the community
DEVELOPMENT DENSITY	Consistent with the market demand for the market study (+/-150 Units/district)	-
ECONOMICS	Meets the requirement of +/-150 units/district	Requires structured parking for full buildout
PARK-AND-RIDE	Distinct Park-and-Ride allocated near the bus parking	-
PARKING	Retains some of the existing parking layout	Large, uninviting parking areas
PUBLIC SPACE	-	Core of activity missing around the bus parking

Table 3.8. Strength and Weakness Analysis



Required	+/- (131-151) Stalls	OCTA 9 Stalls	+/- (53-59) Stalls	OCTA 165 Stalls	71 Stalls Available	OCTA 235 Stalls	+/- (68-79) Stalls	27 Stalls	17 Stalls Available	+/- (128-145) Stalls	45 Stalls
Provided	160 Stalls		59 Stalls Required	165 Stalls		385 Stalls				209 Stalls	

PARKING ALLOCATION




### 3.6.1 PROFORMA (DEVELOPER I OPTION)\*

Data Source: IBI Group, CoStar, Saylor's Current Construction Costs 2018, EPS

Item	Land Use			
	Apartments	Commercial	Private Structured Parking	OCTA Structured Parking
<b>Revenues</b>				
Annual Net Operating Income	\$5,445,121	\$527,501		
Desired Yield on Cost*	5.50%	7.50%		
Net Building Value (Supportable Development Costs)	\$99,002,201	\$7,033,344		
Net Building Value per Unit/Building SF	\$233,496	\$292	N/A	N/A
<b>Costs</b>				
Total Development Costs	\$84,623,816	\$4,699,256	\$16,546,200	\$2,877,600
TDC per Residential Unit/Commercial SF/Stall	\$199,584	\$195	\$32,700	\$32,700
Land Value				
Supportable Residual Land Value	\$14,378,386	\$2,334,088	-\$16,546,200	-\$2,877,600
Land Value per Unit or Bldg SF	\$33,911	\$97		
<b>SUM OF TOTAL PROGRAM LAND VALUES</b>	PRIVATE	\$16,712,473	PARKING	-\$19,423,800
Starting Annual Ground Lease at 6% of Value		\$1,002,748		
Annual Debt Service on Parking Costs**				-\$1,263,546
Years of Ground Lease Payment until OCTA Parking Costs are Repaid***				24
<b>NPV of OCTA Revenues over 50 Years at 5% Discount Rate</b>				<b>\$6,155,760</b>

Table 3.9. Proforma Summary (Developer 1 Option)

\*Based on recent property sale transactions in the area and EPS professional judgment.

\*\*Assumes OCTA issues debt for full structured parking cost at 5% interest with 30-year amortization.

\*\*\*Assumes ground lease payments escalate 2% annually while debt service payment remain constant.

## ASSUMPTIONS

*Data Source: IBI Group, CoStar, Saylor's Current Construction Costs 2018, EPS*

[1] For these calculations, the parking costs for housing and commercial spaces are assumed to be provided as structured parking. Site plan shows 594 structured parking spaces and 325 retained surface spaces.

[2] Based on CoStar market research for smaller units, with 10% premium for new construction.

[3] All Building Direct Costs assume prevailing wage requirements and are based on the following sources:

- Residential based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Apartment, 4-7 stories.

- Retail based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Store, Retail, less an assumed savings of \$25 because the proposed retail is in the ground floor of residential and garage buildings."

- Structured parking based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Garage, Parking

## 3.6.2 ALTERNATIVES

*Data Source: IBI Group, CoStar, Saylor's Current Construction Costs 2018, EPS*

Alternative I: OCTA will be funding all of the structured parking required for private uses as well as any structured spaces required to provide 409 total spaces for OCTA. For example, this diagram shows 919 total spaces, of which 325 are surface and the remaining 594 are structured. Let's consider the cost of all that structured parking (about \$19.5M as of right now), assume that OCTA is financing that over 30 years, and compare that to the ground lease a private developer may be willing to pay for the rights to develop the indicated amount of housing and commercial space. As of right now, it appears that the total "residual land value" of the development program in Developer Option 1 does not exceed the cost of the structured parking, and OCTA would not be recouping its investment through ground lease payments for 20+ years, but after that the garage would be paid off and net ground lease revenues would accrue to OCTA.

Alternative II: The alternative to this approach is that the developer would have to pay for the structured parking, at least their own, but that essentially wipes out the residual land value entirely (the land for development is worth less than the cost of the parking) plus the developer's return threshold is higher than OCTA's, and OCTA essentially would not expect to get any ground lease revenue ever.

## 3.7 DEVELOPER II



Figure 3.10 Rendered view of the transition plaza and bus parking

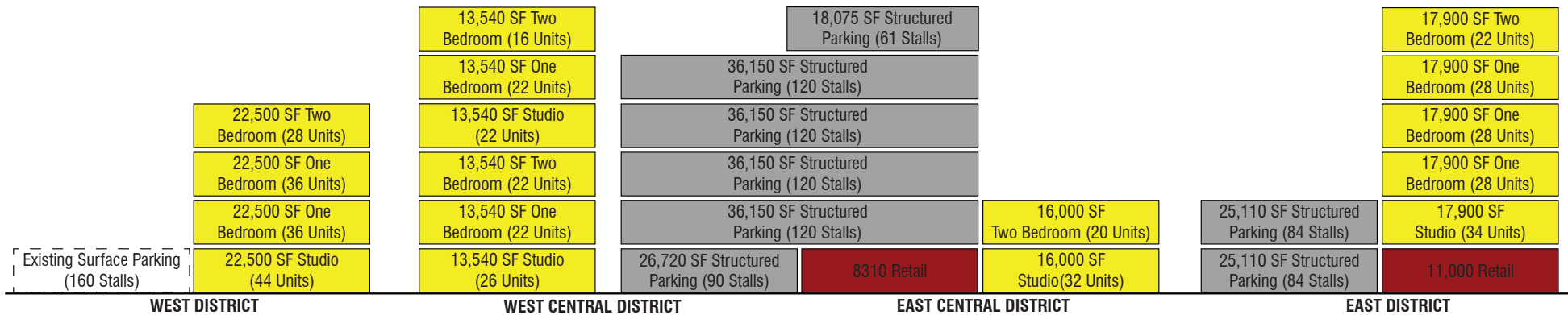
ELEMENT	STRENGTHS	WEAKNESSES
<b>BUS OPERATIONS</b>	14 bus pads with a layered parking layout	Requires a disruption to existing bus service to change operational configuration
<b>CIRCULATION</b>	Centralizes bus operations thereby reducing the walking distances from parking areas.	Disrupts the existing bus layout
<b>COMMUNITY</b>	Addresses the goal of community by providing gathering spaces for neighborhood uses	-
<b>DEVELOPMENT DENSITY</b>	High-density development allowing for more residents and employees thereby increasing transit ridership (+/- 150 Units/district)	-
<b>ECONOMICS</b>	Meets the requirement of +/-150 units/district	Requires structured parking for full buildout
<b>PARK-AND-RIDE</b>	-	Park-and-Ride not in close proximity to the bus plaza
<b>PARKING</b>	Parking structure wrapped with active uses	Requires structured parking for full buildout
<b>PUBLIC SPACE</b>	Increased open space opportunities around the bus plaza	Public space concentrated in west central district

Table 3.10. Strength and Weakness Analysis

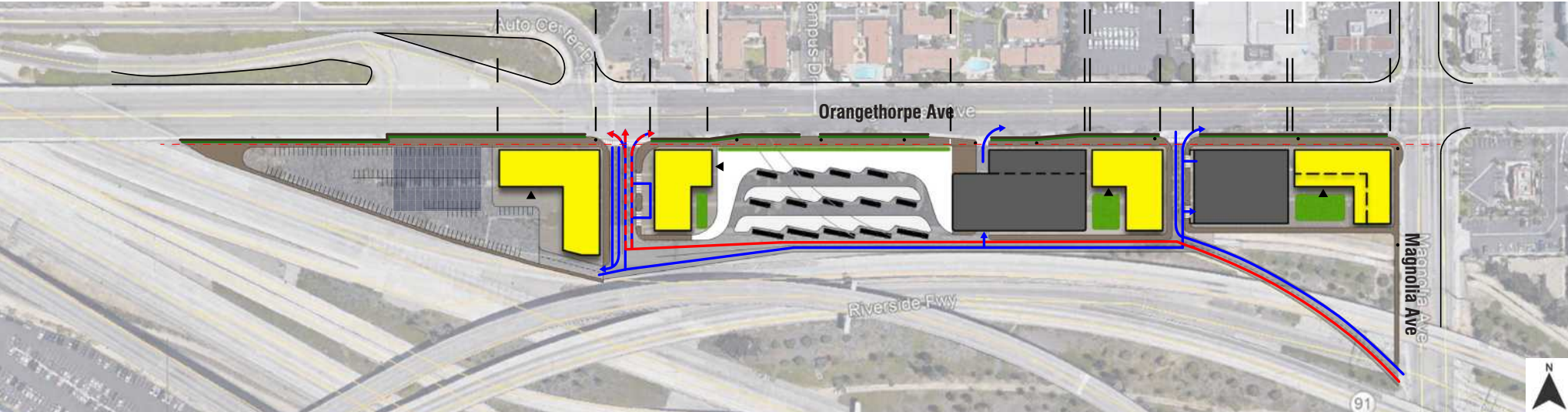


Required	+/- (129-147) Stalls	13 Stalls Available	7 Stalls Available	OCTA 409 Stalls	+/- (167-190) Stalls	25 Stalls	+/- (129-147) Stalls	33 Stalls
Provided	160 Stalls				631 Stalls		12 Stalls Required	168 Stalls

PARKING ALLOCATION



BREAKDOWN BY LEVELS



PLAN

- Bus movements
- Auto movements
- Shared lane
- Sidewalk
- One way bike lane
- Planting strip/buffer
- Pedestrian bridge
- Building access
- Flood control easement
- Powerline pole
- Pick up / drop off zone
- Solar carports
- Structured parking
- Proposed bus park with transition plaza
- Plaza/ Event space/ Multipurpose area
- Transit facilities
- Office
- Residential
- Community retail

Summary	Area (SF)	Area/Unit or Stall (SF)	Units	Stalls
Studio Unit	69,940	500	138	104
One Bedroom Unit	152,860	600	248	248
Two Bedroom Unit	69,940	800	88	132
General & Community Retail	19,310	-	-	58
OCTA Stalls Required	-	-	-	409
Non OCTA Stalls Required	-	300	-	541
Total Stalls Required	-	-	-	950
Total Stalls Provided	-	-	-	959

### 3.7.1 PROFORMA (DEVELOPER II OPTION)\*

Data Source: IBI Group, CoStar, Saylor's Current Construction Costs 2018, EPS

Item	Land Use			
	Apartments	Commercial	Private Structured Parking	OCTA Structured Parking
<b>Revenues</b>				
Annual Net Operating Income	\$6,056,249	\$422,657		
Desired Yield on Cost*	5.50%	7.50%		
Net Building Value (Supportable Development Costs)	\$110,113,619	\$5,635,430		
Net Building Value per Unit/Building SF	<b>\$236,295</b>	<b>\$291.84</b>	<b>N/A</b>	<b>N/A</b>
<b>Costs</b>				
Total Development Costs	\$94,121,489	\$3,765,255	\$17,429,100	\$8,698,200
TDC per Residential Unit/Commercial SF/Stall	<b>\$201,977</b>	<b>\$194.99</b>	<b>\$32,700</b>	<b>\$32,700</b>
<b>Land Value</b>				
Supportable Residual Land Value	<b>\$15,992,130</b>	<b>\$1,870,176</b>	<b>-\$17,429,100</b>	<b>-\$8,698,200</b>
Land Value per Unit or Bldg SF	\$34,318	\$96.85		
<b>SUM OF TOTAL PROGRAM LAND VALUES</b>	PRIVATE	<b>\$17,862,306</b>	PARKING	<b>-\$26,127,300</b>
Starting Annual Ground Lease at 6% of Value		\$1,071,738		
Annual Debt Service on Parking Costs**				-\$1,699,618
Years of Ground Lease Payment until OCTA Parking Costs are Repaid***				34
<b>NPV of OCTA Revenues over 50 Years at 5% Discount Rate</b>				<b>\$1,212,155</b>

Table 3.11. Proforma Summary (Developer 2 Option)

\*Based on recent property sale transactions in the area and EPS professional judgment.

\*\*Assumes OCTA issues debt for full structured parking cost at 5% interest with 30-year amortization.

\*\*\*Assumes ground lease payments escalate 2% annually while debt service payment remain constant.

# ASSUMPTIONS

Data Source: IBI Group, CoStar, Saylor's Current Construction Costs 2018, EPS

[1] For these calculations, the parking costs for housing and commercial spaces are assumed to be provided as structured parking. Site plan shows 799 structured parking spaces and 160 retained surface spaces.

[2] Based on CoStar market research for smaller units, with 10% premium for new construction.

[3] All Building Direct Costs assume prevailing wage requirements and are based on the following sources:

- Residential based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Apartment, 4-7 stories.

- Retail based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Store, Retail, less an assumed savings of \$25 because the proposed retail is in the ground floor of residential and garage buildings."

- Structured parking based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Garage, Parking



Figure 3.11 Rendered view of the proposed bus parking layout





Figure 3.12. Rendered view of the proposed bus parking layout (West Central District)



Figure 3.13. Rendered view of surface parking with proposed solar carports (East District)





Figure 3.14. Rendered view of the transition plaza from West District



Figure 3.15. Rendered view of the proposed bus parking layout from Riverside Fwy

### 3.8 PHASED OPTION

The Phased Option keeps OCTA parking requirements (409 stalls) in mind, with only a portion of the site (East District and East Central District) built with existing surface parking supporting it, as illustrated in Figure 3.16.



Figure 3.16. View of the proposed development with surface parking

ELEMENT	STRENGTHS	WEAKNESSES
BUS OPERATIONS	Retains the existing bus circulation layout	-
CIRCULATION	Retains the existing bus parking (10 bus pads)	-
COMMUNITY	-	Lack of proper transition between areas with different types of land uses
DEVELOPMENT DENSITY	Consistent with the market study demand analysis	Difficult to meet the criteria of +/- 150 Units/district
ECONOMICS	-	Requires shared land-uses between districts to meet +/- 150 unit requirement
PARK-AND-RIDE	Distinct Park-and-Ride allocated near the bus parking	-
PARKING	Retains the existing surface parking	Large, uninviting parking areas
PUBLIC SPACE	-	Core of activity missing around the bus parking

Table 3.12. Strength and Weakness Analysis (Phased Option)

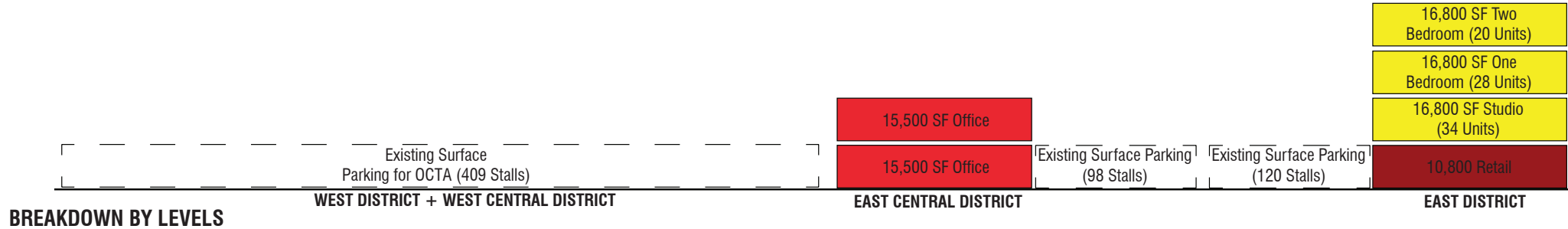


Required	409 Stalls
Provided	409 Stalls

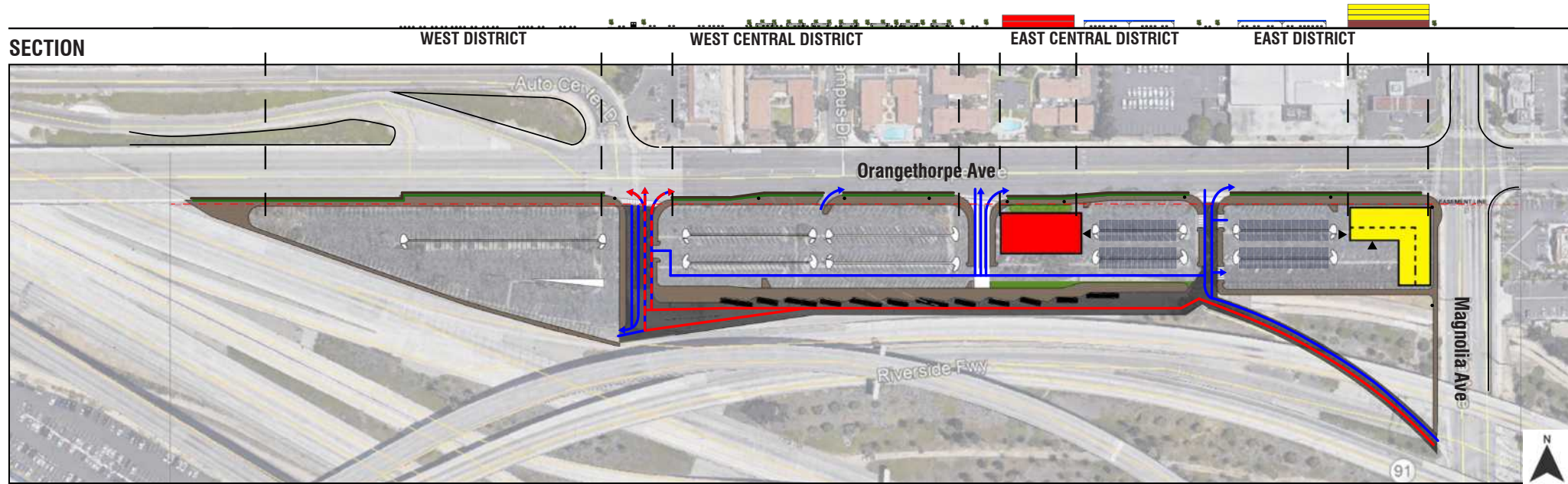
90 Stalls	8 Stalls Available
98 Stalls	

+/- (71-84) Stalls	32 Stalls
120 Stalls	

## PARKING ALLOCATION



## SECTION



## PLAN (Phased)

- Bus movements
- Auto movements
- Shared lane
- Sidewalk
- One way bike lane
- Planting strip/buffer
- Pedestrian bridge
- Building access
- Flood control easement
- Powerline pole
- Pick up / drop off zone
- Solar carports
- Structured parking
- Proposed bus park with transition plaza
- Plaza/ Event space/ Multipurpose area
- Transit facilities
- Office
- Residential

Summary	Area (SF)	Area/Unit or Stall (SF)	Units	Stalls
One/Two Bedroom Unit	33,600	700	48	67
Studio	16,800	350	34	17
Office	31,000	-	-	90
General & Community Retail	10,800	-	-	32
OCTA Stalls Required	-	-	-	409
Non OCTA Stalls Required	-	300	-	206
Total Stalls Required	-	-	-	615
Total Stalls Provided	-	-	-	627

## Summary (Phased Option)

### 3.8.1 PROFORMA (PHASED OPTION)\*

Data Source: IBI Group, CoStar, Saylor's Current Construction Costs 2018, EPS

Item	Land Use				
	Apartments	Office	Retail	Private Structured Parking	OCTA Structured Parking
<b>Revenues</b>					
Annual Net Operating Income	\$1,042,683	\$572,508	\$236,390		
Desired Yield on Cost*	5.50%	7.50%	7.50%		
Net Building Value (Supportable Development Costs)	\$18,957,868	\$7,633,440	\$3,151,872		
Net Building Value per Unit/Building SF	<b>\$231,194</b>	<b>\$246.24</b>	<b>\$291.84</b>	<b>N/A</b>	<b>N/A</b>
<b>Costs</b>					
Total Development Costs	\$16,204,560	\$7,055,352	\$2,105,891	\$0	\$0
TDC per Residential Unit/Commercial SF/Stall	<b>\$197,617</b>	<b>\$227.59</b>	<b>\$194.99</b>		
<b>Land Value</b>					
Supportable Residual Land Value	<b>\$2,753,308</b>	<b>\$578,088</b>	<b>\$1,045,981</b>	<b>\$0</b>	<b>\$0</b>
Land Value per Unit or Bldg SF	\$33,577	\$18.65	\$96.85		
<b>SUM OF TOTAL PROGRAM LAND VALUES</b>		<b>PRIVATE</b>	<b>\$4,377,377</b>	<b>PARKING</b>	<b>\$0</b>
Starting Annual Ground Lease at 6% of Value			\$262,643		
Annual Debt Service on Parking Costs**					\$0
Years of Ground Lease Payment until OCTA Parking Costs are Repaid***					0
<b>NPV of OCTA Revenues over 50 Years at 5% Discount Rate</b>					<b>\$6,699,869</b>

Table 3.13. Proforma Summary (Phased Option)

\*Based on recent property sale transactions in the area and EPS professional judgment.

\*\*Assumes OCTA issues debt for full structured parking cost at 5% interest with 30-year amortization.

\*\*\*Assumes ground lease payments escalate 2% annually while debt service payment remain constant.

# ASSUMPTIONS

*Data Source: IBI Group, CoStar, Saylor's Current Construction Costs 2018, EPS*

[1] For these calculations, the housing, office, and retail developments are assumed to utilize existing spaces.

[2] Based on CoStar market research for smaller units, with 10% premium for new construction.

[3] All Building Direct Costs assume prevailing wage requirements and are based on the following sources:

- Residential based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Apartment, 4-7 stories.

- Office based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles.

- Retail based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Store, Retail, less an assumed savings of \$25 because the proposed retail is in the ground floor of residential and garage buildings.

- Structured parking based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Garage, Parking



# 04 MARKET STUDY



## 4.1 EPS MARKET STUDY FINDINGS

Data Source: EPS Market Study

LAND USE	FINDINGS	CONCLUSIONS
<b>MULTIFAMILY RESIDENTIAL (lower density)</b>	<b>High</b> market demand demonstrated by healthy rent growth and low vacancy rates.	Economically viable up to 35 units/acre
<b>AFFORDABLE HOUSING</b>	<b>High</b> market demand due to the needs of homeless populations.	Economically viable up to 35 units/acre
<b>OFFICE</b>	<b>Low</b> market demand as the site's relatively small size doesn't resonate with the new speculative Class A office development.	Dropped from further consideration
<b>HOTEL</b>	<b>Low</b> market demand due to the site's distance from major tourist destinations and employment centers.	Dropped from further consideration
<b>NON RESIDENTIAL</b>	<b>High</b> market demand due to the site's visibility from the freeways and access to transit through the Park-and-Ride.	Economically viable within retail and light industrial uses

Table 4.1. Findings from the EPS Market Study (part I)

OCTA Objective	LAND USE				
	Multifamily Residential			Nonresidential	
	35 Units/Acre	70 Units/Acre	120 Units/Acre	Retail	Light Industrial
Potential Land Value to OCTA	High	Low	Low	Medium	High
Potential OCTA Ridership Gains	Medium	High	High	Low	Low
Mixed-Use & Pedestrian-Friendly	High	High	High	Medium	Low
Provides Community Amenity	Medium	Medium	Medium	Medium	Low
Compatible with Park & Ride	High	High	High	Medium	Low

Table 4.2. Findings from the EPS Market Study (part II)



## 4.2 SUMMARY

*Data Source: EPS Market Study*

1. The market position of the Fullerton Park-and-Ride is strengthened by its strong accessibility and visibility due to its transit service and adjacency to the region's freeway system (the I-5 / SR-91 interchange), as well as frontage on significant surface streets.

2. Residential development appears to be in demand at and around the OCTA site, given regional and local growth patterns, and can yield strong benefits to OCTA in terms of transit ridership. However, local market-rate rents are modest compared to some other areas, which will affect the financial feasibility of new housing, particularly at higher densities that cost more to construct (due to structured parking, life safety requirements, etc.).

3. Office development does not appear to be in high demand in the vicinity of the OCTA property, and is not recommended as a prioritized land use.

4. Hotel use is also not recommended as a prioritized use, as the local area commands relatively low room rates and the site is not competitive in terms of convenience with the many other hotels serving tourist destinations in the vicinity.

5. Retail development does appear to be in demand, given the site's strong accessibility and visibility, and should be considered a viable use as a stand-alone development or as part of a mixed-use development.

6. Light industrial development is also in demand, though such use may not be optimally compatible with the typical ridership and placemaking goals of transit-oriented development.

7. The OCTA site could also be an appropriate location for affordable housing or various housing solutions meant to serve the County's homeless population, but would not be expected to generate significant land revenues for OCTA.

8. A financial analysis was prepared that compares the value of potential market-supported developments to their construction costs, and yields "residual land values" estimating what OCTA might expect to receive for the sale or lease of the property. This analysis indicated that lower-density multifamily may yield the highest land values, followed by light industrial uses. Higher-density housing with structured parking appears to have feasibility challenges in the near term, as this development type has higher construction costs while the value of the units does not increase proportionately.

9. As market conditions evolve, developers may be more optimistic about higher density housing or other uses than this analysis suggests. It is recommended that OCTA be realistic in its expectations regarding financial returns from the land itself, but also aspirational about the long-term use of the property. A developer solicitation process that encourages creativity to meet a variety of objectives, rather than simply maximizing land value, may yield very positive results for OCTA and the local community.

10. When considering the potential disposition of its property at the Fullerton Park-and-Ride, OCTA should account for a variety of factors including transit ridership impacts, placemaking and community compatibility, and local and regional needs in addition to maximizing revenue from the land disposition. Table 4.3 below characterizes how each land use tested for the Site addresses a variety of OCTA goals.

## 4.3 PROFORMAS FINDINGS\*

Data Source: EPS

	Item	Office	Retail	Private Structured Parking	OCTA Structured Parking
Linear Option	SUM OF TOTAL PROGRAM LAND VALUES	PRIVATE	\$10,470,808	PARKING	-\$17,985,000
	Annual Debt Service on Parking Costs [5]				-\$1,169,950
	Years of Ground Lease Payment until OCTA Parking Costs are Repaid [6]				38
	NPV of OCTA Revenues over 50 Years at 5% Discount Rate				<b>-\$1,958,727</b>
Layered Option	SUM OF TOTAL PROGRAM LAND VALUES	PRIVATE	\$12,136,409	PARKING	-\$25,865,700
	Annual Debt Service on Parking Costs [5]				-\$1,682,601
	Years of Ground Lease Payment until OCTA Parking Costs are Repaid [6]				77
	NPV of OCTA Revenues over 50 Years at 5% Discount Rate				<b>-\$7,290,113</b>
Horseshoe I Option	SUM OF TOTAL PROGRAM LAND VALUES	PRIVATE	\$8,112,252	PARKING	-\$17,985,000
	Annual Debt Service on Parking Costs [5]				-\$1,169,950
	Years of Ground Lease Payment until OCTA Parking Costs are Repaid [6]				46
	NPV of OCTA Revenues over 50 Years at 5% Discount Rate				<b>-\$5,568,655</b>
	Item	Apartments	Commercial	Private Structured Parking	OCTA Structured Parking
Developer I Option	SUM OF TOTAL PROGRAM LAND VALUES	PRIVATE	\$16,712,473	PARKING	-\$19,423,800
	Annual Debt Service on Parking Costs [5]				-\$1,263,546
	Years of Ground Lease Payment until OCTA Parking Costs are Repaid [6]				24
	NPV of OCTA Revenues over 50 Years at 5% Discount Rate				<b>\$6,155,760</b>
Developer II Option	SUM OF TOTAL PROGRAM LAND VALUES	PRIVATE	\$17,862,306	PARKING	-\$26,127,300
	Annual Debt Service on Parking Costs [5]				-\$1,699,618
	Years of Ground Lease Payment until OCTA Parking Costs are Repaid [6]				34
	NPV of OCTA Revenues over 50 Years at 5% Discount Rate				<b>\$1,212,155</b>
	Item	Office	Retail	Private Structured Parking	OCTA Structured Parking
Phased Option	SUM OF TOTAL PROGRAM LAND VALUES	PRIVATE	\$4,377,377	PARKING	\$0
	Annual Debt Service on Parking Costs [5]				\$0
	Years of Ground Lease Payment until OCTA Parking Costs are Repaid [6]				0
	NPV of OCTA Revenues over 50 Years at 5% Discount Rate				<b>\$6,699,869</b>

Table 4.3. Proformas Summary

\*Please refer to the appendix section 7.4 for all the proformas.

## 4.3.1 ASSUMPTIONS\*

Data Source: EPS

- All structured parking is considered a cost to the project that OCTA pays for either directly or through discounted land value. As such, the positive land values associated with private development (which are assumed to NOT have to pay their own parking development costs) are contrasted against the cost of the structured parking. In every case except the “Phased” plan that does not involve any structured parking, the aggregate cost of parking structures exceeds the value of the land for private development.
- The land value for permanent supportive housing (PSH) is assumed to be zero, as in OCTA would effectively donate the land for such development. In reality, those types of developments require significant subsidy because their income-restricted rents barely cover their operating expenses, so the entire construction cost must be subsidized. Rather than assuming OCTA provides that subsidy by actually paying the PSH developer several million dollars, it is assumed that OCTA gives the land for free but the actual development and operating cost subsidy comes from other sources.
- The amount that a developer would pay for the rights to develop the land on a ground lease is estimated at 6% of total “fee simple” land value. This ratio is pretty standard for ground leases, but is subject to negotiation and could conceivably be at least a little higher. The ground lease payments are then assumed to escalate at 2% per year over time, which again is pretty standard.
- The ground lease payments are then compared to the estimated amount that OCTA would pay in debt service on the parking structures. Those payments are assumed to be fixed rather than escalating, and the garages would be fully amortized over 30 years. In some cases, the garage costs so greatly exceed the land values that even though the ground lease revenues escalate over time, it still takes over 30 years before the nominal cumulative value of the ground leases exceeds the costs to finance the garages. Only the phased approach (which has no structured parking) and developer option 1 (which has a moderate amount of structured parking and does NOT include affordable housing) generate positive revenues to OCTA in less than 30 years.



# 05 FINDINGS AND RECOMMENDATIONS

## 5.1 FINDINGS

- Uses that appear to be feasible include\*\*:
  1. Market-rate apartments (with and without structured parking)
  2. Market-rate micro-units (with and without structured parking)
  3. Retail (with surface parking)
  4. Co-working space (with surface parking)
  5. Mixed-use housing over commercial (with structured parking)
- Uses clearly requiring subsidy include:
  1. Affordable housing
  2. Permanent supportive housing
  3. Supportive services for housing
  4. Stand-alone retail (with structured parking)
  5. Stand-alone co-working office (with structured parking)
- Cost of Structured Parking can be prohibitive.
- Market-rate residential uses seem to generate the most value.
- A phased approach to development of the site is also recommended with options for shared parking.

\*\*None of these uses appear to have enough value to contribute significantly to the costs of structured parking for transit riders, so an optimally feasible scenario would retain transit parking in a surface configuration OR identify another source of funding

## 5.2 RECOMMENDATIONS

- **Develop Joint-development policies** specific to the site. Also, maximize shared parking options with Private-Public and Private-Private Parking Agreements.
- **Coordinate with the City** to identify expectations, requirements, and potential variances for parking, etc.
- **Prepare and release a Request for Information or Request for Proposals** to identify developers interested in the site.



Figure 5.1. Fullerton Park-and-Ride site context

# 06 JOINT DEVELOPMENT POLICIES



## 6.1 POLICIES

*Data Source: MARTA'S TOD guidelines, METRO Los Angeles policies, VTA's Transit-Oriented Development program*

Case study research from Santa Clara Valley Transportation Authority (VTA) , Los Angeles County Metropolitan Transit Authority (METRO) and Metropolitan Atlanta Rapid Transit Authority (MARTA) reveal some policies adopted that OCTA should be aware of as they embark on joint development.

### FINANCIAL

- METRO: Long term ground lease, and collaborative contribution to create greater community economic benefit.
- MARTA: Retains fee ownership of joint development parcels and conveys their development rights through long-term lease rather than sale.

### PARKING

- VTA: Facilitate the creation of new TOD projects in VTA-owned land.
- MARTA: Limit parking capacity, and encourage shared parking.

### TRANSIT

- METRO: Preserve and maximize connections to transit facilities via Transit Prioritization and Integration.
- VTA: Development projects will include Physical Improvements and/or Transit Programs.

### AFFORDABLE HOUSING

- METRO: Affordable Housing Policies encourages a range of housing types, and discount joint development ground leases below the fair market value.
- MARTA: Applies a policy goal of 20% affordability, on average, to joint development projects through affordable housing policies.

# 07 APPENDICES



# 7.1.1 SITE ASSESSMENT

IBI GROUP – TECHNICAL MEMORANDUM  
FULLERTON PARK AND RIDE JOINT DEVELOPMENT STUDY SITE ASSESSMENT  
Prepared for Orange County Transportation Authority

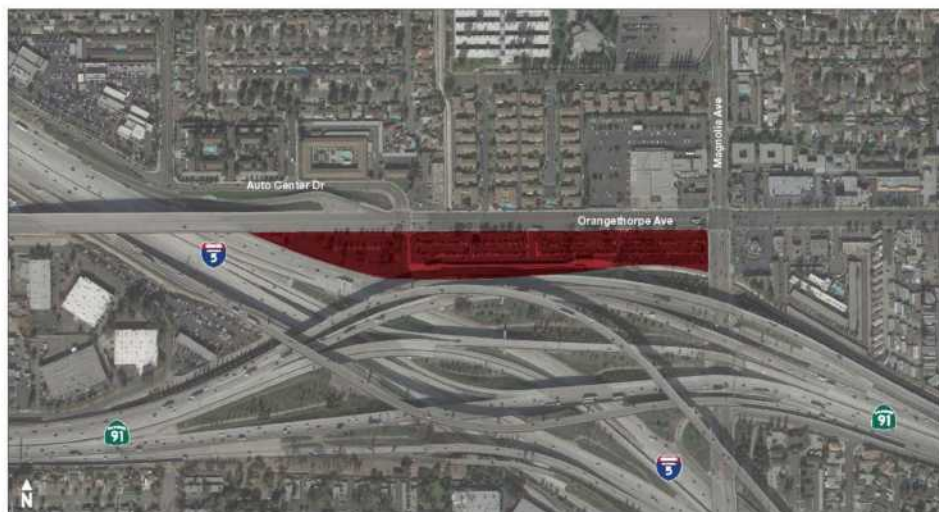
## 1 INTRODUCTION

This memorandum summarizes the results of an initial site assessment conducted for the Fullerton Park and Ride. The Fullerton Park and Ride is owned and operated by the Orange County Transportation Authority (OCTA) and is located at the southwest corner of Orangethorpe Avenue and South Magnolia Avenue in Fullerton. The purpose of the site assessment is to evaluate existing site conditions and conduct an initial qualitative and quantitative review of the project site to analyze conditions at and surrounding the site. This task identifies and discusses issues, opportunities and potential constraints to joint-development improvements at this site.

The Fullerton Park and Ride facility is located in Fullerton, California on 11.1 acres of land. The facility was constructed in two phases. Phase I in 1974 consisted of two covered 1,000 square feet bus shelters with four bus docks, waiting areas, restrooms, benches, and paved parking. Phase II in 1981 added 10 permanent bus berths, modifications to traffic flow pattern, additional parking canopies, and modifications to lighting, landscape, and irrigation systems. The facility serves as a regional transfer point for Los Angeles County Metropolitan Authority (Metro) and OCTA bus operations. The facility provides a total of 745 parking spaces, including 29 ADA spaces to park and ride customers. Figure 1.1 shows the location of the facility.

The Fullerton Park and Ride is being studied to identify the potential feasibility for joint development and improvements to the function and operations of the transit facility. This memorandum reviews existing data related to traffic volumes, mode of access, and transit boardings, as well as future conditions surrounding the site, including transportation and land use projects.

FIGURE 1.1 Fullerton Park and Ride Location



Legend  
Study Area

IBI GROUP – TECHNICAL MEMORANDUM  
FULLERTON PARK AND RIDE JOINT DEVELOPMENT STUDY SITE ASSESSMENT  
Prepared for Orange County Transportation Authority

## 2 EXISTING NETWORK CONDITIONS

This section details the existing street conditions within the Fullerton Park and Ride study area, defined as ½ mile surrounding the facility. The existing transportation environment consists of an extensive network of arterials and local streets, bus transit services provided by OCTA, bikeways, and pedestrian pathways.

### 2.1 STREET NETWORK

**Magnolia Avenue** – Magnolia Avenue is classified as a primary arterial that travels north and south throughout the study area. The roadway is a four lane divided roadway with raised landscaped median islands. The posted speed limit is 40 miles per hour. On-street parking is not permitted along the roadway. No bikeways are currently located along Magnolia Avenue. OCTA operates local bus routes 25, 26, 33, 35, and 721 along the roadway.

**Orangethorpe Avenue** – Orangethorpe Avenue is classified as a major arterial that travels east and west throughout the study area. The roadway is currently constructed as a six lane divided roadway. The posted speed limit is 45 miles per hour. On-street parking is not permitted along the roadway. Existing Class II bikeways are located along Orangethorpe Avenue from South Vine Avenue to Basque Street. OCTA operates local bus Route 30 along the roadway.

**Gilbert Street** – Gilbert Street is a local road that travels north and south throughout the study area. It is a two lane undivided roadway. The posted speed limit is 30 miles per hour. On-street parking is permitted along a portion of the roadway.

**Auto Center Drive** – Auto Center Drive is a local road that travels north and south throughout the study area. It is a two lane undivided roadway. The posted speed limit is 25 miles per hour. On-street parking is permitted along a portion of the roadway.

The Fullerton Park and Ride is served by four access driveways. There are three access driveways located along Orangethorpe Avenue, and one access located off of Magnolia Drive on the SR-91 on-ramp.

Magnolia Avenue provides access to SR-91 and I-5 in the vicinity of the project site. Additional access to I-5 is provided via Auto Center Drive to the north.

### 2.2 BIKEWAY NETWORK

While the study area contains a network of bikeways along several arterials throughout the City, there is a lack of bikeways on the immediate surrounding streets on Orangethorpe Avenue and Magnolia Avenue. However, there is bicycle infrastructure present, as there are two standard bike racks, one at each end of the transit boarding area.

The City of Fullerton has an existing bikeway network that provides circulation and internal community links as well as access to the regional bikeway network. The City utilizes the standards developed by Caltrans to classify its bikeways and is defined as follows:

**Class I (Bike Path):** Provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flow minimized.

**Class II (Bike Lane):** Provides a striped lane for one-way bike travel on a street or highway.

**Class III (Bike Route):** Provides for shared use with pedestrian or motor vehicle traffic.

Figure 2.1 illustrates the existing and proposed bikeway network located within the Fullerton Park and Ride study area.

Existing bikeways/trails in the vicinity of the Fullerton Park and Ride include the following:

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3



- Class II on-street bike lane on Orangethorpe Avenue between South Vine Avenue and Basque Avenue
- Class III bike route on Gilbert Street between Orangethorpe Avenue and Valencia Drive
- Class III bike route on Valencia Drive between Magnolia Avenue and Brookhurst Street
- Class III bike route on Brookhurst Road between Orangethorpe Avenue and Valencia Drive

The City of Fullerton adopted an updated General Plan in 2012, which included the adoption of a Bicycle Master Plan to guide bikeway planning within the city. Planned bikeways in the vicinity of the Fullerton Park and Ride are noted as the following:

- Class I bike path on Olive Avenue from Magnolia Avenue to Basque Street
- Class II on-street bike lane on Orangethorpe Avenue between Auto Center Drive and Magnolia Avenue
- Class II on-street bike lane on Valencia Drive between Gilbert Street and Brookhurst Road
- Class III bike route on Magnolia Avenue between Orangethorpe Avenue and Valencia Drive

FIGURE 2.1 Fullerton Bikeway Network



Legend  
 Class 2 Existing Bikeway

## 2.3 PEDESTRIAN NETWORK

The Fullerton Park and Ride serves as an active pedestrian zone, but the site is challenged by its immediate surroundings. The site is bounded by residential and commercial uses to the north and east. The I-5 and SR-91 freeways border the site to the south and west. Existing infrastructure, such as sidewalks, along major corridors support pedestrian activity in the area. Additionally, pedestrian crosswalks are also present at all major intersection crossings. Consideration should be given to improving wayfinding signage to assist transit patrons and visitors. Consideration should also be given to improving the lighting conditions within the area. Improved lighting conditions could help enhance pedestrian comfort and safety within the study area.

## 2.4 TRANSIT NETWORK

Seven OCTA bus routes and one LA Metro bus route serve the Fullerton Park and Ride site, as illustrated in Figure 2.2. Buses currently enter the site via the 91 West Freeway/Park and Ride entrance ramp, just south of the Park and Ride off Magnolia Street, or through the access driveways along Orangethorpe Avenue. Route 30 is the only route that does not enter the site, as it passes along Orangethorpe Avenue. Once at the Fullerton Park and Ride site, buses dock at one of fourteen existing bus bays located along the southern edge of the site. The seven OCTA bus routes and one LA Metro bus route that serve the Fullerton Park and Ride site are summarized in Table 2.1 below.

The Fullerton Park and Ride has covered bus bays for seven routes, including routes to Anaheim (including Disneyland), Buena Park (including Knott's Berry Farm), Placentia, Stanton, Westminster, Fountain Valley, Anaheim, Garden Grove, and Huntington Beach. Express bus service is offered to and from Los Angeles six times daily. In addition, OCTA recently included the Bravo! 529 rapid bus route that originates at the Fullerton Park and Ride and extends to the Goldenwest Transportation Center. The site is easily accessible from local freeways via the I-5/Magnolia interchange.

The eight bus routes that serve the Fullerton Park and Ride are described below:

**OCTA Route 25:** This route provides weekday and Saturday, Sunday, and Holiday services from Fullerton to Huntington Beach. It starts at the Fullerton Park and Ride, travels west then southerly through the cities of Buena Park and Cypress, then ends at the station of Pacific Coast Highway/1<sup>st</sup> in Huntington Beach. This route operates at approximately 55-minute headways at the Fullerton Park and Ride and provides 21 trips from this site on a daily basis.

**OCTA Route 26:** This route provides weekday and Saturday, Sunday, and Holiday services from Fullerton to Placentia. It starts at the Fullerton Park and Ride, travels west and northerly through the cities of Buena Park, Fullerton, then ends at the Rose/Yorba Linda station in Placentia. This route operates at approximately 25-minute headways at the Fullerton Park and Ride and provides 41 trips to this site on a daily basis.

**OCTA Route 30:** This route provides weekday and Saturday, Sunday, and Holiday services from Cerritos to Anaheim. It starts at the Los Cerritos Center, travels northerly through the cities of La Palma, Fullerton, and Placentia, then ends at the station of Esperanza/Fairlynn in the City of Anaheim. This route operates at approximately 30-minute headways at the Fullerton Park and Ride and provides 53 trips to this site on a daily basis.

**OCTA Route 33:** This route provides weekday and Saturday, Sunday, and Holiday services from Fullerton to Huntington Beach. It starts at the Fullerton Park and Ride, travels southerly through the cities of Stanton, Westminster, Fountain Valley, and ends at the Magnolia/Coast Highway station in Huntington Beach. This route operates at approximately 40-minute headways at the Fullerton Park and Ride and provides 23 trips to this site on a daily basis.

**OCTA Route 35:** This route provides weekday services from Fullerton to Costa Mesa. It starts at the Fullerton Park and Ride, travels easterly and southerly through the City of Anaheim, Garden Grove, Westminster, Fountain Valley, and ends at the 19<sup>th</sup>/Meyer station at in Huntington Beach. This route operates at approximately 30-minute headways at the Fullerton Park and Ride and provides 36 trips to this site on a daily basis.

**OCTA Route 721:** This route provides express weekday services from Fullerton to Los Angeles. It starts at the Fullerton Park and Ride, travels easterly and southerly to Los Angeles, and makes two stops at Flower/7<sup>th</sup> and Beaudry/5<sup>th</sup>. This route operates at approximately 30-minute headways at the Fullerton Park and Ride and provides 36 trips to this site on a daily basis. This route operates at approximately 1-hour headways during peak times at the Fullerton Park and Ride and provides 6 trips to this site on a daily basis.

**OCTA Bravo! 529 Route:** This route provides rapid weekday service from the Fullerton Park and Ride to the Golden West Transit Center in Huntington Beach. The bus travels westerly along Orangethorpe Ave, and south on Beach, making key stops at Knott's Berry Farm, Beach/Katella, and Beach/Westminster. This route provides 12 minute headways during peak hours and 18 minute headway for off-peak hours. Bravo! 529 provides 51 trips each weekday.

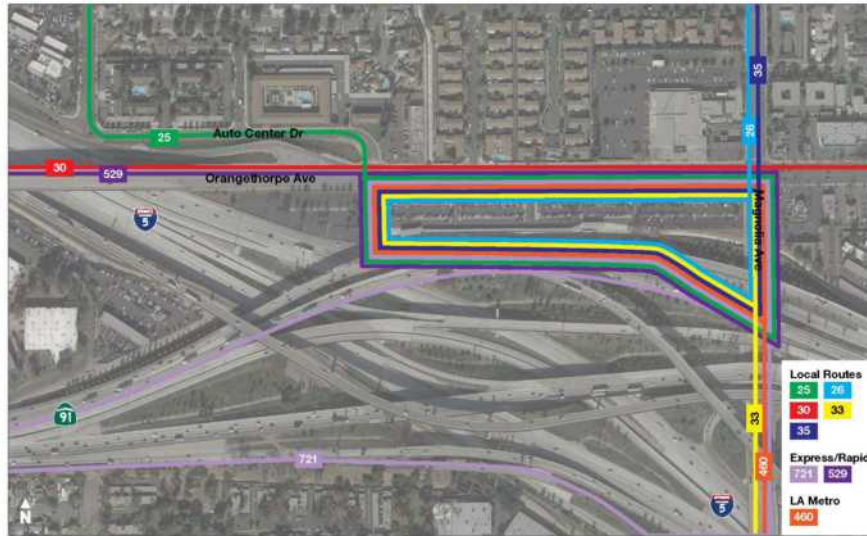
**LA Metro Route 460:** This Los Angeles Metro route provides weekday, Saturday, Sunday and holiday express services from Disneyland to Downtown Los Angeles. It starts at Disneyland, travels northerly through the cities of Fullerton and Norwalk, and ends at 6<sup>th</sup> & Los Angeles. This route operates at approximately 20-minute headways at the Fullerton Park and Ride and provides 35 trips to this site on a daily basis.

**TABLE 2.1: TRANSIT OPERATIONS**

OCTA ROUTE	STREETS	WEEKDAY PEAK HEADWAY	NUMBER OF DAILY TRIPS
25	First, Goldenwest, Knott, Artesia, Dale, Magnolia	55 minutes	21
26	Magnolia, Commonwealth, Nutwood, State College, Placentia, Bradford, Yorba Linda, Linda Vista, Rose	25 minutes	41
30	Orangethorpe, Gridley, 183rd	30 minutes	53
33	Magnolia	40 minutes	23
35	Magnolia, Commonwealth, Brookhurst, Victoria, Placentia, 19 <sup>th</sup> , Newport	30 minutes	36
721	Magnolia, SR-91, I-110, Figueroa, 4 <sup>th</sup> , 5 <sup>th</sup> , Flower	30 minutes	36
529	Orangethorpe, Beach, Center	12 minutes	51
LA Metro 460	Disneyland, I-105, I-110, Downtown Los Angeles	20 minutes	35



FIGURE 2.2 Fullerton Park and Ride Transit Network



 FULLERTON PARK AND RIDE JOINT DEVELOPMENT STUDY  
 Orange County Transportation Authority

IBI GROUP October 2019

## 3 EXISTING PARKING CONDITIONS

This section details the existing parking conditions at the Fullerton Park and Ride. It includes an assessment of existing parking supply and demand at the facility. This section also summarizes the data collection process and parking analysis methodology.

### 3.1 METHODOLOGY

Parking occupancy counts were conducted during the day at the Fullerton Park and Ride site on a weekday. The daytime parking surveys were performed between 7:00 AM and 6:00 PM to provide information on variations in parking demand between AM/PM peak hours. The parking surveys were conducted while schools were in session on:

- Wednesday, September 19, 2018

The detailed parking count survey can be found in Appendix A of this report.

### 3.2 EXISTING PARKING SUPPLY

The Fullerton Park and Ride site offers 745 off-street parking spaces in its surface parking lot. Of the 745 parking spaces, 29 parking spaces are reserved for ADA parking. Access to the parking site is not controlled and no fees are charged for parking at the site. On-street parking is not permitted on any of the streets adjacent to the Fullerton Park and Ride site.

### 3.3 EXISTING PARKING DEMAND

The following section summarizes existing parking occupancy observed on a weekday. Results of the parking occupancy survey revealed occupancy percentages of 40% to 50% for the peak hours between 7:00 AM and 6:00 PM. Table 3.1 summarizes the results of the parking occupancy survey. The numbers below reflect the number of occupied spaces and the ratio of occupancy including all spaces in the lot (both standard and ADA spaces).



**TABLE 3.1: PARKING OCCUPANCY SURVEY**

TIME	09/19/2018 SURVEY	
	OCCUPIED SPACES	PERCENTAGE
7:00 AM	311	42%
8:00 AM	345	46%
9:00 AM	346	46%
10:00 AM	337	45%
11:00 AM	341	46%
12:00 PM	330	44%
1:00 PM	332	45%
2:00 PM	319	43%
3:00 PM	305	41%
4:00 PM	266	36%
5:00 PM	188	25%
6:00 PM	144	19%

The survey reported peak parking demand occurred from 8:00 AM to 11:00 AM with an occupancy rate of approximately 46%. Parking occupancy percentages equal to or greater than 85% is typically considered to be reflective of at capacity or near capacity conditions.

There is the potential for parking demand to change in the future. The Draft OCTA 2018 Long Range Transportation Plan (LRTP) identifies two new high-quality transit projects that would serve the Fullerton Park and Ride. These two projects include a high quality transit service along Beach Boulevard project between the Fullerton Park and Ride and Downtown Huntington Beach and a Freeway BRT operating in the Interstate 5 Corridor between the Fullerton Park and Ride and Mission Viejo/Laguna Niguel Metrolink Station. If these projects are implemented, there could be a future increase in parking demand at the Fullerton Park and Ride.

## 4 EXISTING TRAFFIC CONDITIONS

This section summarizes the existing traffic conditions within the Fullerton Park and Ride area, including AM and PM peak traffic volumes for vehicles, bicyclists, and pedestrians, as well as an assessment of existing mode split for persons accessing the site.

### 4.1 METHODOLOGY

#### 4.1.1 TRAFFIC COUNT DATA

The existing intersection turning movement counts were taken on Wednesday, September 19, 2018 during the morning peak period (7:00 AM to 9:00 AM) and the afternoon peak period (4:00 PM to 6:00 PM) for vehicular, bicycle, and pedestrian traffic. The counts were conducted to capture peak weekday travel behavior when school was in session. The detailed traffic count data can be found in Appendix B of this report.

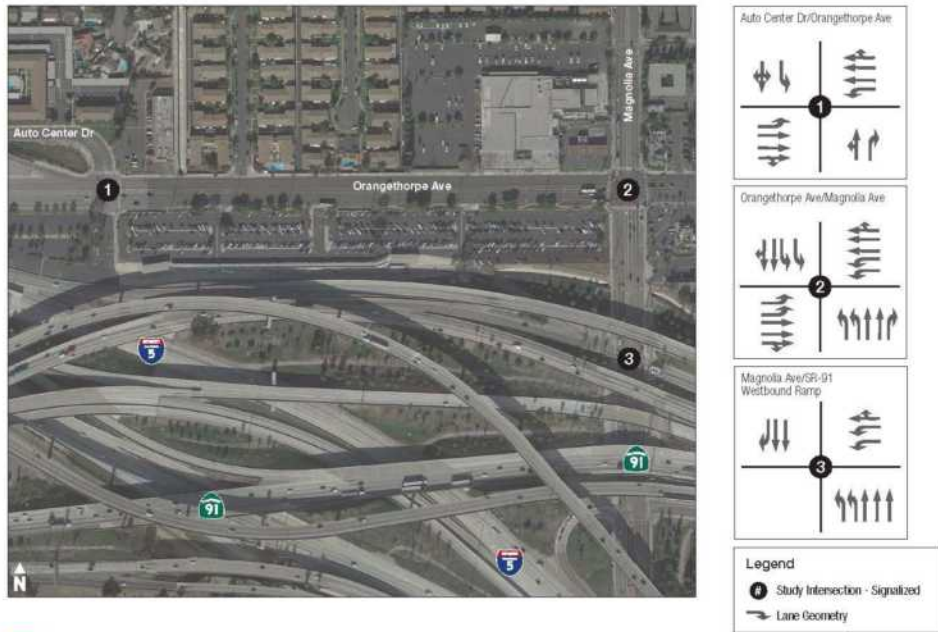
#### 4.1.2 EXISTING GEOMETRY AND CONTROL

The intersection analysis includes an assessment of 3 study intersections:

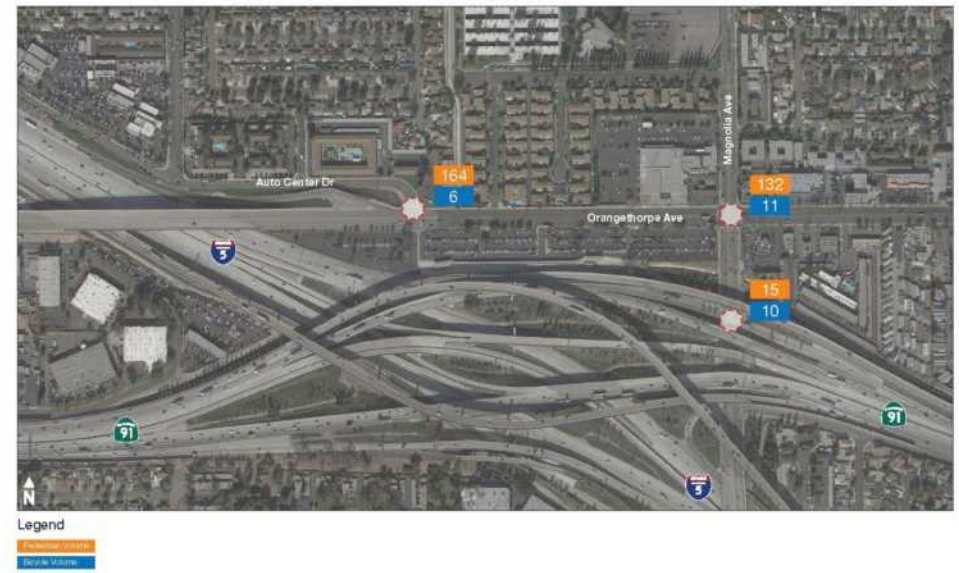
1. Auto Center Drive and Orangethorpe Avenue
2. Magnolia Avenue and Orangethorpe Avenue
3. Magnolia Avenue and SR-91 Westbound Off-Ramp

Figure 4.1 illustrates the study intersections along with the existing intersection geometry and control.

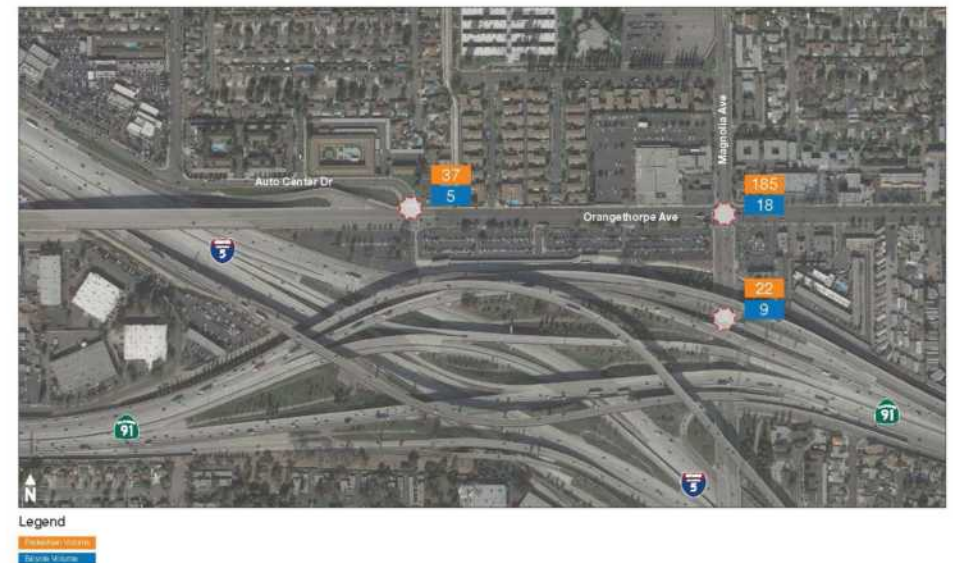
**FIGURE 4.1** Existing Intersection Geometry and Control



**FIGURE 4.4** Existing Active Transportation Volumes – AM Peak Period



**FIGURE 4.5** Existing Active Transportation Volumes – PM Peak Period



### 4.3 SITE ACCESS MODE SPLIT

In addition to AM and PM peak period traffic volume counts, a survey of arrival trip types was also conducted to evaluate the modal share of the Fullerton Park and Ride site. The survey assessed what mode of transportation visitors used to travel to the Fullerton Park and Ride site. The survey was conducted on the same weekday as the traffic volume counts, between the AM peak hours of 7:00 AM to 9:00 AM and between the PM peak hours of 4:00 PM and 6:00 PM. An evaluation of the AM peak period shows a majority of users, approximately 54%, drove and parked at the Fullerton Park and Ride site before riding transit. In contrast, during the PM peak period, a majority of users, approximately 57%, were dropped off at the Fullerton Park and Ride site. The results of the modal share evaluation are illustrated in Figures 4.6 and 4.7 below. The detailed modal share survey can be found in Appendix C of this report.

FIGURE 4.6: MODAL SHARE – AM PEAK

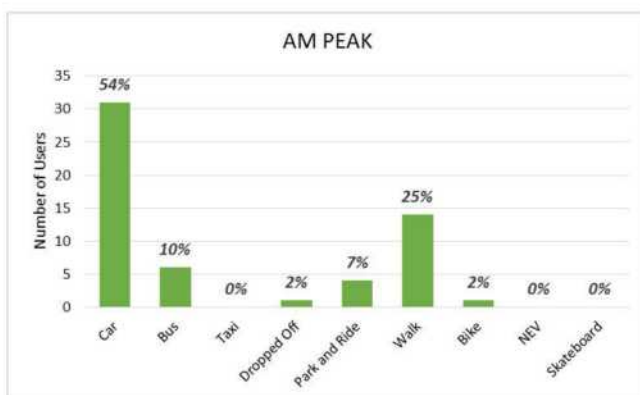
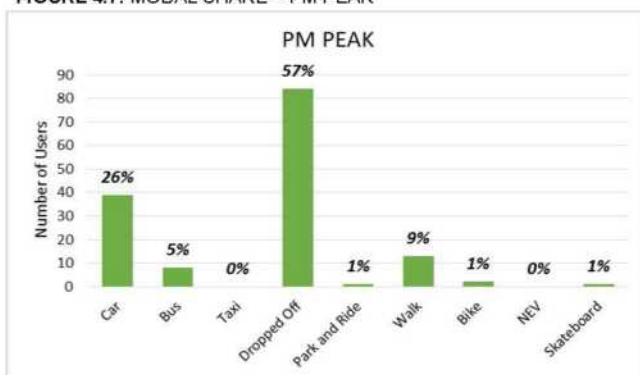


FIGURE 4.7: MODAL SHARE – PM PEAK



## 5 COLLISION HISTORY

As a part of the Fullerton Park and Ride site assessment, collision history data was also collected and evaluated. Collision data involving vehicles, bicyclists and pedestrians was collected from the Statewide Integrated Traffic Records System (SWITRS) for the five-year time ending on December 31, 2015. This section summarizes the collision history involving vehicles, bicyclists, and pedestrians within the Fullerton Park and Ride vicinity.

### 5.1 VEHICULAR COLLISION SUMMARY

As indicated by the modal share assessment, a majority of users arrive to the Fullerton Park and Ride site by driving. Upon review of the five-year SWITRS collision history data, it was noted that approximately 592 vehicular collisions occurred within a 1-mile radius of the Fullerton Park and Ride site. A majority of the reported collisions occurred on the 91 Freeway and I-5 Interchange. Figure 5.1 illustrates the locations of vehicular collisions within the vicinity of the Fullerton Park and Ride site for the five-year period from January 1, 2011 to December 31, 2015.

### 5.2 BICYCLE COLLISION SUMMARY

Upon review of the five-year SWITRS collision history data, it was noted that approximately 49 bicycle collisions occurred within a 1-mile radius of the Fullerton Park and Ride site. Figure 5.2 illustrates the locations of bicycle collisions within the vicinity of the Fullerton Park and Ride site for the five-year period ending from January 1, 2011 to December 31, 2015.

### 5.3 PEDESTRIAN COLLISION SUMMARY

Upon review of the five-year SWITRS collision history data, it was noted that approximately 43 pedestrian collisions occurred within a 1-mile radius of the Fullerton Park and Ride site. Figure 5.3 illustrates the locations of pedestrian collisions within the vicinity of the Fullerton Park and Ride site for the five-year period from January 1, 2011 to December 31, 2015.



FIGURE 5.1 2011 -2015 Vehicular Collision Locations

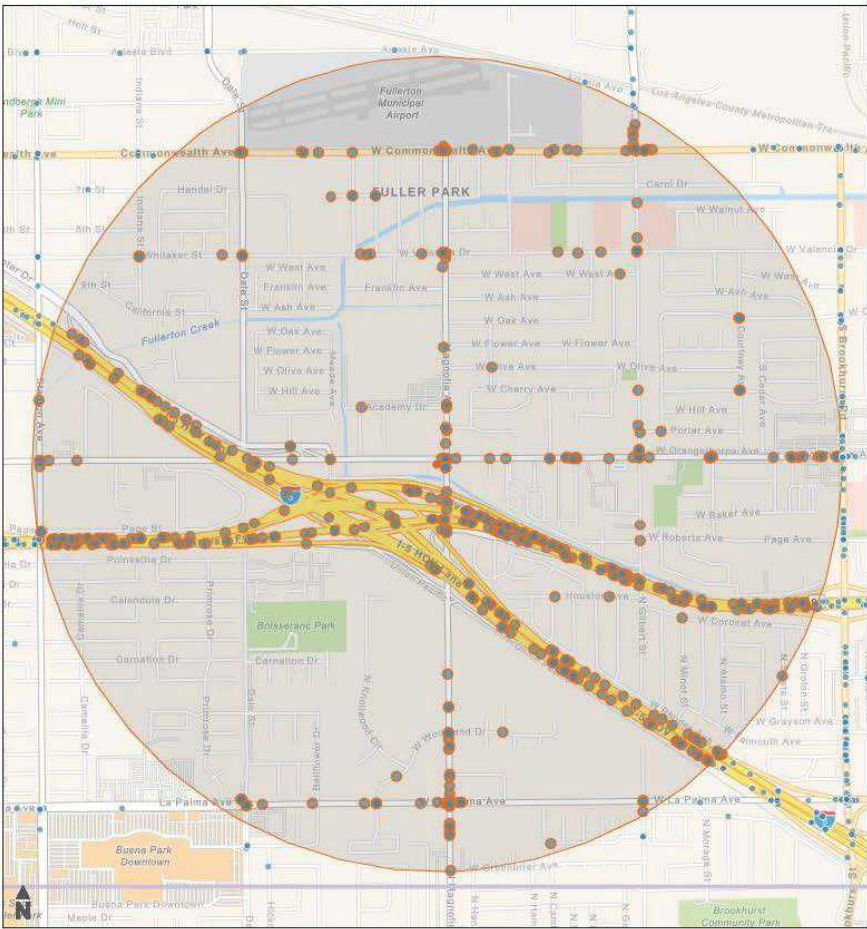


FIGURE 5.2 2011 -2015 Bicycle Collision Locations







## 6.2 EXISTING BICYCLE CONDITIONS

The following observations were made regarding bicycle access at the site:

- There are two bike racks, one at each shelter on the ends. There were no bicycles observed to be parked at any of the racks provided.
- The bike racks are a style manufactured widely in the 1950's that hold only a portion of the bike's front tire. These racks are named "schoolyard" racks by the Association of Pedestrian and Bicycle Professionals (APBP), and should be avoided because they do not secure the bike frame in two places, but only lock the front wheel. Front wheels can be detached from the rest of the bike when the frame is not secured.
- There are no bike lockers on the site. Bike lockers are advantageous to have when customers lock their bikes for longer periods of time.
- Bicycle connections to the park and ride from the surrounding community were found to be lacking. There are no designated bicycle lanes on streets immediately adjacent to the park and ride on Magnolia Avenue and Orangethorpe Avenue.
- Cyclists can cross under I-5 using the Magnolia Avenue; however, there are no existing bikeway facilities to support this travel.
- Wayfinding signage directing cyclists and pedestrians to the Fullerton Park and Ride, restaurants and employment centers near the transit center were absent.
- There is no internal bicycle circulation signage or striping once inside the park and ride area.
- There were no bike racks observed at other destinations in the larger planning area.



## 6.3 EXISTING PEDESTRIAN CONDITIONS

The following observations were made regarding pedestrian access at the site:

- There is an ample supply of sidewalks well connected through the site on the street frontages.
- Internal pedestrian circulation is not guided by designated pathways or signage. Striped crosswalks are present in certain, but not all locations. Pedestrians are observed walking through parking lots and crossing at mid-block locations.
- There are narrow sidewalks on the main dock, located to the north side of the bathrooms.
- The bathrooms building facilities were designed in a way that inhibit openness of pedestrian traffic and general transparency.
- There are plenty of benches and trashcans present. However, a pedestrian would have to sit at a different dock's bench if more than 4 other people are waiting for the same bus.
- There are no pamphlets for transit info in the pamphlet container.

- ADA yellow bumper strips are plentiful.
- Dock signs could be upgraded.
- The 2 ADA ramps to get onto the dock are far away from the majority of ADA parking spaces. The priority goes is to the passenger loading zone.
- Marked crosswalks are provided at multiple locations so that pedestrians can access the bus shelters using designated pathways instead of walking through the parking lot.

## 6.4 EXISTING AESTHETIC CONDITIONS

The following observations were made regarding aesthetic conditions at the site:

- The Fullerton Park and Ride has decently landscaped buffers along the Magnolia Avenue and Orangethorpe Avenue frontage. However, landscaping within the site is sporadic.
- Sidewalks are provided along the frontage of the site on both Orangethorpe Avenue and Magnolia Avenue, but narrow down at bus stations that have restricting blue colored walls.
- General street painting of the site could use a full update.
- The location of the Fullerton Park and Ride at the intersection of two major freeways and two major arterial streets creates a fairly noisy environment.
- While waiting for a bus, people face the grey wall of the 91 Freeway West/ I-5 North interchange ramp. Perhaps a mural on this wall could improve the waiting experience.
- There is light graffiti in multiple locations on the site.
- The bathroom areas on the west and east sides do not smell good.
- The site, in its entirety, is relatively clean.





## 7 CURRENT TRANSIT RIDERSHIP AND DEMAND

Current transit ridership for the Fullerton Park and Ride is calculated from boardings and alightings provided by OCTA by transit stop number within Transportation Analysis Zone (TAZ) number 127. Seven different routes (25, 26, 33, 35, 721, 527, and Metro 460) dock at the Fullerton Park and Ride, in Docks 6/7, 5, 11, 10, 8, 11, and 3/4, respectively. Route 30 travels on Orangethorpe Avenue, but does not go within the Fullerton Park and Ride Facility. There are 3 bus stops on Orangethorpe directly adjacent to the Fullerton Park and Ride, one of which is eastbound.

### 7.1 FUTURE TRANSIT RIDERSHIP

In general, transit ridership or demand for transit in a given region will parallel the overall population growth of the area. OCTA's 2018 LRTP predicts a 10% growth in population, a 11% growth in housing and a 17% increase in employment in Orange County forecast to 2040. The forecasted growth is predicted to create increased travel demand and increased congestion along already congested regional highways, local roadways, rail lines, and bus systems.

Local area ridership forecasts, such as for the routes serving the Fullerton Park and Ride and its vicinity, are driven by a combination of both local and regional growth factors. The Fullerton Park and Ride serves as a regional transit hub for destinations outside of Fullerton and will experience some regional growth. However, the area immediately surrounding the transit center is generally built out, so limited increases to local transit trips is anticipated as a result of local population growth. Transit trip growth would be anticipated to result more from the introduction of new transit services, including the Beach Boulevard transit corridor project and the Freeway BRT project identified in the 2018 LRTP.

## 8 PROJECTED TRAVEL CONDITIONS BY MODE

The OCTA 2018 LRTP forecasts increased trips and anticipated congestion for all modes of travel resulting from continued development of the remaining vacant land in Orange County, and the increased densification of already built-out areas. Table 8.1 below identifies expected growth of 16,000 transit trips per day, which will cause a 6.2% increase in delay as a percent of travel time. In addition, average freeway speed during peak morning traffic is expected to reduce from from the 38.3mph to just 36.4mph by 2040. Future additional congestion and delay on freeways is an issue to consider for all drivers and potential joint development at the Fullerton Park and Ride.

**TABLE 8.1: PERFORMANCE OF FREEWAYS AND ARTERIALS IN THE 2015 BASE YEAR AND 2040 BASELINE SCENARIO**

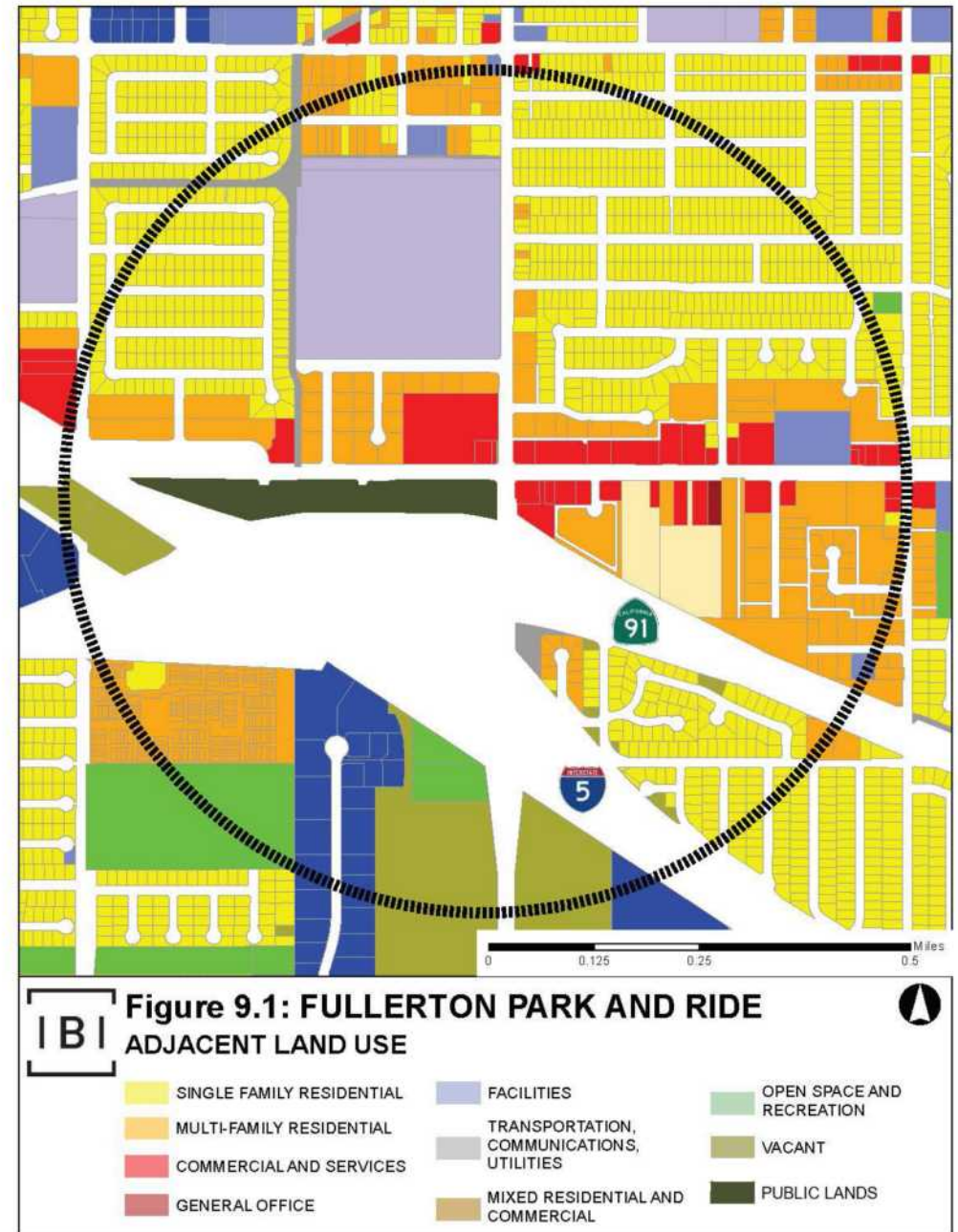
TRANSPORTATION SYSTEM PERFORMANCE SUMMARY			
Metrics (daily)	2015 Base Year	2040 Baseline	Trend 2040
Vehicle passenger delay per capita (minutes)	8.3	12.5	8.7
Vehicle passenger travel time per capita (minutes)	54.5	58.5	55.9
Delay as a percent of travel time	15.2%	21.4%	15.5%
Transit trips	149,000	165,000	174,000
Freeways - AM peak average speed (mph)	38.3	36.2	39.5
Managed lanes - AM peak capacity utilization	77%	83.6%	60%
Arterials - AM peak average speed (mph)	25.7	24.3	25.8

Note: Trend 2040 assumes managed lanes are operated as tolled express lanes by 2040

Source: OCTA 2018 LRTP<sup>4</sup>

## 9 LAND USE

The Fullerton Park and Ride site is located on an 11.1-acre parcel of land zoned for public land use. The area within a half-mile radius of the Fullerton Park and Ride site consists of mostly commercial, multi-family residential, single family residential, and public facilities uses. Figure 10.1 illustrates the various land uses within a half-mile radius of the Fullerton Park and Ride site as set forth by the City of Fullerton Zoning Code.





## 10 POTENTIAL OPPORTUNITIES AND CONSTRAINTS

The Fullerton Park and Ride has been identified by OCTA as a potential location for joint development opportunity.

### 10.1 JOINT DEVELOPMENT LITERATURE REVIEW

Several recent publications have provided guidance on the opportunities and recommended planning processes for joint public/private development projects in transit rich zones, summarized below:

**1. Moving Ahead for Progress in the 21st Century Act (MAP-21), Pub. L. 112-141 (2012),** informs FTA recipients of opportunities for private sector participation in public transportation projects, and includes the most current guidance for the federal public transportation program.

As a matter of policy, FTA encourages project sponsors to undertake joint development, and promotes the project sponsor's ability to work with the private sector and others to pursue joint development. Project sponsors can pursue joint development through new grants or with property previously acquired with FTA assistance. The project sponsor maintains satisfactory continuing control over such property used in a joint development project by ensuring that the property continues to serve its originally authorized purpose. Proceeds derived from an FTA-assisted joint development project are considered program income, which the project sponsor may apply to eligible FTA capital or operating expenses.

FTA assistance may not be used in construction of TOD projects, although it may be used to plan TOD in conjunction with transit projects. Thus, while joint development can be considered a form of TOD, it is much smaller in scope and uses project property or grant funds owned by the recipient. When the joint development incorporates either real property or other project property for which FTA assistance has been provided, or a direct investment of FTA grant funds, federal requirements apply to the joint development project. The involvement of federal assistance notwithstanding,

FTA's policy is to encourage TOD. Both joint development and TOD leverage FTA assisted projects to develop local economies and to encourage private investment near public transportation.

**2. FTA Circular 7050.1 Federal Transit Administration Guidance on Joint Development, published August 25, 2014** provides the following definitions of joint transit development opportunities:

Joint Development definition: "A public transportation project that integrally relates to, and often co-locates with commercial, residential, mixed-use, or other non-transit development. Joint development may include partnerships for public or private development associated with any mode of transit system that is being improved through new construction, renovation, or extension. Joint development may also include intermodal facilities, intercity bus and rail facilities, transit malls, or historic transportation facilities".

Shared Use: "Instances in which a project partner, separate from the recipient, occupies part of a facility and pays for its' pro rata share of the construction, maintenance, and operations costs. Shared uses must be declared at the time of grant award. Shared use and incidental use are distinguishable."

Value Capture: "The term "value capture" means recovering the increased value of property located near public transportation resulting from the investments in public transportation. While value capture on the large scale often occurs through a special assessment district, tax-increment

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financing, or similar mechanisms, joint development is a meaningful value capture mechanism readily available to a project sponsor to be applied on the small scale of one or more parcels of real property it owns. Joint development is the value capture mechanism used most often for public transportation purposes. FTA encourages all forms of value capture that can contribute to the operation, maintenance, or expansion of public transportation service."

**3. The Federal Transit Administration's Planning for Transit-Supportive Development: A Practitioner's Guide (2014)** offers a number of lessons learned for integration of local land use planning and policy with strategies for transit investment. The relevant lessons for effective partnerships are summarized below. An education and outreach strategy is recommended in order for agency partners/community stakeholders to participate in making transit-supportive land uses a part of the community fabric. Educating and engaging with partners and the public is a prerequisite to forming a transit-supportive community.

Develop a community of champions. Assemble a collaborative team of forward thinking and dedicated community members. Select champions from the public, private and not-for-profit sectors and who represent a broad range of interests. Seek to ensure that the champions communicate frequently, collaborate closely on goals and agendas, and trust each other. Consider engaging champions through small task forces or committees that meet regularly and can provide information, support, and inspiration.

Educate and engage the public. Educating the public early and often is critical in gaining support. Clearly and effectively articulate the long-term vision for the transit system. Develop a clear and well-defined transit and/or transit-supportive development message. It is essential that the message be understandable and valuable to a large constituency. Images, key messaging, numbers, quantified results and benefits need to be carefully planned and consistent. Since there are many challenges in implementing a new transit system or transit-supportive developments, performance outcomes are often the best way to explain the objectives, choices and support needed. Place an emphasis on protecting and enhancing the existing community.

Emphasize the community context. Many components are needed to create a livable community. Transit is an important component but it is not the only piece of a sustainable community. Throughout the design and planning processes for transit systems and transit-supportive development, transit agencies and local governments should engage the community in developing plans and designs that reflect diverse neighborhoods with a strong sense of community. Give attention to community building goals instead of focusing solely on mobility objectives. The perspectives of transit agencies and other planning departments should be broadened so that transit is taken as a consideration and not the only driver of community goals.

Coordinate and collaborate with public agencies. Public agency coordination and collaboration are critical. Organizational structure and institutional policies can help ensure integrated land use and transit planning and implementation. In many cases, even within a single jurisdiction, it is difficult to work past the silos of multiple departments, each with its own mission and obligations. A municipality's organizational structure that places planning, economic development, transportation, and transit all under the municipality's purview can greatly streamline the way that transit planning is coordinated.

Form partnerships among agencies. For transit projects controlled by a municipality, coordination between the transit agency and the other departments, such as planning, should help streamline the planning efforts. Policies to prioritize transit improvements along select corridors and activity centers should be incorporated into citywide plans and programs and translated to street infrastructure investments as well as the new transit service. Cross-departmental coordination can facilitate efficient planning activities for route selections and station locations, as well as actions to encourage and enable transit-supportive development.

**4. TRB Report 182: Linking Transit Agencies and Land Use Decision-Making: A Guidebook for Transit Agencies (October 2015)** This guidebook presents a range of tools and

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tips for enhancing communication and coordination as well as building a transit-supportive community. While transit agencies lack the jurisdictional authority to ensure that land use decisions are transit-supportive, they can collaborate with and proactively engage a broad range of major stakeholders and the general public to achieve the desired land use outcomes. The key tools for enhancing communication and coordination include:

Partnering - Early and sustained communication provides the best outcomes and increases chances of better land use decisions. Formal and informal processes of engaging transit agencies in the decision making process can both be effective in fostering early communication. Informal structures of coordination can be as equally worthwhile as formal structures of coordinating if both the transit agency and the local government value the participation and comments provided by the other. Encouraging cities to incorporate transit considerations during their development review process can allow local jurisdictions to identify potential transit issues early on. Key tools include working groups, workshops and educational programs, and monitoring and referrals.

Strategic guidebooks - Many local governments, transit agencies, and non-profit advocacy groups have developed handbooks and guidebooks related to transit-supportive development. The use of a guidebook and/or a website to highlight the importance of inter-agency communication, collaboration, and coordination are common strategies used to address challenges and overcome barriers associated with implementing transit-supportive development projects.

Articulating the costs and benefits - Local government land use planners and/or private developers may not fully understand the service and operational issues related to their land use decisions, the benefits and need for transit, or the relationship between transit and land use. Transit agencies can explain various transit requirements and make the case for including transit officials in future land use decisions. In making their case, transit agencies can explain the costs and benefits.

## 10.2 SUMMARY OF OPPORTUNITIES

The timing of this study examining options and joint development for the Fullerton Park and Ride affords OCTA with several opportunities to design a transit site that would meet the needs of its customers in the future and allow OCTA the ability to evolve with changing trends in mobility and transportation that are currently underway.

Transit centers and transportation facilities need to incorporate flexibility to meet current transportation needs and to accommodate the rapid changing landscape of individual mobility. The Fullerton Park and Ride has not drastically changed since the 1980's, making the current site infrastructure limited in its ability to adequately serve rapid expanding markets for electric vehicles, shared ride services, and active transportation modes.

The site planning efforts will explore not only opportunities for joint development on the Fullerton Park and Ride, but strategies and opportunities for improving the form and function of the site. A summary of the opportunities identified by this study, previous studies, and the literature review for the Fullerton Park and Ride include:

- Joint development and public private partnership opportunities
- Integrate transit rider needs for signs and benches into redevelopment plans
- Integrate bicycle pathways and parking into the redevelopment plans
- Designate pedestrian pathways throughout the site
- Excess parking supply can be redeveloped
- Community and local employer participation in the planning process
- Expand parking for a Park and Fly operation

- Redesign Fullerton Park and Ride to better serve future bus operation needs
- "Right size" parking and promote flexibility in design to meet today's needs, as well as the changing needs for parking in the future
- Identify the appropriate location and configuration of additional customer parking
- Improve wayfinding signage from the freeways to the Fullerton Park and Ride
- Explore potential for revenue capture opportunities of an updated Park and Ride
- Formalize shared use agreements with various transit operators
- Improve the environment and public health with more opportunities to walk and bicycle
- Current Fullerton Park and Ride does not reach capacity
- FTA grant funding available for joint development projects

## 10.3 SUMMARY OF CONSTRAINTS

The list of issues and constraints summarized below is drawn from the research and data collected for this task, in addition to the observations made at the site:

- OCTA doesn't own the land around the Park and Ride
- Free parking encourages driving and doesn't allow for revenue capture from parking fees
- Multiple parties are not communicating their interests and needs for this site, missing joint planning opportunities
- Private transit operators function separately
- OCTA may be financially constrained to buy more land for transit parking
- The site is physically constrained by the freeway and existing development and there is no undeveloped land in the vicinity

## 10.4 MATRIX OF OPPORTUNITIES AND CONSTRAINTS

OPPORTUNITIES AND CONSTRAINTS	TRANSIT	BICYCLES & PEDESTRIANS	CARS
<b>Opportunities</b>			
Joint development and public private partnership opportunities			
Integrate transit rider needs for signs and benches into redevelopment plans			
Integrate bicycle pathways and parking into the redevelopment plans			
Designate pedestrian pathways throughout the site			
Excess parking supply can be redeveloped			
Community and local employer participation in the planning process			
Expand parking for a Park and Fly operation			
Redesign Fullerton Park and Ride to better serve future bus operation needs			
"Right size" parking and promote flexibility in design to meet today's needs, as well as the changing needs for parking in the future			
Identify the appropriate location and configuration of additional customer parking			
Improve wayfinding signage from the freeways to the Fullerton Park and Ride			
Explore potential for revenue capture opportunities of an updated Park and Ride			
Formalize shared use agreements with various transit operators			
Improve the environment and public health with more opportunities to walk and bicycle			
Current Fullerton Park and Ride does not reach capacity			
FTA grant funding available for joint development projects			
<b>Constraints</b>			
OCTA doesn't own the land around the Park and Ride			
The site is physically constrained by the freeway and existing development and there is no undeveloped land in the vicinity			
Free parking encourages driving and doesn't allow for revenue capture from parking fees			
Private transit operators function separately			
OCTA may be financially constrained to buy more land for transit parking			

## 11 APPENDIX

### 11.1 APPENDIX A: PARKING SURVEY

Fullerton Park and Ride

Wednesday, September 10th, 2015

Zone	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM
Zone 1	156	156	156	156	156	156	156	156	156	156	156	156
Zone 2	156	156	156	156	156	156	156	156	156	156	156	156
Zone 3	156	156	156	156	156	156	156	156	156	156	156	156
Zone 4	156	156	156	156	156	156	156	156	156	156	156	156
Zone 5	156	156	156	156	156	156	156	156	156	156	156	156
Total Capacity	156	156	156	156	156	156	156	156	156	156	156	156
Total Demand	156	156	156	156	156	156	156	156	156	156	156	156
Total Supply	156	156	156	156	156	156	156	156	156	156	156	156

## 11.2 APPENDIX B: TRAFFIC COUNT DATA

Counts Unlimited  
PO Box 1178  
Corona, CA 92678  
(951) 268-6268

City of Fullerton  
N/S: Auto Center Drive  
E/W: Orangethorpe Avenue  
Weather: Clear

File Name : 01\_FLN\_Auto\_Center\_Orangethorpe AM  
Site Code : 20218690  
Start Date : 9/19/2018  
Page No : 1

Groups Printed- Total Volume																	
Auto Center Drive Southbound					Orangethorpe Avenue Westbound				Auto Center Drive Northbound				Orangethorpe Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	83	1	6	90	1	188	26	195	1	1	5	7	12	203	3	218	510
07:15 AM	125	1	21	147	0	227	29	256	7	1	8	16	11	243	7	261	680
07:30 AM	111	1	20	132	1	294	45	340	11	3	6	20	11	305	19	335	827
07:45 AM	102	2	25	129	0	339	64	403	2	5	5	12	17	242	5	264	808
Total	421	5	72	498	2	1028	164	1194	21	10	24	55	51	993	34	1078	2825
08:00 AM	117	1	20	138	1	174	32	207	2	0	4	6	12	189	1	202	553
08:15 AM	78	0	18	96	0	157	20	177	0	0	5	5	17	178	0	195	473
08:30 AM	73	0	11	84	1	142	20	163	1	0	4	5	7	162	0	169	421
08:45 AM	68	1	15	84	1	139	17	157	3	2	4	9	16	123	1	142	392
Total	336	2	64	402	3	612	89	704	6	2	17	25	54	652	2	708	1839
Grand Total	757	7	136	900	5	1640	253	1898	27	12	41	80	105	1645	36	1786	4664
Approach %	84.1	0.8	15.1		0.3	86.4	13.3		33.8	15	51.2		5.9	92.1	2		
Total %	16.2	0.2	2.9	19.3	0.1	35.2	5.4	40.7	0.8	0.3	0.9	1.7	2.3	35.3	0.8	38.3	

Auto Center Drive Southbound				Orangethorpe Avenue Westbound				Auto Center Drive Northbound				Orangethorpe Avenue Eastbound					
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	125	1	21	147	0	227	29	256	7	1	8	16	11	243	7	261	680
07:30 AM	111	1	20	132	1	294	45	340	11	3	6	20	11	305	19	335	827
07:45 AM	102	2	25	129	0	339	64	403	2	5	5	12	17	242	5	264	808
08:00 AM	117	1	20	138	1	174	32	207	2	0	4	6	12	189	1	202	553
Total Volume	455	5	86	546	2	1034	170	1208	22	9	23	54	51	979	32	1062	2868
% App. Total	83.3	0.9	15.8		0.2	85.7	14.1		40.7	16.7	42.6		4.8	92.2	3		
PHF	.910	.625	.860	.929	.500	.763	.664	.748	.500	.450	.719	.675	.750	.802	.421	.793	.867

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

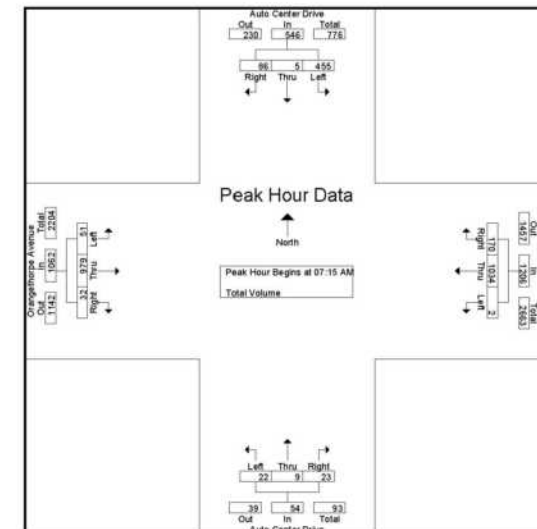
Peak Hour for Each Approach Begins at:

07:30 AM	111	1	20	132	1	294	45	340	11	3	6	20	11	305	19	335	827
07:45 AM	102	2	25	129	0	339	64	403	2	5	5	12	17	242	5	264	808
08:00 AM	117	1	20	138	1	174	32	207	2	0	4	6	12	189	1	202	553
Total Volume	455	5	86	546	2	1034	170	1208	22	9	23	54	51	979	32	1062	2868
% App. Total	83.3	0.9	15.8		0.2	85.7	14.1		40.7	16.7	42.6		4.8	92.2	3		
PHF	.910	.625	.860	.929	.500	.763	.664	.748	.500	.450	.719	.675	.750	.802	.421	.793	.867

Counts Unlimited  
PO Box 1178  
Corona, CA 92678  
(951) 268-6268

City of Fullerton  
N/S: Auto Center Drive  
E/W: Orangethorpe Avenue  
Weather: Clear

File Name : 01\_FLN\_Auto\_Center\_Orangethorpe AM  
Site Code : 20218690  
Start Date : 9/19/2018  
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

Auto Center Drive Southbound				Orangethorpe Avenue Westbound				Auto Center Drive Northbound				Orangethorpe Avenue Eastbound				Int. Total
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
+0 mins	125	1	21	147	0	227	29	256	1	1	5	7	12	203	3	218
+15 mins	111	1	20	132	1	294	45	340	7	1	8	16	11	243	7	261
+30 mins	102	2	25	129	0	339	64	403	11	3	6	20	11	305	19	335
+45 mins	117	1	20	138	1	174	32	207	2	5	5	12	17	242	5	264
Total Volume	455	5	86	546	2	1034	170	1206	21	10	24	55	51	993	34	1078
% App. Total	83.3	0.9	15.8		0.2	85.7	14.1		38.2	18.2	43.6		4.8	92.2	3.2	
PHF	.910	.625	.860	.929	.500	.763	.664	.748	.477	.500	.750	.688	.750	.814	.447	.804



Counts Unlimited  
PO Box 1178  
Corona, CA 92878  
(951) 268-6268

City of Fullerton  
N/S: Auto Center Drive  
E/W: Orangethorpe Avenue  
Weather: Clear

File Name : 01\_FLN\_Auto Center\_Orangethorpe PM  
Site Code : 20218690  
Start Date : 9/19/2018  
Page No : 1

Groups Printed- Total Volume																	
Auto Center Drive Southbound					Orangethorpe Avenue Westbound				Auto Center Drive Northbound				Orangethorpe Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	84	0	25	109	0	281	51	332	1	3	3	7	20	197	0	217	665
04:15 PM	75	0	29	104	2	278	41	321	1	0	3	4	16	188	1	205	634
04:30 PM	74	0	24	98	0	265	33	298	5	2	5	12	28	218	2	248	656
04:45 PM	67	0	30	97	0	288	41	329	2	1	6	9	18	217	1	236	671
Total	300	0	108	408	2	1112	166	1280	9	6	17	32	82	820	4	908	2626
05:00 PM	75	0	23	98	0	288	38	326	7	1	6	14	25	212	3	240	678
05:15 PM	67	0	21	88	1	313	41	355	2	0	4	6	21	217	0	238	687
05:30 PM	80	1	24	105	0	277	50	327	4	3	3	10	19	244	3	266	708
05:45 PM	79	0	20	99	1	266	37	304	9	1	8	18	23	210	0	233	654
Total	301	1	88	390	2	1144	166	1312	22	5	21	48	88	883	6	977	2727
Grand Total	601	1	196	798	4	2256	332	2592	31	11	38	80	170	1703	10	1883	5353
Approach %	75.3	0.1	24.6		0.2	87	12.8		38.8	13.8	47.5		9	90.4	0.5		
Total %	11.2	0	3.7	14.9	0.1	42.1	6.2	48.4	0.6	0.2	0.7	1.5	3.2	31.8	0.2	35.2	

Auto Center Drive Southbound					Orangethorpe Avenue Westbound					Auto Center Drive Northbound					Orangethorpe Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total		
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 04:45 PM																			
04:45 PM	67	0	30	97	0	288	41	329	2	1	6	9	18	217	1	236	671		
05:00 PM	75	0	23	98	0	288	38	326	7	1	6	14	25	212	3	240	678		
05:15 PM	67	0	21	88	1	313	41	355	2	0	4	6	21	217	0	238	687		
05:30 PM	80	1	24	105	0	277	50	327	4	3	3	10	19	244	3	266	708		
Total Volume	289	1	98	388	1	1166	170	1337	15	5	19	39	83	890	7	980	2744		
% App. Total	74.5	0.3	25.3		0.1	87.2	12.7		38.5	12.8	48.7		8.5	90.8	0.7				
PHF	.903	.250	.817	.924	.250	.931	.850	.942	.538	.417	.792	.696	.830	.912	.583	.921	.989		

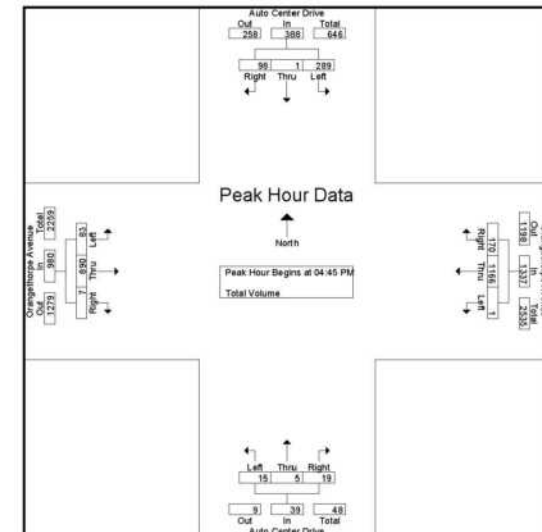
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:45 PM

Counts Unlimited  
PO Box 1178  
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City of Fullerton  
N/S: Auto Center Drive  
E/W: Orangethorpe Avenue  
Weather: Clear

File Name : 01\_FLN\_Auto Center\_Orangethorpe PM  
Site Code : 20218690  
Start Date : 9/19/2018  
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
Peak Hour for Each Approach Begins at:

	04:00 PM				04:45 PM				05:00 PM				05:45 PM			
+0 mins.	84	0	25	109	0	288	41	329	7	1	6	14	18	217	1	236
+15 mins.	75	0	29	104	0	288	38	326	2	0	4	6	25	212	3	240
+30 mins.	74	0	24	98	1	313	41	355	4	3	3	10	21	217	0	238
+45 mins.	67	0	30	97	0	277	50	327	9	1	8	18	19	244	3	266
Total Volume	300	0	108	408	1	1166	170	1337	22	5	21	48	83	890	7	980
% App. Total	73.5	0	26.5		0.1	87.2	12.7		45.8	10.4	43.8		8.5	90.8	0.7	
PHF	.693	.000	.800	.936	.250	.931	.850	.942	.611	.417	.658	.667	.830	.912	.583	.921

Counts Unlimited  
PO Box 1178  
Corona, CA 92678  
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City of Fullerton  
N/S: Magnolia Avenue  
E/W: Orangethorpe Avenue  
Weather: Clear

File Name : 02\_FLN\_Magnolia\_Orangethorpe AM  
Site Code : 20218690  
Start Date : 9/19/2018  
Page No : 1

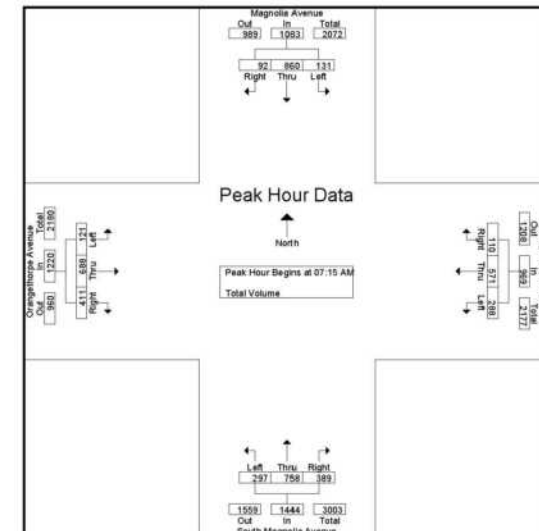
Groups Printed- Total Volume																
Magnolia Avenue Southbound				Orangethorpe Avenue Westbound				South Magnolia Avenue Northbound				Orangethorpe Avenue Eastbound				Int. Total
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	
07:00 AM	22	225	11	258	69	107	7	183	69	177	69	315	18	143	93	254
07:15 AM	26	222	12	260	85	129	25	239	75	205	78	358	32	175	116	325
07:30 AM	41	189	36	266	76	160	46	282	68	165	96	329	37	183	88	308
07:45 AM	37	214	33	284	59	165	20	244	91	205	117	413	29	167	99	295
Total	128	850	92	1068	289	561	98	948	303	752	360	1415	116	668	398	1182
08:00 AM	27	235	11	273	68	117	19	204	63	183	98	344	23	163	106	292
08:15 AM	26	224	16	266	45	98	17	163	55	170	103	328	19	152	79	250
08:30 AM	18	228	17	263	45	88	19	150	49	128	88	263	22	125	86	233
08:45 AM	19	194	19	232	45	90	14	149	48	178	59	285	12	104	68	184
Total	90	881	63	1034	206	391	69	666	215	657	348	1220	76	544	339	959
Grand Total	216	1731	155	2102	495	952	167	1614	518	1409	708	2635	192	1212	737	2141
Apprch %	10.3	82.4	7.4		30.7	59	10.3		19.7	53.5	26.9		9	56.8	34.4	
Total %	2.5	20.4	1.8	24.8	5.8	11.2	2	19	6.1	16.6	8.3	31	2.3	14.3	8.7	25.2

Magnolia Avenue Southbound				Orangethorpe Avenue Westbound				South Magnolia Avenue Northbound				Orangethorpe Avenue Eastbound				Int. Total
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	
07:15 AM	26	222	12	260	85	129	25	239	75	205	78	358	32	175	118	325
07:30 AM	41	189	36	266	76	160	46	282	68	165	96	329	37	183	88	308
07:45 AM	37	214	33	284	59	165	20	244	91	205	117	413	29	167	99	295
08:00 AM	27	235	11	273	68	117	19	204	63	183	98	344	23	163	106	292
Total Volume	131	860	92	1063	288	571	110	969	297	755	369	1444	121	688	411	1220
% App. Total	12.1	79.4	8.5		29.7	58.9	11.4		20.6	52.5	26.9		9.9	56.4	33.7	
PHF	.799	.915	.639	.953	.847	.865	.598	.859	.816	.924	.831	.874	.618	.940	.871	.938

Counts Unlimited  
PO Box 1178  
Corona, CA 92678  
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City of Fullerton  
N/S: Magnolia Avenue  
E/W: Orangethorpe Avenue  
Weather: Clear

File Name : 02\_FLN\_Magnolia\_Orangethorpe AM  
Site Code : 20218690  
Start Date : 9/19/2018  
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
Peak Hour for Each Approach Begins at:

	07:30 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	41	189	36	266	85	129	25	239	75	205	78	358	32	175	118	325
+15 mins.	37	214	33	284	76	160	46	282	68	165	96	329	37	183	88	308
+30 mins.	27	235	11	273	59	165	20	244	91	205	117	413	29	167	99	295
+45 mins.	26	224	16	266	68	117	19	204	63	183	98	344	23	163	106	292
Total Volume	131	862	96	1089	288	571	110	969	297	754	389	1444	121	688	411	1220
% App. Total	12	79.2	8.8		29.7	58.9	11.4		20.6	52.5	26.9		9.9	56.4	33.7	
PHF	.799	.917	.667	.959	.847	.865	.598	.859	.816	.924	.831	.874	.618	.940	.871	.938

Counts Unlimited  
PO Box 1178  
Corona, CA 92678  
(951) 268-6266

City of Fullerton  
N/S: South Magnolia Avenue  
E/W: SR-91 Westbound Ramps  
Weather: Clear

File Name : 03\_FLN\_Magnolia\_91WAM  
Site Code : 20218690  
Start Date : 9/19/2018  
Page No : 1

Groups Printed- Total Volume																	
	South Magnolia Avenue Southbound				SR-91 Westbound Off Ramp Westbound				South Magnolia Avenue Northbound				SR-91 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	267	112	379	75	1	29	105	66	270	0	336	0	0	0	0	620
07:15 AM	0	327	109	436	96	6	47	149	47	316	0	363	0	0	0	0	948
07:30 AM	0	277	81	358	110	4	37	151	47	317	0	364	0	0	0	0	873
07:45 AM	0	305	74	379	94	2	41	137	45	367	0	412	0	0	0	0	928
Total	0	1176	378	1552	375	13	154	542	205	1270	0	1475	0	0	0	0	3569
08:00 AM	0	335	74	409	87	2	32	121	55	304	0	359	0	0	0	0	889
08:15 AM	0	268	83	351	74	2	29	105	39	306	0	345	0	0	0	0	801
08:30 AM	0	267	97	364	86	0	21	107	43	234	0	277	0	0	0	0	748
08:45 AM	0	244	72	316	92	1	26	121	34	261	0	295	0	0	0	0	732
Total	0	1114	326	1440	339	5	110	454	171	1105	0	1278	0	0	0	0	3170
Grand Total	0	2290	702	2992	714	18	264	996	376	2375	0	2751	0	0	0	0	6739
Apprch %	0	76.5	23.5		71.7	1.8	26.5		13.7	86.3	0		0	0	0	0	
Total %	0	34	10.4	44.4	10.6	0.3	3.9	14.8	5.6	35.2	0	40.8	0	0	0	0	

	South Magnolia Avenue Southbound				SR-91 Westbound Off Ramp Westbound				South Magnolia Avenue Northbound				SR-91 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	327	109	436	96	6	47	149	47	316	0	363	0	0	0	0	948
07:30 AM	0	277	81	358	110	4	37	151	47	317	0	364	0	0	0	0	873
07:45 AM	0	305	74	379	94	2	41	137	45	367	0	412	0	0	0	0	928
08:00 AM	0	335	74	409	87	2	32	121	55	304	0	359	0	0	0	0	889
Total Volume	0	1244	338	1582	387	14	157	558	194	1304	0	1498	0	0	0	0	3638
% App. Total	0	78.6	21.4		89.4	2.5	28.1		13	87	0		0	0	0	0	
PHF	0.000	0.928	0.775	0.907	0.880	0.583	0.835	0.924	0.882	0.886	0.000	0.909	0.000	0.000	0.000	0.000	0.958

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City of Fullerton  
N/S: South Magnolia Avenue  
E/W: SR-91 Westbound Ramps  
Weather: Clear

File Name : 03\_FLN\_Magnolia\_91WPM  
Site Code : 20218690  
Start Date : 9/19/2018  
Page No : 1

Groups Printed- Total Volume																	
	South Magnolia Avenue Southbound				SR-91 Westbound Off Ramp Westbound				South Magnolia Avenue Northbound				SR-91 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	272	55	327	108	1	54	163	53	360	0	413	0	0	0	0	903
04:15 PM	0	289	44	343	112	1	58	171	45	366	0	411	0	0	0	0	925
04:30 PM	0	281	39	320	126	2	50	178	51	386	0	437	0	0	0	0	935
04:45 PM	0	301	39	340	109	1	53	163	38	397	0	435	0	0	0	0	938
Total	0	1143	187	1330	455	5	215	675	187	1509	0	1696	0	0	0	0	3701
05:00 PM	0	288	46	336	111	2	45	158	59	419	0	478	0	0	0	0	972
05:15 PM	0	307	59	366	129	1	59	189	52	435	0	487	0	0	0	0	1042
05:30 PM	0	317	45	362	132	3	62	197	33	365	0	398	0	0	0	0	957
05:45 PM	0	285	42	327	145	3	59	207	37	406	0	443	0	0	0	0	977
Total	0	1197	194	1391	517	9	225	751	181	1625	0	1806	0	0	0	0	3948
Grand Total	0	2340	381	2721	972	14	440	1426	368	3134	0	3502	0	0	0	0	7649
Apprch %	0	86	14		68.2	1	30.9		10.5	89.5	0		0	0	0	0	
Total %	0	30.6	5	35.6	12.7	0.2	5.8	18.6	4.8	41	0	45.8	0	0	0	0	

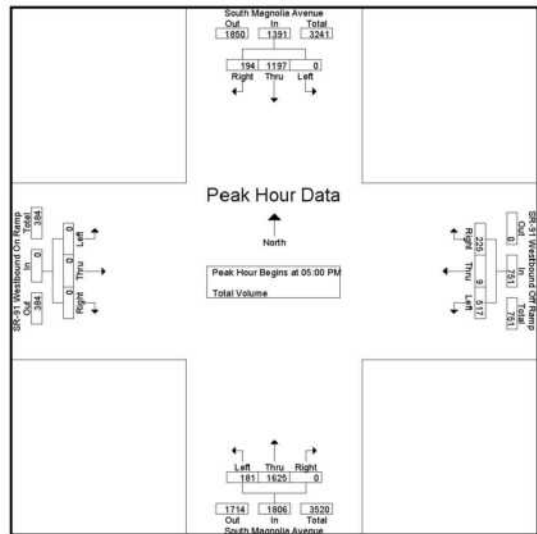
South Magnolia Avenue Southbound					SR-91 Westbound Off Ramp Westbound					South Magnolia Avenue Northbound					SR-91 Westbound On Ramp Eastbound					
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total			
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 05:00 PM																				
05:00 PM	0	288	46	336	111	2	45	158	59	419	0	478	0	0	0	0	972			
05:15 PM	0	307	59	366	129	1	59	189	52	435	0	487	0	0	0	0	1042			
05:30 PM	0	317	45	362	132	3	62	197	33	365	0	398	0	0	0	0	957			
05:45 PM	0	285	42	327	145	3	59	207	37	406	0	443	0	0	0	0	977			
Total Volume	0	1197	194	1391	517	9	225	751	181	1625	0	1806	0	0	0	0	3948			
% App. Total	0	86.1	13.9		68.8	1.2	30		10	80	0		0	0	0	0				
PHF	0.000	0.944	0.822	0.950	0.891	0.750	0.907	0.907	0.767	0.934	0.000	0.927	0.000	0.000	0.000	0.000	0.947			



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City of Fullerton  
N/S: South Magnolia Avenue  
E/W: SR-91 Westbound Ramps  
Weather: Clear

File Name : 03\_FLN\_Magnolia\_91W PM  
Site Code : 20218690  
Start Date : 9/19/2018  
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
Peak Hour for Each Approach Begins at:

	04:45 PM				05:00 PM				04:30 PM				04:00 PM			
+0 mins.	0	301	39	340	111	2	45	158	51	366	0	437	0	0	0	0
+15 mins.	0	288	46	336	129	1	59	189	38	397	0	435	0	0	0	0
+30 mins.	0	307	59	366	132	3	62	197	59	419	0	478	0	0	0	0
+45 mins.	0	317	45	362	145	3	59	207	52	435	0	487	0	0	0	0
Total Volume	0	1213	191	1404	517	9	225	751	200	1637	0	1637	0	0	0	0
% App. Total	0	86.4	13.6		68.8	1.2	30		10.9	89.1	0		0	0	0	0
PHF	.000	.957	.809	.959	.891	.750	.907	.907	.847	.941	.000	.943	.000	.000	.000	.000

Location: Fullerton  
N/S: Auto Center Drive  
E/W: Orangethorpe Avenue



Date: 9/19/2018  
Day: Wednesday

#### PEDESTRIANS

	North Leg Auto Center Drive Pedestrians	East Leg Orangethorpe Avenue Pedestrians	South Leg Auto Center Drive Pedestrians	West Leg Orangethorpe Avenue Pedestrians	
7:00 AM	4	21	2	0	27
7:15 AM	4	24	4	0	32
7:30 AM	11	53	2	0	65
7:45 AM	4	8	1	0	13
8:00 AM	0	5	0	0	5
8:15 AM	0	7	2	0	9
8:30 AM	0	11	0	0	11
8:45 AM	0	2	0	0	2
TOTAL VOLUMES	23	130	11	0	164

	North Leg Auto Center Drive Pedestrians	East Leg Orangethorpe Avenue Pedestrians	South Leg Auto Center Drive Pedestrians	West Leg Orangethorpe Avenue Pedestrians	
4:00 PM	0	2	0	0	2
4:15 PM	3	8	0	0	11
4:30 PM	1	3	0	0	4
4:45 PM	0	1	1	0	2
5:00 PM	2	6	1	0	9
5:15 PM	0	1	2	0	3
5:30 PM	0	1	0	0	1
5:45 PM	0	5	0	0	5
TOTAL VOLUMES	6	27	4	0	37

Location: Fullerton  
N/S: Auto Center Drive  
E/W: Orangethorpe Avenue



Date: 9/19/2018  
Day: Wednesday

#### BICYCLES

	Southbound Auto Center Drive			Westbound Orangethorpe Avenue			Northbound Auto Center Drive			Eastbound Orangethorpe Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	1	0	0	0	0	0	1	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES	0	0	0	0	4	0	0	0	0	0	2	0	6

	Southbound Auto Center Drive			Westbound Orangethorpe Avenue			Northbound Auto Center Drive			Eastbound Orangethorpe Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
4:15 PM	0	1	0	0	0	0	1	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
TOTAL VOLUMES	0	1	0	0	0	2	1	1	0	0	0	0	5

Location: Fullerton  
N/S: Magnolia Avenue  
E/W: Orangethorpe Avenue



Date: 9/19/2018  
Day: Wednesday

#### PEDESTRIANS

	North Leg Magnolia Avenue Pedestrians	East Leg Orangethorpe Avenue Pedestrians	South Leg Magnolia Avenue Pedestrians	West Leg Orangethorpe Avenue Pedestrians	
7:00 AM	0	3	0	0	3
7:15 AM	6	7	0	17	
7:30 AM	19	95	2	2	64
7:45 AM	2	7	0	0	9
8:00 AM	5	15	3	2	25
8:15 AM	2	1	1	0	4
8:30 AM	2	1	2	0	5
8:45 AM	2	3	0	0	5
TOTAL VOLUMES	38	72	13	9	132

	North Leg Magnolia Avenue Pedestrians	East Leg Orangethorpe Avenue Pedestrians	South Leg Magnolia Avenue Pedestrians	West Leg Orangethorpe Avenue Pedestrians	
4:00 PM	8	36	2	1	47
4:15 PM	2	13	5	4	24
4:30 PM	5	9	1	3	18
4:45 PM	8	13	2	1	15
5:00 PM	1	13	4	4	29
5:15 PM	4	11	7	2	24
5:30 PM	3	5	5	3	16
5:45 PM	2	5	5	0	12
TOTAL VOLUMES	36	100	31	18	185

Location: Fullerton  
N/S: Magnolia Avenue  
E/W: Orangethorpe Avenue



Date: 9/19/2018  
Day: Wednesday

#### BICYCLES

	Southbound Magnolia Avenue			Westbound Orangethorpe Avenue			Northbound Magnolia Avenue			Eastbound Orangethorpe Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
7:30 AM	0	0	0	0	0	0	0	2	0	0	0	0	2
7:45 AM	1	9	0	0	0	0	0	9	1	9	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	1	1	0	0	0	0	2
8:30 AM	0	0	0	0	3	0	0	0	0	0	0	0	3
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES	1	0	0	0	4	0	1	3	1	0	0	1	11

	Southbound Magnolia Avenue			Westbound Orangethorpe Avenue			Northbound Magnolia Avenue			Eastbound Orangethorpe Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	1	0	1	0	0	0	1	1	0	0	1	0	4
4:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
4:45 PM	0	0	0	0	1	0	1	0	0	0	1	0	3
5:00 PM	0	1	0	0	1	0	1	0	0	0	0	0	3
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	1	0	1	0	0	0	0	0	0	1	0	3
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES	1	3	1	1	3	0	3	1	0	0	5	0	18

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Location: Fullerton  
N/S: Magnolia Avenue  
E/W: SR-91 Westbound Ramps



Date: 9/19/2018  
Day: Wednesday

#### PEDESTRIANS

	North Leg Magnolia Avenue Pedestrians	East Leg SR-91 Westbound Ramps Pedestrians	South Leg Magnolia Avenue Pedestrians	West Leg SR-91 Westbound Ramps Pedestrians	
7:00 AM	0	0	0	1	1
7:15 AM	0	4	0	1	5
7:30 AM	0	1	0	0	1
7:45 AM	0	2	0	0	2
8:00 AM	0	2	0	0	2
8:15 AM	0	1	0	0	1
8:30 AM	0	0	0	0	0
8:45 AM	0	3	0	0	3
TOTAL VOLUMES	0	13	0	2	15

	North Leg Magnolia Avenue Pedestrians	East Leg SR-91 Westbound Ramps Pedestrians	South Leg Magnolia Avenue Pedestrians	West Leg SR-91 Westbound Ramps Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	8	0	1	7
4:30 PM	0	2	0	2	4
4:45 PM	0	1	0	0	1
5:00 PM	0	3	0	1	4
5:15 PM	0	0	0	0	0
5:30 PM	0	3	0	2	5
5:45 PM	0	1	0	0	1
TOTAL VOLUMES	0	16	0	6	22

Location: Fullerton  
N/S: Magnolia Avenue  
E/W: SR-91 Westbound Ramps



Date: 9/19/2018  
Day: Wednesday

#### BICYCLES

	Southbound Magnolia Avenue			Westbound SR-91 Westbound Ramps			Northbound Magnolia Avenue			Eastbound SR-91 Westbound Ramps			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	2	0	0	0	0	2
7:15 AM	0	2	0	0	0	0	0	2	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	1	0	0	0	1	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	1	0	0	0	1	2
TOTAL VOLUMES	0	2	0	1	0	0	0	5	0	0	0	1	10

	Southbound Magnolia Avenue			Westbound SR-91 Westbound Ramps			Northbound Magnolia Avenue			Eastbound SR-91 Westbound Ramps			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	3	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	1	0	0	0	0	0	1	0	0	0	0	2
TOTAL VOLUMES	0	6	0	0	0	0	0	3	0	0	0	0	9

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## 7.1.2 CIVIL SITE ASSESSMENT

Data Source: VCA

### 2.1.1 DOMESTIC WATER

There is one existing 8" Cast Iron City water main fronting the property on Orangethorpe Avenue as shown in Exhibit C1.1.

During our site visit, four existing water meters and four existing 2" domestic water backflow preventers were located along Orangethorpe Avenue. In addition, one existing 2" irrigation backflow preventer was located along Orangethorpe Avenue. An existing water meter was also located near the existing on-site restrooms. See Exhibits C4.1, C4.2 and C4.3 for the location of these existing on-site utilities. All existing domestic and irrigation water utilities are marked in cyan.

### 2.1.2 FIRE WATER

There is one existing 8" Cast Iron City water main fronting the property on Orangethorpe Avenue as shown in Exhibit C1.1.

One existing fire hydrant was located during our site visit on the south east corner of the intersection of Orangethorpe Avenue and Auto Center Drive. The location of the existing fire hydrant is shown in red in Exhibit C4.2. Currently, there are no existing fire water lines on the project site.

### 2.1.3 SANITARY SEWER

There is one existing 39" Vitrified Clay sanitary sewer main line on Magnolia Avenue, one existing 39" Vitrified Clay sanitary sewer main line on Orangethorpe Avenue and one existing 24" Vitrified Clay sanitary sewer main line that runs along Magnolia Avenue, crosses into the project site at the western edge and continues under the I-5 Freeway. All of the existing sanitary sewer main lines surrounding the project site belong to the Orange County Sanitation District. Information gathered from the City of Fullerton and Orange County Sanitation District is shown in Exhibits C2.1 and C2.2.

During our site visit, two sanitary sewer cleanouts were located near the existing restrooms. Also, two existing sanitary sewer manholes were located during the site visit. One sewer manhole is located at the west end of the project site and the other sewer manhole is located on the public right of way along Orangethorpe Avenue. See Exhibits C4.1 and C4.2 for the location of these existing on-site utilities. All existing sanitary sewer utilities are marked in green.

### 2.1.4 STORM WATER

There are no existing off-site storm water lines fronting the project site. There is an existing flood channel that belongs to the Orange County Flood Control District (OCFCD) that runs from the north, underneath Orangethorpe Avenue and the project site and underneath Magnolia Avenue. Exhibit C3.1 shows the location of the existing flood channel that is labeled "Carbon Creek". Because the existing flood channel runs underneath the project site, no structures shall be built within the flood channel's easement. All proposed foundation type and location shall be designed to avoid surcharging the existing flood channel. Four (4) off-site side-opening catch basins were located during our site visit. The location of the off-site side-opening catch basins are shown on Exhibits C4.1 and C4.2. All storm water utilities are marked in blue.

Within the project site, one existing stormwater manhole, existing catch basins, existing v-gutters, and existing parkway drains were located during our site visit. The locations of these existing on-site utilities are shown in Exhibits C4.1, C4.2 and C4.3. All storm water utility features are marked in blue. The existing

catch basins on the west end of the project site are connected by an 18" reinforced concrete pipe. The existing stormwater lines are shown in Exhibit C3.1.

### 2.2 EXISTING DRAINAGE

Existing grades on the project site were verified in the field. The existing site utilizes gutters, ridges, and catch basins located throughout the site to capture stormwater. Exhibits C5.1, 5.2, and 5.2 shows the existing flow paths and grades that were verified at the project site.

## 3.0 PROPOSED IMPROVEMENT

### 3.1 PROPOSED UTILITIES

This section discusses all proposed wet utilities for the OCTA Fullerton Park & Ride Joint Development. This includes the following: domestic water, fire water, and sanitary sewer. All proposed schematic utility plans are based on information was obtained from the City of Fullerton Public Works Engineering Department and the Orange County Sanitation District, our site visit and limited as-built information. There was no underground utility survey performed at this site.

#### 3.1.1 DOMESTIC WATER

The proposed domestic water system shall provide adequate water supply for operation of the buildings' domestic water requirements. Each proposed building shall have its own domestic water line and connection to the existing 8" water main line on Orangethorpe Avenue that belongs to the City of Fullerton. The existing domestic water backflow preventers are not sized to meet the demands of the proposed buildings. Thus, the existing domestic water backflow preventers cannot be used for the new development. All proposed domestic water lines will require the installation of a new water lateral, water meter and backflow preventer per the local water purveyor. Exhibit C6.0 shows the proposed utilities. Proposed domestic water lines are shown in Cyan.

#### 3.1.2 FIRE WATER

The proposed fire water system shall provide adequate water supply for operation of the buildings' fire water requirements for sprinklers. Each proposed building shall have its own fire water line and connection to the existing 8" water main line on Orangethorpe Ave that belongs to the City of Fullerton. All proposed fire water lines will require the installation of a new water lateral, water meter and Double Check Detector Assembly backflow preventer per the local water purveyor. Exhibit C6.0 shows the proposed utilities. Proposed fire water lines are shown in Red. The proposed fire water system shall be coordinated with the local fire department.

#### 3.1.3 SANITARY SEWER

The proposed sanitary sewer system shall be sized to meet the sewer demands of each building. A new sanitary sewer connection is proposed for each new building. Each proposed on-site sanitary sewer line will connect to an existing County sanitary sewer line per Orange County Sanitation District. Exhibit C6.0 shows the proposed utilities. Proposed sanitary sewer lines are shown in Green.

### 3.2 PROPOSED DEMOLITION

The proposed demolition plan for the project is shown in Exhibit CD1.0.



### 3.3 PROPOSED DRAINAGE

All site drainage shall be collected and controlled in non-erosive drainage devices. Drainage shall not be allowed to pond anywhere on the site, and especially not against any foundation or retaining wall. The site shall be graded and maintained such that surface drainage is directed away from structures in accordance with 2016 CBC 1804.4 or other applicable standards. In addition, drainage shall not be allowed to flow uncontrolled over any descending slope. Discharge from downspouts, roof drains and scuppers are not recommended onto unprotected soils within 5 feet of the building perimeter. Landscape irrigation shall not be within 5 feet of the building perimeter footings except when enclosed in protected planters.

Positive site drainage shall be provided away from structures, pavement, and the tops of slopes to swales or other controlled drainage structures. The building pad and pavement areas shall be fine graded such that water is not allowed to pond.

Landscaping planters immediately adjacent to paved areas are not recommended due to the potential for surface or irrigation water to infiltrate the pavement's subgrade and base course. Either a subdrain, which collects excess irrigation water and transmits it to drainage structures, or an impervious above-grade planter box shall be used.

Proposed grading shall comply with the following grading design guidelines:

- a. Planes shall be sloped for drainage, typically between 1% and 1.8%, with 1.5% considered optimum.
- b. Entrance walks and ramps will not be designed to maximum allowable slope requirements, to minimize potential non-compliant as built conditions. If the space allows, slopes will be reduced as much as possible, or grading will be designed to avoid the need for ramps.
- c. Door landings, paved lunch areas, and similar areas will be graded between 0.5% to 1.8% maximum slopes. Planes will be shaped to accommodate tables and benches.
- d. Asphalt paving flow lines will be 1% minimum to accommodate construction tolerances. If less, concrete gutter will be used with a flow line minimum slope of 0.5% to accommodate construction tolerances.

### 4.0 WATER QUALITY MANAGEMENT PLAN

Per the City of Fullerton, a WQMP (Water Quality Management Plan) is required if there is an addition or replacement of 5,000 or more square feet of impervious surface on an already developed site. This project site exceeds 5,000 square feet; therefore a WQMP is required. This will be accomplished by the implementation of Best Management Practices (BMPs). The determination of the type and size of BMPs will occur during the design phase of the project. A percolation test shall be performed to assess the infiltration feasibility of the site.

### 5.0 STORMWATER POLLUTION PREVENTION PLAN

An SWPPP (Stormwater Pollution Prevention Plan) will be required, per the State of California, if the construction area of the project exceeds 1 acre. The construction area of this project site does exceed 1 acre; therefore, SWPPP is required for this project.

Fullerton Park and Ride Joint Development Study  
Orange County Transportation Authority

## 6.0 DESIGN GUIDELINES

### 1. Demolition

- a. Perform investigation of existing conditions to assure full extent of demolition work, especially with regard to sub-surface conditions such as concrete paving overlain with asphalt, foundations of demolished buildings, and utility lines. If existing data is insufficient, additional information will be requested such as potholing, underground utility survey, or other investigation from the District.
- b. All existing site features that are to remain or to be removed will be clearly identified and defined in the demolition documents.

### 2. Grading

- a. Grading will be designed to facilitate staking and construction; plane grades shall be uniform to avoid warped surfaces and grade changes minimized.
- b. All areas will be graded for drainage. Walks, stairways, ramps, and other surfaces will slope away from buildings.
- c. Planes shall be sloped for drainage, typically between 1% and 1.8%, with 1.5% considered optimum.
- d. Entrance walks and ramps will not be designed to maximum allowable slope requirements, to minimize potential non-compliant as built conditions. If the space allows, slopes will be reduced as much as possible, or grading will be designed to avoid the need for ramps.
- e. Door landings, paved lunch areas, and similar areas will be graded between 0.5% to 1.8% maximum slopes. Planes will be shaped to accommodate tables and benches.
- f. Asphalt paving flow lines will be 1% minimum to accommodate construction tolerances. If less, concrete gutter will be used with a flow line minimum slope of 0.5% to accommodate construction tolerances.

Fullerton Park and Ride Joint Development Study  
Orange County Transportation Authority

### 7. Storm Drainage Design

- a. Site will be designed using WQMP storm water mitigation requirements.

### 5. Sanitary Sewers

- a. Sanitary sewers fixture units will be shown at building and street points of connection. Sewer lines will be sized per code, or hydraulic calculations shall be provided.

### 6. Surface Drainage

- a. Sheet flow will be directed from paved areas onto planted areas.
- b. Flow lines will be located to avoid concentration on pedestrian walks.
- c. Flow lines will be located to avoid tree wells and other objects that might obstruct drainage flow and cause ponding.
- d. Drainage from planting areas across paved areas will be avoided.
- e. Drainage over public sidewalks will be avoided. Concentrated flow over driveways and pedestrian walkways will be avoided.

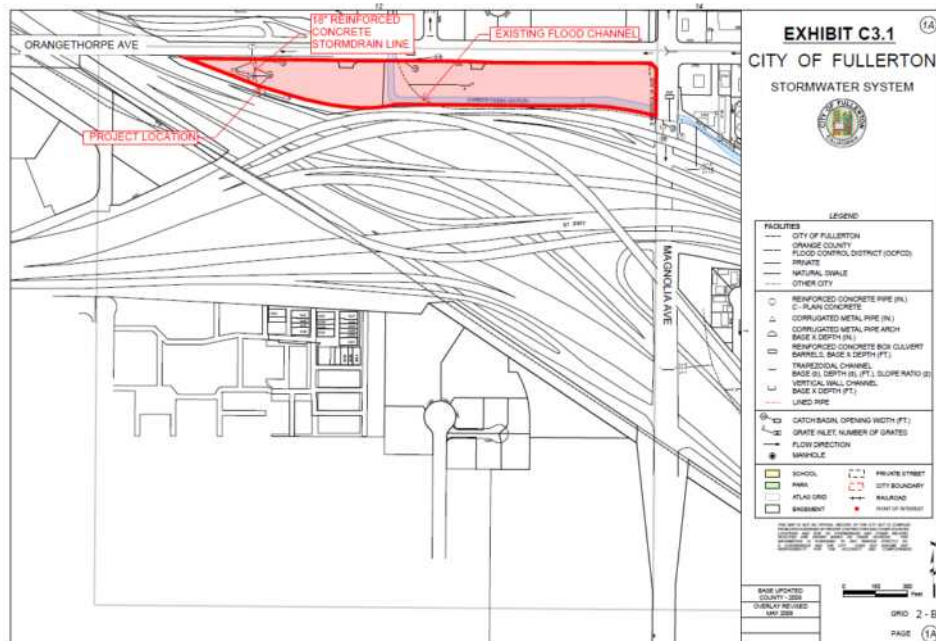
### 7. Catch Basins, Floor Drains and Parkway Drain:

- a. Catch basins grate will be called out to withstand the load to which it will be subjected. Grate openings will be minimum opening 1/4" to 1/2" inch maximum within the direction of travel.
- b. Catch basin will be offset from main line to minimize its size and depth, and to minimize blockage of system.





Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),



ORANGETHORPE AVE

EXISTING SIDE OPENING CATCH BASIN

EXISTING SIDE OPENING CATCH BASIN

EXISTING SIDE OPENING CATCH BASIN

EXISTING SIDE OPENING CATCH BASIN

EXISTING SIDE OPENING CATCH BASIN

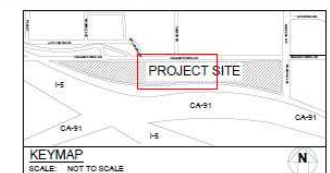
EXISTING SIDE OPENING CATCH BASIN

EXISTING V-GUTTER

EXISTING SANITARY SEWER MANHOLE



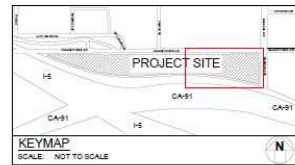
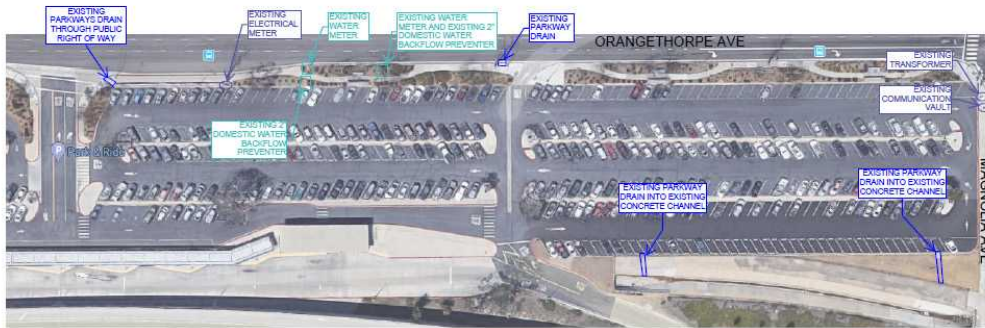
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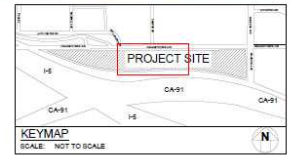
**EXHIBIT C4.3: EXISTING UTILITIES**



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**EXHIBIT C5.2: EXISTING DRAINAGE PATTERNS**

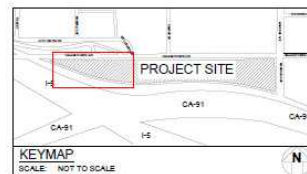
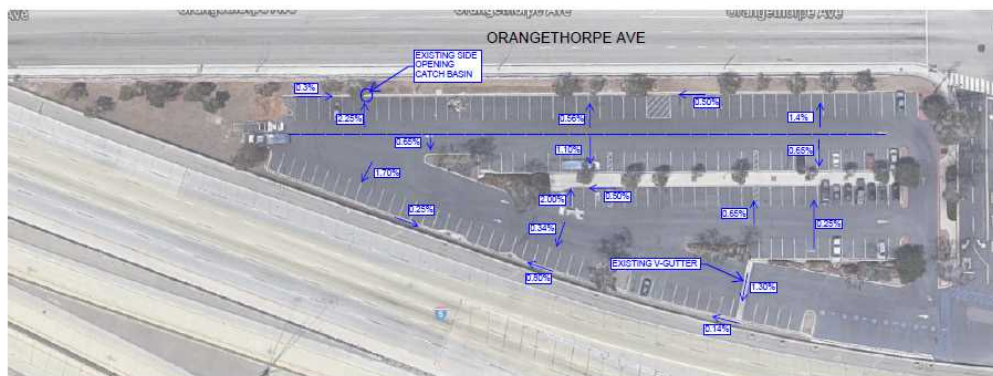
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DRAINAGE PATTERNS →



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**EXHIBIT C5.1: EXISTING DRAINAGE PATTERNS**

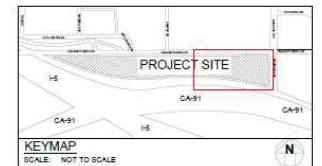
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**EXHIBIT C5.3: EXISTING DRAINAGE PATTERNS**

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DRAINAGE PATTERNS →



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# 7.2.1 MARKET STUDY AND FEASIBILITY ANALYSIS

Data Source: EPS

**Case Study: Crest Apartments (13604 Sherman Way, Van Nuys)**

Crest Apartments is a 64-unit PSH building located in the Van Nuys community of the City of Los Angeles. The building was developed by Skid Row Housing Trust, a non-profit focused on developing PSH units. The organization has developed 26 PSH properties, with the majority located in Downtown Los Angeles. Crest Apartments is one of only three of the organization’s properties located outside of Downtown, and the only one in the San Fernando Valley.

Crest Apartments was designed by Michael Maltzan Architects, which has designed a number of buildings for Skid Row Housing Trust. The buildings have been featured in architectural blogs and magazines, and demonstrate the possibility and potential of architectural sophistication in affordable housing development. With this approach, buildings can be designed in a thoughtful way that fit the site and surrounding area, and also create a space that is nurturing and supportive of its residents.

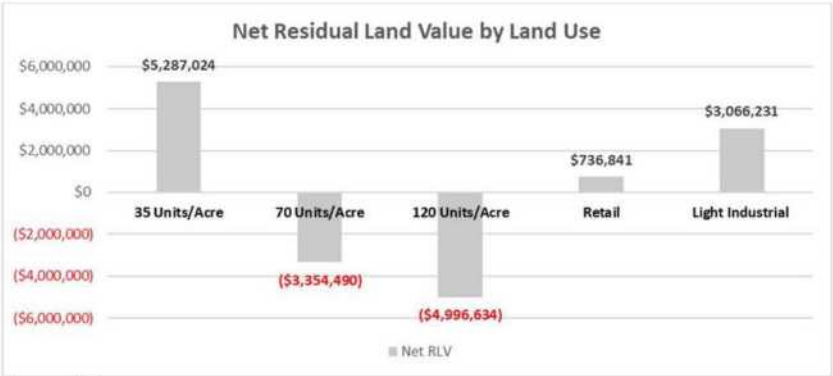
The development of the project was financed through a variety of public programs, including the Low-Income Housing Tax Credit program and the HOME Investment Partnership program administered by the city’s Housing and Community Investment Department. Funding for support services came from the Los Angeles County Department of Health Services, and are being administered by L.A. Family Housing. Subsidies for residents’ rent is being provided through project-based vouchers from the Housing Authority of the City of Los Angeles.

**Table 1. Summary of Land Uses**

Item	LAND USE				
	35 Units/Acre	Multifamily Residential 70 Units/Acre	120 Units/Acre	Nonresidential Retail	Light Industrial
Ability to Generate Revenue: Net Residual Land Value:	\$5,287,024	(\$3,354,490)	(\$4,996,634)	\$736,841	\$3,066,231
Potential to Increase OCTA Ridership	Medium	High	High	Low	Low
Mixed-Use and Pedestrian-Friendly Development	High	High	High	Medium	Low
Provides Community Amenity	Medium	Medium	Medium	Medium	Low
Compatibility with Park & Ride Function	High	High	High	Medium	Low

Source: EPS.

**Figure 1. Net Residual Land Value by Land Use**



Source: EPS.

**Methodology**

EPS made several key assumptions to ensure that the market overview focuses on use-types that are consistent with the OCTA’s goals for developing the Fullerton Park & Ride Site. Specifically, this memorandum focuses on existing market conditions affecting demand for multifamily housing, small-scale retail, office, hotel, and small-scale industrial uses near the project site. To review these conditions, EPS evaluated residential and commercial development and pricing information to analyze market trends affecting North Orange County, including the following steps:



- Evaluated current demographics, economic activity, and growth trends in areas surrounding the OCTA Fullerton Park & Ride Site to understand opportunities and constraints associated with onsite development potential;
- Reviewed pricing, vacancy, and absorption data for various land uses in North Orange County;
- Used pro forma models to provide range of achievable residual land values for uses deemed to have market demand;
- Assessed development prototypes according to economic feasibility as well as potential to meet OCTA goals.

## Site Context

The Site sits at two important intersections in North Orange County. On a regional level, the Site's location on the northern side of the I-5 and SR-91 interchange provides great access to employment and population centers as well as commercial destinations in Orange County and beyond. Additionally, the Site is located at the southwest intersection of Orangethorpe Avenue and Magnolia Avenue, two major thoroughfares in North Orange County.

Although the Site is within the city limits of Fullerton, it borders the City of Buena Park to the west. Just across the I-5/SR-91 interchange to the south and southeast is the City of Anaheim.

### Map 1. Site Context



Source: Google Earth; EPS.

## Map 2. Regional Context



Source: Google Earth; EPS.

### Area Demographics

A review of the area's demographics indicates that the area immediately surrounding the Site is home to lower income residents when compared to the County as a whole. As shown in the table below, the median household income within 1 mile of the site is approximately \$58,000 and the median household income increases as you move farther away from the Site. The median household income within 5 miles of the Site is approximately \$71,000, roughly 83 percent of Orange County's median household income of approximately \$85,000.

Homeownership rates also increase with distance from the site. Owner-occupied units comprise 42 percent of the occupied housing stock within 1 mile from the site and 51 percent within 5 miles from the site. This compares to a County-wide homeownership rate of 54 percent. Despite lower incomes and property values near the Site, vacancy rates are consistent with regional levels at 4 percent.

North County's distance from the major employment hubs in Orange County and its historically affordable rents relative to other submarkets both play a prominent role in the more blue-collar demographic profile. However, developers are turning to in-fill sites throughout Orange County as the availability of greenfield land diminishes. Collectively, Fullerton, Buena Park, and Anaheim have had collective population growth slower than the rest of the County since 2000, as seen in **Table 3**. However, these three cities, as well as the County, have seen an accelerated rate of growth since the year 2010, and are projected to have an even higher average annual rate of population growth through 2023. This acceleration of growth in the adjacent cities will require a continued emphasis on densifying existing neighborhoods in light of an urban condition that is nearly built out.



**Table 2. Demographic Profile**

Demographic Variable	1-Mile	3-Mile	5-Mile	Orange County
Population	29,061	249,543	636,886	3,132,211
Households	7,550	71,296	185,654	1,017,012
Total Housing Units	7,840	74,462	193,621	1,072,121
Owner-Occupied Units	3,315	33,760	99,708	581,506
% of Homes Owner-Occupied	42%	45%	51%	54%
Renter-Occupied Units	4,234	37,536	85,947	435,506
% of Homes Renter-Occupied	54%	50%	44%	41%
Vacant Units	291	3,166	7,966	55,109
% of Homes Vacant	4%	4%	4%	5%
Owner-occupied Housing Unit Median Value [1]	\$454,244	\$489,889	\$531,750	\$666,984
Renter-occupied Housing Unit Median Contract Rent	\$1,280	\$1,288	\$1,288	\$1,499
Median Household Income	\$57,776	\$63,798	\$70,948	\$85,323
Average Household Income	\$74,407	\$84,465	\$93,604	\$119,319
Per Capita Income	\$20,614	\$24,885	\$27,804	\$39,365

Source: ESRI Business Analyst Online; US Census Bureau, 2012-2016 American Community Survey.

[1] ESRI 2018 Estimate

**Table 3. Historical and Projected Population**

Area [1]	2000	2010	2018	2023	Avg. Annual Growth %		
					2000-18	2010-18	2018-23
Fullerton	126,003	135,108	144,214	151,258	0.75%	0.82%	0.96%
Buena Park	77,962	80,477	83,995	88,501	0.41%	0.54%	1.05%
Anaheim	328,014	336,208	357,084	375,151	0.47%	0.76%	0.99%
<b>Subtotal</b>	<b>531,979</b>	<b>551,793</b>	<b>585,293</b>	<b>614,910</b>	<b>0.53%</b>	<b>0.74%</b>	<b>0.99%</b>
<b>Orange County</b>	<b>2,846,289</b>	<b>3,008,855</b>	<b>3,221,103</b>	<b>3,396,718</b>	<b>0.69%</b>	<b>0.88%</b>	<b>1.07%</b>

Source: California Department of Finance Historical Population Estimates; EPS.

[1] Historical population estimated for January 1 of each year according to California DOF. Projected 2023 population provided by ESRI Business Analyst.

### Employment and Commercial Market Trends

According to the California Economic Development Department, Orange County had an extremely low unemployment rate of 2.8 percent in September 2018, 110 basis points lower than California's unemployment rate of 3.9 percent. Over the course of the year, Orange County had large employment gains in the business and financial service industries. However, North County is heavily reliant on the industrial and service sectors, while most white-collar employment is located in South County submarkets such as Irvine, Newport Beach, and Costa Mesa as well as north in LA. The largest employment declines over the year in Orange County were in manufacturing, with a decrease of over 3,000 jobs.

The Site sits at the convergence of two office submarkets—Fullerton and Buena Park/La Habra — neither of which are particularly choice locations for Class A Office in Orange County, and both of which have significant industrial tenant bases. In Fullerton, it has been years since office developers have brought a project of any size to market, with little in the pipeline to change this course. Developers have focused on adding apartments in this submarket instead. There is no 4 & 5 Star office inventory in Fullerton, and little likely to be added to the pipeline in the near term—there has not been any new office product delivered in the Fullerton submarket since 2008 and negative net absorption over this same period.

Although Buena Park/La Habra has seen positive absorption for office product in the submarket, rents have been flat. Buena Park/La Habra received its first injection of speculative development this cycle with the arrival of The Source Tower in 2016. The 450,000-sf project includes a mall, various entertainment and dining options, a hotel (under construction), and 96,000 sf of office. The office space is designed with tech and creative office users in mind, but as of August 2018, the project was still looking for an anchor tenant.

Cal State Fullerton (CSUF) provides a pipeline of educated employees, and supports the overall demand for commercial and rental residential real estate around the university. With an undergraduate student body of over 30,000 students, and only about 2,000 residents living in college housing, the university provides a steady stream of employees and renters. In addition to CSUF, other major office tenants and employers in Fullerton include Raytheon and St. Jude Medical Group. As such, Fullerton has become a focus for multifamily developers as these demand drivers generate strong fundamentals not found in other North County cities where employment is heavily comprised of lower paying retail, hospitality, and service jobs.

### Real Estate Market Conditions

Orange County's strong economy is reflected in its real estate market. However, the prospects for certain land uses vary by submarket and site-specific characteristics. Given the Site's location and basic market indicators, EPS conducted market analysis for office, hotel, multifamily residential, retail, and light industrial uses. This section describes the market conditions for office and hotel uses, two land uses that EPS did not continue to evaluate due to our market findings of inferior site suitability for such uses.

This section provides more detail on key real estate performance indicators for multifamily residential, retail, and light industrial land uses, uses that have been judged to have potential market support on the Site. A 3-mile radius from the center of the site is used to define the trade area for multifamily residential and retail uses. The trade area for light industrial uses is comprised of the city limits of Fullerton, Buena Park, and La Palma.

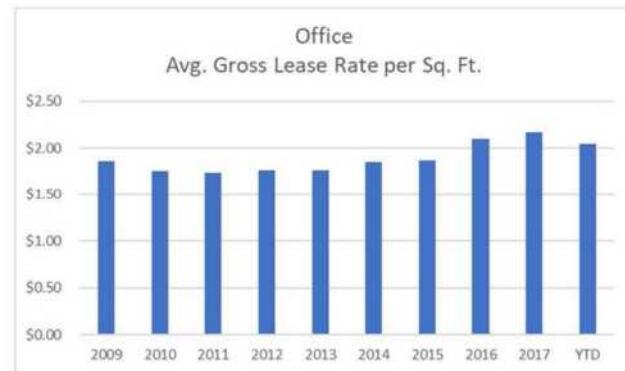
### Office

Despite the strength of the County's economy, much of the development activity has centered in submarkets not near the Site area, with strong activity in South County submarkets, Anaheim's Platinum Triangle, and the areas immediately surrounding major tourist destinations. For example, over the last several years, Orange County has experienced heavy commercial development, completing 2.7 million square feet of office space countywide. Nearly all of this development occurred in South County, with 2.1 million square feet of Class A office space located in Irvine Spectrum alone.

Although the County boasts low unemployment and major office development, Fullerton and Buena Park are not choice locations for new speculative Class A office development relative to other areas in the County. Overall, the two submarkets have a dated office stock. Fullerton has office rents that are among the bottom half of the County overall, even with healthy annual rent growth. Within 3-miles of the Site, historical rent growth has been modest for office space over the last three years, as seen in **Figure 2**. Office vacancy rates within 3-miles of the Site have been trending downward from 2009 to 2016, however, negative absorption in 2017 and 2018 has caused vacancy rates to approach 9 percent, as shown in **Figure 3**.

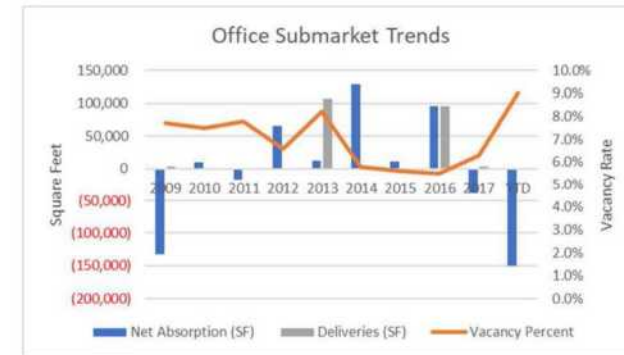
Additionally, the site's relatively small size and its distance from other Class A office parks are not in line with the characteristics typically found in the new highly-amenitized campus-like office developments being delivered in South County, whose larger footprints offer proximity to clusters of firms and landscaped open spaces to their tenants. For these reasons, EPS concludes that the OCTA site would not attract as much developer and investor interest for office use as it would for other uses.

**Figure 2. Historical Rent for Office within 3-Miles of Site**



Source: CoStar

**Figure 3. Historical Submarket Trends for Office within 3-Miles of Site**



Source: CoStar

## Hotel

According to CBRE, national lodging demand has grown every quarter since the beginning of 2010, a trend reflected in California's record-breaking year for hotel development in 2017. Demand for hotel uses in Orange County is particularly strong, buoyed by major tourist destinations such as the County's numerous theme parks and world-famous beaches. According to Atlas Hospitality Group, in Orange County there were 1,194 rooms under construction midway through 2017 compared to 2,391 rooms under construction midway through 2018, nearly doubling the number of hotel rooms under construction<sup>1</sup>. Midway through 2018, there were 72 hotels with 13,150 rooms planned or under construction in Orange County. Most of this activity is taking place near major tourist destinations, with the cities of Anaheim and Garden Grove jointly accounting for 7,600 rooms being planned or built in the County, or approximately 58 percent of the County's expected growth.

Consistent with this robust development activity, lenders and developers have been characterized as being bullish on new California hotel construction, as they see a very positive long-term outlook, in spite of hotel construction costs that are up 20-25 percent over the last 12 months, according to the Atlas Survey. However, hotel values continue to climb due to rising per-room prices.

Southern California hotel performance metrics, including occupancy and room pricing, remain historically strong, thanks in part to a nationwide travel economy that is still humming on both the leisure and corporate sides, along with group meetings and convention business. However, certain market conditions and site specifics draw questions about the OCTA Site's suitability for such uses. Countywide occupancy is between 79 percent to 82 percent, depending on the time of

<sup>1</sup> "California Hotel Development Survey 2018 Mid-Year" by Atlas Hospitality Group.



year (an 80 percent occupancy rate market-wide is generally considered full-utilization)<sup>2</sup>. Of the County's submarkets, North County actually had the highest rate—83 percent to 85 percent, depending on timeframe. Despite its high occupancy rate, North County had the lowest Revenue per Available Room (RevPAR) in the County at \$99 to \$103, compared to the Countywide RevPAR of \$155 to \$161, a gap likely due to a family travel market rather than being driven by business and luxury-driven hotel stays more common closer to the Class A office parks and main resort attractions<sup>3</sup>. The Site's distance from major tourist destinations and employment centers relative to competing existing and pipeline hotel supply are additional characteristics that are not particularly conducive to new hotel development in Orange County.

For these reasons, EPS concludes that the OCTA site would not attract as much developer and investor interest for hotel use as it would for other uses.

### Multifamily Residential

Market research indicates that multifamily residential is in high demand—demonstrated by healthy rent growth and low vacancy rates. Market-rate units in the cities of Buena Park, Fullerton, and Anaheim have a collective vacancy currently below 4 percent, with multifamily developments selling at cap rates below 5 percent. For multifamily residential units within 3-miles of the Site, average asking rents have grown by 25 percent over the last five years, as seen in **Figure 4** below. **Figure 5** shows downward trending vacancy rates over the last ten years, with little new supply being delivered in the same time frame.

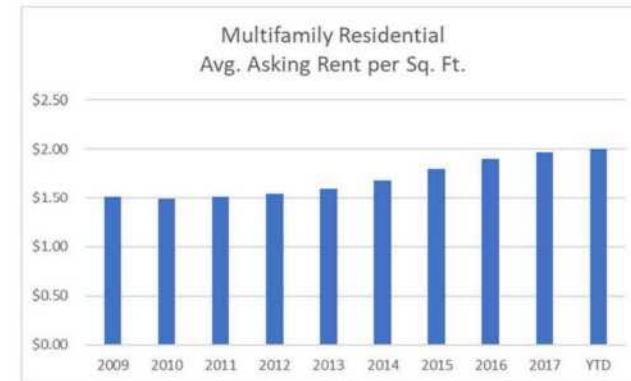
Within the North County, Buena Park, and North Anaheim Submarkets defined by CoStar, four market-rate multifamily projects have been delivered in the last five years. Project details for these projects are summarized in **Table 4**, showing monthly rents ranging from a high of \$3.05 per square foot to a low of \$1.97 per square foot.

In addition to healthy rent growth and growing demand for more housing throughout southern California, the Site seems well-suited for residential development because it is located in a predominantly residential area that is already connected to regional transportation. Multifamily residential development would be consistent with the apartments found across the street and in adjacent blocks. The Site is also near Buena Park High School, which is one block to the north. Residential land uses directly along freeways is common in the area and should not deter the marketability of residential development on the Site, especially in the current market of high demand for rental residential.

<sup>2</sup> "Hotel Markets Strong in April; CBRE Ups Outlook" by Paul Hughes. Orange County Business Journal. June 1, 2018.

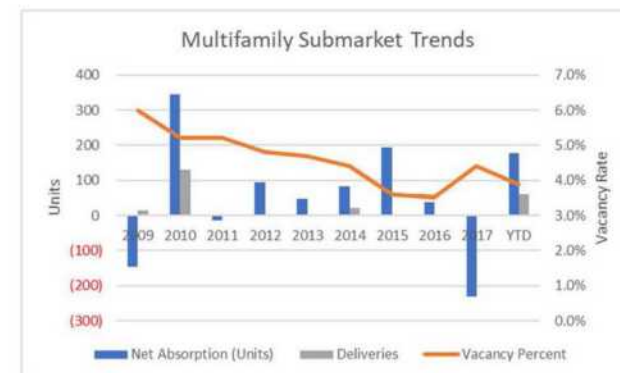
<sup>3</sup> Ibid.

**Figure 4. Historical Rent for Multifamily Residential within 3-Miles of Site**



Source: CoStar

**Figure 5. Historical Submarket Trends for Multifamily Residential within 3-Miles of Site**



Source: CoStar

**Table 4. Comparable Market-Rate Multifamily Residential Developments**

Property Name	Address	City	Year Built	Land (acres)	Total Units	Units per Acre	Asking Rent Per Sq. Ft.				
							Studio	1-Bed	2-Bed	3-Bed	Total
Pearl La Floresta	420 La Crescenta Dr	Brea	2018	2.9	204	70	\$0.00	\$3.05	\$2.76	\$2.70	\$2.94
Alexan Aspect	251 Orangefair Mall	Fullerton	2017	6.4	323	51	\$2.91	\$2.73	\$2.33	\$0.00	\$2.55
On Beach	5832 Beach Blvd	Buena Park	2018	0.8	60	75	\$2.65	\$2.06	\$1.87	\$0.00	\$2.25
Parkview Apartments	6785 Knott Ave	Buena Park	2014	1.1	22	20	\$0.00	\$0.00	\$1.97	\$0.00	\$1.97
<b>Weighted Average</b>							<b>\$2.73</b>	<b>\$2.79</b>	<b>\$2.41</b>	<b>\$2.70</b>	<b>\$2.63</b>

Source: CoStar Online

Homelessness is an important issue throughout southern California and the Site's redevelopment may present an opportunity to provide housing specific to the needs of homeless populations. EPS identified two types of housing programs for the homeless that may be appropriate to incorporate as a component of the redevelopment: Transitional/Bridge Housing and Permanent Supportive Housing. Such housing concepts develop and operate outside of market conditions, with substantial financial support from public entities, non-profit organizations, and other outside resources.

Transitional (or Bridge) housing is a medium-term model of providing housing to the homeless and unstably housed. Unlike crisis housing, where individuals are provided a bed on a night-to-night basis, residents in transitional housing typically have their own room or dwelling unit, and stay anywhere from a few weeks to a few years, depending on the facility. Many transitional housing facilities are developed and operated by non-profit and faith-based organizations.

Permanent Supportive Housing (PSH) is a long-term model of housing those who are homeless or unstably housed. The model includes providing affordable dwelling units along with support services that assist residents in areas such as mental and physical health, addiction treatment, education, and job training. Many PSH buildings are developed and/or operated by non-profit entities who can provide or coordinate the provision of supportive services. The units are rented in a manner similar to other forms of affordable housing, where the residents pay some portion of their income towards rent, typically Social Security disability income, with the remainder of the rent funded by public subsidies.

Given the non-market forces that support such developments, EPS did not quantitatively evaluate these housing concepts, but a qualitative discussion of these concepts as well as relevant development case studies are included in **Appendix A**.

## Retail

The Site's location along two major thoroughfares, as well as its continuing function as a multi-modal transit hub, suggests that a retail component may be suitable at the intersection of Magnolia Avenue and Orangethorpe Avenue. For comparably sized retail properties within 3-miles of the site, asking rent growth has been flat while net absorption has been barely positive with very little new development over the last five years, as seen in **Figures 6 and 7** below. However, the high-traffic intersection and current vacancy rates nearing 6 percent within the trade area pose some promise for including some retail uses on site. Still, the site's small size will certainly limit the ability for on-site retail uses to compete with and/or cannibalize the area's existing retail offerings, especially with more robust retail destinations nearby such as Buena

Park Place (an approximately 250,000 square foot mall) and The Source at Beach (a 450,000 square foot mixed-use complex with substantial retail and entertainment offerings).

The rise of e-commerce has changed consumer behavior in regards to retail, marked by a noticeable closure of traditional retailers (e.g. clothes, consumer products) and an increase in merchants focused on providing experiences such as food and beverage establishments. Population growth has accelerated modestly in the area since 2010 and although average incomes are lower in the area immediately surrounding the site compared to the rest of the County, the average household income within 3-miles of the site is a healthy \$84,000. These market fundamentals, combined with the Site's visibility from the freeways and access to transit through the Park & Ride, suggest potential for viable retail uses on the Site. Nontraditional retail concepts such as small-scale fitness studios and/or coffee shops may find the Site particularly appealing for the commuting customer.

**Figure 6. Historical Rent for Retail within 3-Miles of Site**



Source: CoStar



**Figure 7. Historical Submarket Trends for Retail within 3-Miles of Site**



Source: CoStar

#### Light Industrial

Throughout southern California, there is a shortage of industrial properties, whose uses include everything from logistics and warehousing to a whole host of light to heavy manufacturing. The demand for industrial uses and warehouse space is strong throughout southern California, driven by high population concentration, shifting consumer buying patterns related to e-commerce, and the region's role as a logistics hub. This shortage of supply, caused by both increasing demand as well as diminishing availability of land for industrial uses, has pushed vacancies way down while also putting upward pressure on rents. The scarcity of available supply and developable sites in the best locations has pushed distributors to edge cities such as those in the Inland Empire, farther and farther from customers. Orange County's 200 million square feet is 97.6 percent occupied with 1.2 million more square feet in the pipeline.

Activity related to several large buildings in the Fullerton and Buena Park industrial market can have significant impact on vacancy rates and absorption, such as the Buena Park JC Penney west coast logistics hub, which totals approximately 1 million square feet and which JC Penney sold in 2017 and plans to vacate. Given the vast difference in size between these much larger industrial properties and the Site, this analysis evaluates the real estate performance metrics for industrial properties under 10 acres in land size, which is comparable to the Site's acreage.

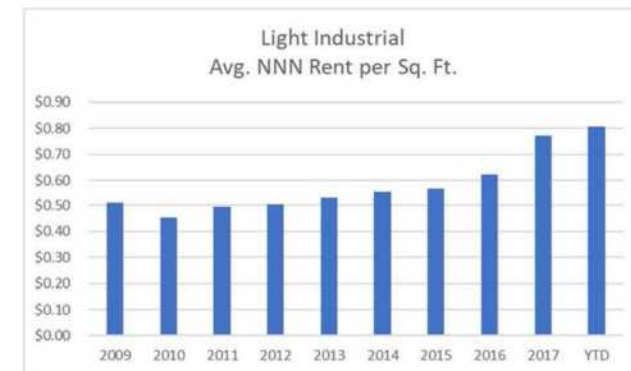
Historical rent growth for properties 10 acres and under in the cities of Fullerton and Buena Park are shown in **Figure 8** below. Industrial vacancy rates in the area have experienced a corresponding drop over the last ten years, as seen in **Figure 9**. Recent strength in the industrial sector has brought new supply to the area, with nearly 800,000 square feet delivered since 2017. The influx in new inventory explains the increase in vacancy rates over the last two years.

The Site's location in North County at the intersection of two arterial freeways, the I-5 and SR-91, makes it well-positioned to take advantage of traffic to and from LA's ports, supported by the area's industrial and service sectors. The Union Pacific Railroad also passes through a dense industrial node north of the Site in Buena Park—one of Orange County's densest concentrations of high-bay (28-foot clear height) warehouse space. For industrial uses, the Site is strategically

accessible to Los Angeles, the ports of LA and Long Beach to the west, and the Inland Empire to the east.

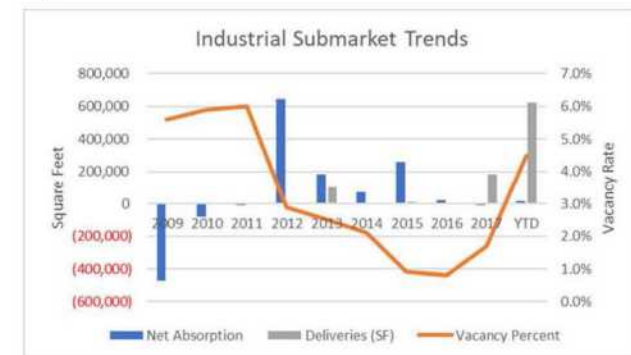
While the Site's location and surrounding uses and infrastructure are supportive of industrial uses, the Site's relatively small size may not be the most ideal for the type of large-scale warehouses typical of new light industrial development. Still, EPS has determined that strong regional and sub-regional demand for industrial space presents a development opportunity for OCTA's site, and thus has carried forward for feasibility and land value analysis below.

**Figure 8. Historical Rent for Light Industrial Uses in Fullerton and Buena Park**



Source: CoStar

**Figure 9. Historical Submarket Trends for Industrial in Buena Park and Fullerton**



Source: CoStar



## Residual Land Value Analysis

The following section details the pro forma analysis conducted to assess the feasibility of land uses judged to have potential market support at the Site. Multifamily residential land uses were evaluated at three densities: 35 units per acre, 70 units per acre, and 120 units per acre. Nonresidential land uses evaluated include retail and light industrial development prototypes.

### Methodology

Based on market information summarized in the previous section, EPS conducted a Residual Land Value (RLV) Analysis using static pro forma models. The analysis starts with five development prototypes. Residential development at 35 and 70 units per acre are representative of densities built in recently delivered multifamily developments in the area. Residential development at a higher density (120 units per acre) was also tested for feasibility purposes. Retail and industrial prototypes were tested according to site size and common floor to area ratios (FAR) for their respective land uses. The retail prototype is tested for 15,000 gross square feet of retail space at an FAR of 0.25. Feasibility of industrial uses were tested using a prototype based on an FAR of 0.4 on 3 acres of land.

The retail and industrial prototypes use parking standards consistent with the City of Fullerton Zoning Ordinance, which requires 1 parking space per 250 gross square feet of retail space and 1 parking space per 1,000 square feet of industrial space. The residential prototypes assume a City Conditional Use Permit to allow for the reduction of parking requirements to one space per unit.

Using lease rates based on market research of the surrounding area and cap rates on recent sales transactions, EPS estimated the capitalized market value of each prototype. These building values are compared to the costs to construct these development prototypes, resulting in residual land values for each prototype.

### RLV Analysis Results

The results of the RLV analysis are summarized in **Table 5** below, and indicate that lower-density housing, retail, and light industrial uses may yield positive land value for OCTA, while higher density housing (70 or more units per acre) faces a feasibility challenge in the near term. **Figure 9** further illustrates the building values, developments costs, and resulting residual land values for each of the development prototypes evaluated.

For residential development, the least dense multifamily prototype has the highest residual land value due to the lower cost to construct 2-3 story residential projects relative to residential projects taller than 3 stories. This analysis assumes that residential development at 70 units per acre and 120 units per acre on the Site would require 4-7 stories, resulting in the higher costs associated with that construction type. Additionally, residential development at 35 and 70 units per acre are assumed to be surface parked, whereas development of 120 units per acre requires structured parking. Given the high cost of structured parking, assumed to be \$25,000 per space compared to \$5,000 per space for surface parking, EPS assumed a parking strategy of half surface space and half structured spaces to improve the project economics of this particular prototype. However, the resulting residual land value remained negative.

This analysis also assumes the same residential rental rate per square foot for each of the three residential prototypes. The two denser residential prototypes would have to achieve higher rents in order to support their more expensive construction costs. If the two denser communities were able to command a premium over the achievable rent for the 35 unit per acre prototype, then

their respective residual land values would rise. However, such premiums are typically associated with better views, which the adjacent freeway greatly curtails at this Site.

Retail presents a positive residual land value, indicating that the rents achievable for this prototype can support the cost of new retail construction. The light industrial use commands a much lower lease rate than the retail prototype, but the significantly lower cost to build relatively simple industrial buildings results in a positive residual land value.

Although the modest residual land value for retail might raise concerns regarding the viability of new retail construction, on-site retail offerings can also serve as a community asset. The assumed monthly lease rate for the retail prototype of \$2.00 per square foot is based on historical rent trends and current market rents for retail uses within 3-miles of the Site. However, the Site's unique setting situated at a Park & Ride location may allow retail uses to attain a modest rent premium due to its increased visibility and exposure from the Park & Ride, freeways, and access to transit. Another potential way to improve the viability of retail is to include ground-floor retail as a component of a vertical mixed-use building, which may provide opportunities for cutting retail construction costs.

Non-traditional retail concepts that complement the function of the Park & Ride, such as a car wash or fitness center that transit-riders can use before or after their commutes, may be an appropriate fit for the site. The unique nature of these concepts may alter the economic viability for a potential retail component of the Site, but have not been considered in this analysis, which has focused on more traditional "strip" or "pad" retail.

Details of commercial land sales that have sold since 2015 and within 3-miles of the Site are summarized in **Table 6**. The properties proposed for residential uses sold at a range of \$40-\$119 per square foot of land. On the OCTA Site, only the residential prototype at 35 units per acre achieved a residual land value approaching this range. Considerable increases in lease rates or a reduction in total development costs would be needed to improve the residual land values of the denser residential prototypes.

**Table 6** also shows that properties proposed for retail uses sold at a range of \$21-73 per square foot of land. EPS has estimated retail rents for the OCTA Site to be \$2.00 per square foot, but on-site retail rents would have to reach \$2.50 per square foot in order to push residual land values within the range of these comparable recent commercial land sales. In the second quarter of 2018, retail rents in the Buena Park and Fullerton submarkets overall were \$2.44 per square foot and \$2.33 per square foot, respectively. However, these average submarket rents include larger retail development typologies that are not appropriate for the relatively small OCTA Site — such as malls, power centers, and neighborhood centers.

A reduction in parking requirements would alleviate the cost burden of parking and improve residual land values across all development prototypes evaluated, residential and nonresidential.

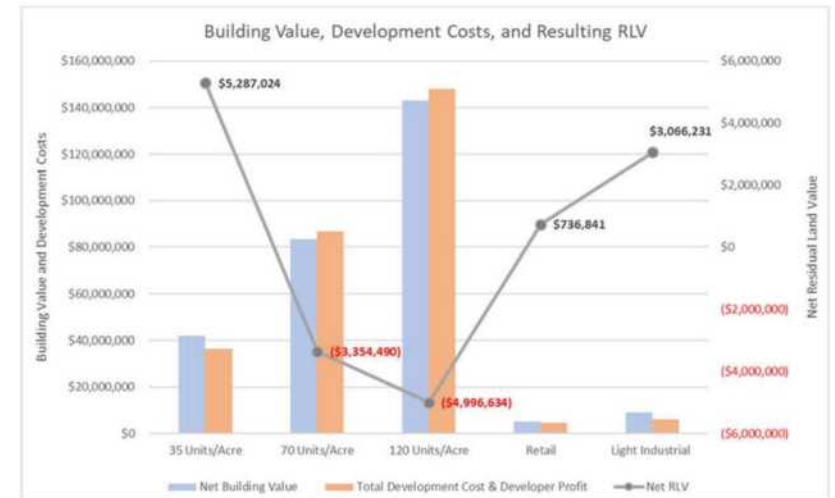
**Table 5. Residual Land Value Analysis Summary**

Item	LAND USE				
	Multifamily Residential			Nonresidential	
	35 Units/Acre	70 Units/Acre	120 Units/Acre	Retail	Light Industrial
<b>Development Assumptions</b>					
Site Size (acres)	3.00	3.00	3.00	1.38	3.00
Site Size (sq. ft.)	130,680	130,680	130,680	60,000	130,680
Number of Residential Units	105	210	360		
Avg. Net Unit Size (sq. ft.)	900	900	900		
Building Efficiency Ratio	85%	85%	85%	100%	95%
Gross Building Area	111,176	222,353	381,176	15,000	52,272
Parking Spaces per Unit/per 1,000 SF nonresidential [1]	1.0	1.0	1.0	4.0	1.0
<b>Operating Assumptions</b>					
Rent per Sq. Ft. per Month [2]	\$2.85	\$2.85	\$2.85	\$2.00	\$1.00
Vacancy Rate	5%	5%	5%	5%	3%
Operating Expenses	30%	30%	30%	4%	2%
<b>Cost Assumptions</b>					
<b>Hard Costs</b>					
Basic Site Work per Sq. Ft. Land	\$5	\$5	\$5	\$5	\$5
Building Direct Cost per gross Sq. Ft. [3]	\$194	\$222	\$222	\$169	\$62
Soft Costs (% of Hard Costs)	30%	30%	30%	20%	20%
<b>Other Costs</b>					
Development Contingency (% of Hard & Soft Costs)	5%	5%	5%	5%	5%
Developer Fee (% of Hard and Soft Costs)	4%	4%	4%	4%	4%
Structured Parking per Space [4]	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Surface Parking per Space	\$5,000	\$25,000	\$5,000	\$5,000	\$5,000
<b>Revenues</b>					
Annual Net Operating Income	\$2,148,214	\$4,296,427	\$7,368,732	\$328,320	\$568,463
Exit Cap Rate [5]	5%	5%	5%	8%	6%
Net Building Value [6]	\$41,694,742	\$83,389,484	\$142,953,401	\$5,307,840	\$9,157,823
Net Building Value per Unit/Building SF	\$397,093	\$397,093	\$397,093	\$354	\$175
<b>Costs</b>					
Hard Costs	\$22,167,675	\$49,993,763	\$85,236,931	\$2,836,123	\$3,895,430
Soft Costs	\$6,650,302	\$14,998,138	\$25,571,079	\$667,225	\$777,086
Other Costs	\$3,118,619	\$11,099,274	\$18,972,721	\$606,301	\$680,968
Total Development Costs (TDC)	\$31,936,595	\$76,091,205	\$129,780,732	\$4,009,648	\$5,343,502
TDC per Residential Unit/Nonresidential Sq. Ft.	\$304,158	\$362,339	\$360,502	\$267	\$102
<b>Land Value</b>					
Gross Residual Land Value	\$9,758,147	\$7,298,279	\$13,172,669	\$1,298,192	\$3,814,321
Less Developer Profit of 14% [7]	(\$4,471,123)	(\$10,652,789)	(\$18,169,302)	(\$561,351)	(\$748,090)
<b>Net Residual Land Value</b>	<b>\$5,287,024</b>	<b>(\$3,354,490)</b>	<b>(\$4,996,634)</b>	<b>\$736,841</b>	<b>\$3,066,231</b>
RLV per Acre	\$1,762,341	(\$1,118,163)	(\$1,665,545)	\$534,946	\$1,022,077
RLV per Land Sq. Ft.	\$40	(\$26)	(\$38)	\$12	\$23

- [1] Residential uses assume City of Fullerton  
[2] Based on CoStar market research.  
[3] All Building Direct Costs assume a 10 percent premium to account for prevailing wage requirements. Direct costs based on the following sources:  
Residential at 35 units per acre based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Apartment, 2-3 stories.  
Residential at 70 units per acre based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Apartment, 4-7 stories.  
Residential at 120 units per acre based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Apartment, 4-7 stories.  
Retail based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Store, Retail 2-3.  
Industrial Tiltpup Construction 2015 Cost Estimate  
for a 50,000 sf building with 28 ft. clearance.  
[4] Residential development at 70 units and 120 units per acre are assumed to have all structured parking. All other prototypes are assume surface parking.  
[5] Based on recent property sale transactions in the area.  
[6] Includes a 3% disposition cost for the sale.  
[7] Net Residual Land Value is calculated as Net Building Value minus Total Development Costs minus a Developer Profit assumed at 14% of Total Development Costs.

Source: CoStar; City of Fullerton; Saylor's Current Construction Cost; Millie and Severson Industrial Tiltpup Construction; EPS.

**Figure 9. Building Values, Development Costs, and Resulting Residual Land Values**



Source: EPS.

**Table 6. Commercial Land Sales Since 2015**

Address	City	Sale Date	Proposed Use	Land Area		Sale Price		
				Acres	Sq. Ft.	Total	Per Acre Land	Per SF Land
Proposed Residential Uses								
6572 Stanton Ave	Buena Park	7/31/2018	Apartment	1.40	60,984	\$7,227,500	\$5,162,500	\$119
600 W Commonwealth Ave (Part of Multi-Property Sale)	Fullerton	7/3/2018	Apartment	4.79	208,652	\$19,770,000	\$4,127,349	\$95
2730 W Bal Rd	Anaheim	8/1/2017	Townhomes	1.84	80,150	\$4,000,000	\$2,173,924	\$50
6572 Stanton Ave	Buena Park	4/13/2017	Apartment	1.40	60,984	\$2,410,000	\$1,721,429	\$40
1001-1035 N Magnolia Ave	Anaheim	5/8/2015	Apartment	2.90	126,324	\$5,925,000	\$1,905,172	\$44
6242 Orangeflora Ave	Buena Park	2/29/2015	Condominiums	2.90	126,324	\$5,000,000	\$1,724,138	\$40
Weighted Average						\$2,884,603	\$66	
Proposed Retail Uses								
7861 Beach Blvd	Buena Park	9/13/2017	Retail, F&B	2.92	127,195	\$8,400,000	\$2,876,712	\$68
7113 Firestone Blvd	Buena Park	8/23/2016	Retail, auto	4.00	174,240	\$3,700,000	\$925,000	\$21
924-926 S Beach Blvd	Anaheim	6/3/2016	Retail, car wash	1.07	46,809	\$3,400,000	\$3,177,570	\$73
7840 Beach Blvd	Buena Park	1/15/2016	Retail, F&B	1.85	80,751	\$1,978,000	\$1,065,919	\$24
Weighted Average						\$1,776,016	\$41	

Source: CoStar Online, EPS.

## Conclusion

The OCTA Fullerton Park and Ride Site offers economically feasible redevelopment potential for several land use prototypes, presenting OCTA with the opportunity to generate revenue and unlock the value of the Site's land. EPS evaluated the development feasibility of three prototypes for multifamily residential development at varying densities as well as nonresidential uses such as retail and light industrial uses. The results of the feasibility analysis are summarized in **Table 7** below, showing promise for residential development at 35 units per acre. Light industrial prototype also achieved a positive residual land value, while retail land uses resulted in a modest residual land value.



In addition to generating revenue, OCTA can also use the redevelopment of the Site to achieve a number of other goals. These goals range from increasing OCTA and transit ridership to creating a mixed-use and pedestrian-friendly environment. These goals are also listed in **Table 7**, along with the likelihood for each land use to be able to meet each goal. **Figure 10** displays the net residual value for each land use prototype analyzed.

**Table 7. Ability to Achieve OCTA Goals by Land Use**

Item	LAND USE			Nonresidential	
	35 Units/Acre	Multifamily Residential 70 Units/Acre	120 Units/Acre	Retail	Light Industrial
Ability to Generate Revenue: Net Residual Land Value	\$5,287,024	(\$3,354,490)	(\$4,996,634)	\$736,841	\$3,066,231
Potential to Increase OCTA Ridership	Medium	High	High	Low	Low
Mixed-Use and Pedestrian-Friendly Development	High	High	High	Medium	Low
Provides Community Amenity	Medium	Medium	Medium	Medium	Low
Compatibility with Park & Ride Function	High	High	High	Medium	Low

Source: EPS.

**Figure 10. Net Residual Land Value by Land Use**



Source: EPS.

### Recommendations

Redevelopment of the OCTA Fullerton Park & Ride Site has the potential to generate financial value for OCTA as well as meet a number of placemaking and economic development goals. These are near-term recommendations for OCTA to guide the implementation process so as to maximize the value unlocked from the Site's redevelopment:

**Prioritize Goals for Project Site.** Although generating revenue for OCTA is a priority, the Site's ability to meet OCTA's non-financial goals should be considered relative to the potential to achieve those goals by other means. For example, other OCTA redevelopment sites may be better suited for and more efficient at achieving certain goals (e.g. providing housing or community assets) than the development options being contemplated at the Fullerton Site.

**Evaluate Strategic Public Investment.** EPS conducted a pro forma analysis demonstrating that current market conditions produce a marginally feasible project for certain land uses. To the extent that OCTA, the City of Fullerton and the City of Buena Park have goals that can be achieved through the Site's redevelopment, a collaborative public investment strategy may help certain desired land use programs overcome development feasibility hurdles. Ultimately, the need to discount land, waive or defer impact fees, and contribute outside funding/grants to achieve public sector and community objectives should be based on a refined financial assessment.

**Initiate Developer Selection and Negotiations.** As similar infill development projects emerge and as other redevelopment opportunities for public-private partnerships are considered for other sites throughout the County, an important next step will be to evaluate specific attributes of such a project at the Fullerton Site and initiate developer discussions.



## APPENDIX A

### Multifamily Housing Concepts for the Homeless

Homelessness is an important issue throughout southern California and the Site's redevelopment may present an opportunity to provide housing specific to the needs of homeless populations. EPS identified two types of housing programs for the homeless that may be appropriate to incorporate as a component of the redevelopment: Transitional/Bridge Housing and Permanent Supportive Housing. Such housing concepts develop and operate outside of market conditions, with substantial financial support from public entities, non-profit organizations, and other outside resources. Given the non-market forces that support such developments, EPS did not quantitatively evaluate these housing concepts, but provided a qualitative discussion in its place. Below are descriptions of two types of housing solutions for the homeless, followed by three case studies of successful projects.

#### Transitional/Bridge Housing

Transitional (or Bridge) housing is a medium-term model of providing housing to the homeless and unstably housed. Unlike crisis housing, where individuals are provided a bed on a night-to-night basis, residents in transitional housing typically have their own room or dwelling unit, and stay anywhere from two weeks to two years, depending on the facility. The housing is also combined with the provision of support services, to help transition residents into a more permanent housing situation. Transitional housing facilities often target specific segments of the homeless population, such as women, youth, LGBT individuals, or veterans.

Many transitional housing facilities are developed and operated by non-profit and faith-based organizations. While in the past they have received funding through HUD, local housing authorities, and foundations, the model is beginning to fall out of favor, with a preference being given to funding Housing First initiatives and Permanent Supportive Housing development (see below). As a result, many transitional housing facilities are losing funding and are unable to house and support as many individuals. According to organizations that operate transitional housing, losing this model, especially before a much greater number of PSH units become available, will have (and is already having) the effect of increasing the number of people living on the street.

#### Permanent Supportive Housing

Permanent Supportive Housing (PSH) is a long-term model of housing those who are homeless or unstably housed. The model includes providing affordable dwelling units along with support services that assist residents in areas such as mental and physical health, addiction treatment, education, and job training.

Many PSH buildings are developed and/or operated by non-profit entities who can provide or coordinate the provision of supportive services. The units are rented in a manner similar to other forms of affordable housing, where the residents pay some portion of their income towards rent, typically Social Security disability income, with the remainder of the rent funded by public subsidies. Development of PSH buildings is also typically financed through public or institutional and corporate philanthropic sources, including grants and tax credit programs. While providing much-needed capital, these sources often come with many bureaucratic requirements and have a finite amount of funding available. Therefore, there is an interest in finding other ways to finance PSH that can complement and expand the capacity of these traditional sources.

Developers have also utilized innovative approaches to building design and construction to help save time and cost.

#### Case Study: Potter's Lane

Located in Orange County's Midway City, Potter's Lane is a 15-unit housing development targeting chronically homeless veterans. The project was developed by American Family Housing, a non-profit providing housing and support services to homeless and low-income individuals and families in Los Angeles, Orange, and San Bernardino counties. Monthly rent is \$1,200, but tenants only pay up to 30% of their income towards it, with the rest subsidized through HUD's Veterans Affairs Supportive Housing Voucher program administered by the Orange County Housing Authority.

The innovation at Potter's Lane was the use of shipping containers as the raw materials for the building. GrowthPoint Structures, a Los Angeles-based company that manufactures modular buildings fabricated around used shipping containers, provided the pieces, and SVA Architects designed units utilizing three containers for a total size of 480 square feet. The use of GrowthPoint's containers were not only more cost-effective than traditional materials, but the prefabricated nature of the containers and the factory's proximity to the site reduced construction time to just five months.

Just over half of the financing for the project came from a variety of public funding sources, including, the State Veteran's Housing and Homeless Prevention Program, Orange County Housing Successor Agency funds, and the Federal Home Loan Bank (FHLB) Affordable Housing Program. The remainder of the financing came from the Home Depot Foundation, a conventional loan, and American Family Housing's own funding sources.

#### Case Study: PSH Colden

PSH Colden, located in South Los Angeles, is an eight-unit building under development by FlyAwayHomes targeting the chronically homeless. Like Potter's Lane, the building is being constructed using the modular fabricated shipping containers from GrowthPoint Structures. The eight four-bedroom units will each house four individuals, where residents have their own bedroom and share common living and kitchen space with the other three.

FlyAwayHomes is a social benefit organization founded by a local development company and property management company, in partnership with The People Concern, a Los Angeles social services agency. The innovation with PSH Colden is that, unlike the vast majority of PSH and other affordable housing projects, the development is being financed through private investment. FlyAwayHomes will lease the building to The People Concern, generating a cash flow and providing a modest return to investors. The People Concern will in turn find qualified residents, operate the building, and provide support services. It is anticipated that about one-third of the tenants will pay rent of \$550/month from their Social Security disability income, while the remaining two-thirds will have their rent of \$800/month paid for through LA County's Housing for Health project.

By using private financing, the developer did not need to go through the application process and adhere to all of the standards and requirements dictated by public financing, such as paying a prevailing wage. This led to a less expensive and accelerated development process. More importantly, the success of this model will significantly open up funding sources and lead to more PSH development than could be supported through the sole use of the finite funds available through public programs.

**Case Study: Crest Apartments (13604 Sherman Way, Van Nuys)**

Crest Apartments is a 64-unit PSH building located in the Van Nuys community of the City of Los Angeles. The building was developed by Skid Row Housing Trust, a non-profit focused on developing PSH units. The organization has developed 26 PSH properties, with the majority located in Downtown Los Angeles. Crest Apartments is one of only three of the organization's properties located outside of Downtown, and the only one in the San Fernando Valley.

Crest Apartments was designed by Michael Maltzan Architects, which has designed a number of buildings for Skid Row Housing Trust. The buildings have been featured in architectural blogs and magazines, and demonstrate the possibility and potential of architectural sophistication in affordable housing development. With this approach, buildings can be designed in a thoughtful way that fit the site and surrounding area, and also create a space that is nurturing and supportive of its residents.

The development of the project was financed through a variety of public programs, including the Low-Income Housing Tax Credit program and the HOME Investment Partnership program administered by the city's Housing and Community Investment Department. Funding for support services came from the Los Angeles County Department of Health Services, and are being administered by L.A. Family Housing. Subsidies for residents' rent is being provided through project-based vouchers from the Housing Authority of the City of Los Angeles.



# 7.2.2 MARKET STUDY AND FEASIBILITY ANALYSIS SUMMARY

Data Source: EPS

## EXECUTIVE SUMMARY

To: Ray Whitchurch, IBI Group  
From: Darin Smith and Julie Cooper  
Subject: OCTA Fullerton Park & Ride Joint Development Market Study and Feasibility Analysis; EPS #184011  
Date: July 11, 2019

The Orange County Transportation Authority (OCTA) is considering development options on its Fullerton Park & Ride property (Site) at the southwest corner of Orangethorpe and Magnolia Avenues. Although the Site is a functioning Park & Ride facility servicing several OCTA and Metro bus routes, the property's parking lots are underutilized, presenting the potential for development while retaining its role as a multi-modal transit hub. OCTA's goals for the site include a development that generates revenue as well as increases transit ridership.

As part of a consulting team led by IBI Group, Economic & Planning Systems, Inc. (EPS) has evaluated the market viability and financial feasibility of a variety of uses, including multifamily residential at various densities, retail, office, hotel, and light industrial uses. EPS produced a detailed memorandum on December 10, 2018, and the firm's conclusions are summarized in this Executive Summary.

## Summary of Findings

1. OCTA's Fullerton Park & Ride property's market position is strengthened by its strong accessibility and visibility due to its transit service and adjacency to the region's freeway system (the I-5 / SR 91 interchange) as well as frontage on significant surface streets.
2. Residential development appears to be in demand at and around the OCTA site, given regional and local growth patterns, and can yield strong benefits to OCTA in terms of transit ridership. However, local market-rate rents are modest compared to some other areas, which will affect the financial feasibility of new housing, particularly at higher densities that cost more to construct (due to structured parking, life safety requirements, etc.).
3. Office development does not appear to be in high demand in the vicinity of the OCTA property, and is not recommended as a prioritized land use.

Executive Summary

OCTA Fullerton Park & Ride Joint Development Market Study and Feasibility Analysis

July 11, 2019

Page 2

4. Hotel use is also not recommended as a prioritized use, as the local area commands relatively low room rates and the site is not competitive in terms of convenience with the many other hotels serving tourist destinations in the vicinity.
5. Retail development does appear to be in demand, given the site's strong accessibility and visibility, and should be considered a viable use as a stand-alone development or as part of a mixed-use development.
6. Light industrial development is also in demand, though such use may not be optimally compatible with the typical ridership and placemaking goals of transit-oriented development.
7. The OCTA site could also be an appropriate location for affordable housing or various housing solutions meant to serve the County's homeless population, but would not be expected to generate significant land revenues for OCTA.
8. EPS prepared financial analysis that compares the value of potential market-supported developments to their construction costs, and yields "residual land values" estimating what OCTA might expect to receive for the sale or lease of the property. This analysis indicated that lower-density multifamily may yield the highest land values, followed by light industrial uses. Higher-density housing with structured parking appears to have feasibility challenges in the near term, as they have higher construction costs while the value of the units does not increase proportionately.
9. When considering the potential disposition of its property at the Fullerton Park & Ride, OCTA will account for a variety of factors including transit ridership impacts, placemaking and community compatibility, and local and regional needs in addition to maximizing revenue from the land disposition. **Table 1** below characterizes how each land use tested for the Site addresses a variety of OCTA goals.

**Table 1. Summary of Land Uses and OCTA Objectives**

OCTA Objective	LAND USE				
	Multifamily Residential			Nonresidential	
	35 Units/Acre	70 Units/Acre	120 Units/Acre	Retail	Light Industrial
Potential Land Value to OCTA	High	Low	Low	Medium	High
Potential OCTA Ridership Gains	Medium	High	High	Low	Low
Mixed-Use & Pedestrian-Friendly	High	High	High	Medium	Low
Provides Community Amenity	Medium	Medium	Medium	Medium	Low
Compatible with Park & Ride	High	High	High	Medium	Low

Source: EPS.

10. As market conditions evolve, developers may be more optimistic about higher density housing or other uses than this analysis suggests. EPS recommends that OCTA be realistic in their expectations regarding financial returns from the land itself, but also aspirational about the long-term use of the property. A developer solicitation process that encourages creativity to meet a variety of objectives, rather than simply maximizing land value, may yield very positive results for OCTA and the local community.

The Economics of Land Use



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**FULLERTON PARK-AND-RIDE JOINT DEVELOPMENT STUDY (REPORT)**

Orange County Transportation Authority



7.3 PROFORMAS

Data Source: EPS

OCTA Fullerton Joint Development  
Land Use Prototypes and Residual Land Value Summary

LINEAR PLAN

Item	LAND USE						
	Apartments	Micro Units	Permanent Supportive Housing	Office	Retail	Private Structured Parking	OCTA Structured Parking
<b>Development Assumptions</b>							
Number of Residential Units	130	86	28				
Avg. Net Unit Size (sq. ft.)	603	300	394				
Rentable Sq. Ft.	78,447	25,806	11,042	62,595	18,000		
Building Efficiency Ratio	85%	85%	85%	90%	100%		
Gross Building Area	92,290	30,360	12,990	69,550	18,000		
Parking Spaces per Unit/per 1,000 SF nonresidential	0.00	0.00	0.00	0.00	0.00		
Total Parking Spaces	0	0	0			494	56
Net New Parking Spaces [1]	0	0	0	0	0	494	56
<b>Operating Assumptions</b>							
Rent per Sq. Ft. per Month [2]	\$3.05	\$3.50	\$1.23	\$2.25	\$2.00		
Vacancy Rate	5%	5%	5%	5%	5%		
Operating Expenses	30%	30%	100%	20%	4%		
<b>Cost Assumptions</b>							
<b>Hard Costs</b>							
Basic Site Work per gross Sq. Ft.	\$5	\$5	\$5	\$5	\$5		
Building Direct Cost per gross Sq. Ft. [3]	\$222	\$244	\$222	\$169	\$144		
Structured Parking per Space [3]	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Soft Costs (% of Hard Costs)	30%	30%	30%	20%	20%	20%	20%
<b>Other Costs</b>							
Development Contingency (% of Hard & Soft Costs)	5%	5%	5%	5%	5%	5%	5%
Developer Fee (% of Hard and Soft Costs)	4%	4%	4%	4%	4%	4%	4%
<b>Revenues</b>							
Annual Net Operating Income	\$1,909,309	\$720,762	\$0	\$1,284,449	\$393,984		
Desired Yield on Cost [4]	5.50%	5.50%	5.50%	7.50%	7.50%		
Net Building Value (Supportable Development Costs)	\$34,714,716	\$13,104,756	\$0	\$17,125,992	\$5,253,120		
Net Building Value per Unit/Building SF	\$267,036	\$152,381	\$0	\$246.24	\$291.84	N/A	N/A
<b>Costs</b>							
Hard Costs (including Parking)	\$20,940,715	\$7,562,414	\$2,947,447	\$12,101,700	\$2,683,347	\$12,350,000	\$1,400,000
Soft Costs	\$6,262,215	\$2,268,724	\$884,234	\$2,420,340	\$536,869	\$2,470,000	\$280,000
Other Costs	\$2,450,054	\$884,802	\$344,851	\$1,306,984	\$289,801	\$1,333,800	\$151,200
Total Development Costs (TDC)	\$29,652,984	\$10,715,940	\$4,176,533	\$15,829,024	\$3,509,918	\$16,153,800	\$1,831,200
TDC per Residential Unit/Commercial SF/Stall	\$228,254	\$124,604	\$149,162	\$227.59	\$194.99	\$32,700	\$32,700
<b>Land Value</b>							
Supportable Residual Land Value	\$5,041,722	\$2,388,816	\$0	\$1,296,968	\$1,743,302	-\$16,153,800	-\$1,831,200
Land Value per Unit or Bldg SF	\$38,782	\$27,777	\$0	\$18.65	\$96.85		
<b>SUM OF TOTAL PROGRAM LAND VALUES</b>				<b>PRIVATE</b>	<b>\$10,470,808</b>	<b>PARKING</b>	<b>-\$17,985,000</b>
Starting Annual Ground Lease at 6% of Value					\$628,248		
Annual Debt Service on Parking Costs [5]						-\$1,169,950	
Years of Ground Lease Payment until OCTA Parking Costs are Repaid [6]							38
NPV of OCTA Revenues over 50 Years at 5% Discount Rate							-\$1,958,727

[1] For these calculations, the parking costs for housing and commercial spaces are assumed to be provided as structured parking. Site plan shows 550 structured parking spaces and 363 retained surface spaces.  
[2] Based on CoStar market research for smaller units, with 10% premium for new construction. Micro-units get another 10% premium. PSH units are priced at 30% AMI for a 1-person household.  
[3] All building Direct Costs assume prevailing wage requirements and are based on the following sources:  
Residential based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Apartment, 4-7 stories, plus a 10% premium per sq. ft. for micro units.  
Office based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles.  
Retail based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Store, Retail, less an assumed savings of \$25 because the proposed retail is in the ground floor of residential and garage buildings.  
Structured parking based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Garage, Parking.  
[4] Based on recent property sale transactions in the area and LPS professional judgment.  
[5] Assumes OCTA issues debt for full structured parking cost at 5% interest with 30-year amortization.  
[6] Assumes ground lease payments escalate 2% annually while debt service payment remain constant.  
Source: IBI Group; CoStar; Saylor's Current Construction Costs 2018; EPS.

OCTA Fullerton Joint Development  
Land Use Prototypes and Residual Land Value Summary

LAYERED PLAN

Item	LAND USE						
	Apartments	Micro Units	Permanent Supportive Housing	Office	Retail	Private Structured Parking	OCTA Structured Parking
<b>Development Assumptions</b>							
Number of Residential Units	200	20	16				
Avg. Net Unit Size (sq. ft.)	600	306	383				
Rentable Sq. Ft.	119,969	6,120	6,120	35,901	32,170		
Building Efficiency Ratio	85%	85%	85%	90%	100%		
Gross Building Area	141,140	7,200	7,200	39,890	32,170		
Parking Spaces per Unit/per 1,000 SF nonresidential	0.00	0.00	0.00	0.00	0.00		
Total Parking Spaces	0	0	0	0	0	519	272
Net New Parking Spaces [1]	0	0	0	0	0	519	272
<b>Operating Assumptions</b>							
Rent per Sq. Ft. per Month [2]	\$3.05	\$3.50	\$1.27	\$2.25	\$2.00		
Vacancy Rate	5%	5%	5%	5%	5%		
Operating Expenses	30%	30%	100%	20%	4%		
<b>Cost Assumptions</b>							
<b>Hard Costs</b>							
Basic Site Work per gross Sq. Ft.	\$5	\$5	\$5	\$5	\$5		
Building Direct Cost per gross Sq. Ft. [3]	\$222	\$244	\$222	\$169	\$144		
Structured Parking per Space [3]	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Soft Costs (% of Hard Costs)	30%	30%	30%	20%	20%	20%	20%
<b>Other Costs</b>							
Development Contingency (% of Hard & Soft Costs)	5%	5%	5%	5%	5%	5%	5%
Developer Fee (% of Hard and Soft Costs)	4%	4%	4%	4%	4%	4%	4%
<b>Revenues</b>							
Annual Net Operating Income	\$2,919,925	\$170,932	\$0	\$736,689	\$704,137		
Desired Yield on Cost [4]	5.50%	5.50%	5.50%	7.50%	7.50%		
Net Building Value (Supportable Development Costs)	\$53,089,554	\$3,107,847	\$0	\$9,822,514	\$9,388,493		
Net Building Value per Unit/Building SF	\$265,448	\$155,392	\$0	\$246.24	\$291.84	N/A	N/A
<b>Costs</b>							
Hard Costs (including Parking)	\$32,024,841	\$1,793,458	\$1,633,689	\$6,940,860	\$4,795,738	\$12,975,000	\$6,800,000
Soft Costs	\$9,607,452	\$538,037	\$490,107	\$1,388,172	\$959,148	\$2,595,000	\$1,360,000
Other Costs	\$3,746,906	\$209,835	\$191,142	\$749,613	\$517,840	\$1,401,300	\$734,400
Total Development Costs (TDC)	\$45,379,200	\$2,541,330	\$2,314,937	\$9,078,645	\$6,272,625	\$16,971,300	\$8,894,400
TDC per Residential Unit/Commercial SF/Stall	\$226,896	\$127,066	\$144,684	\$227.59	\$194.99	\$32,700	\$32,700
<b>Land Value</b>							
Supportable Residual Land Value	\$7,710,355	\$566,518	\$0	\$743,869	\$3,115,668	-\$16,971,300	-\$8,894,400
Land Value per Unit or Bldg SF	\$38,552	\$28,326	\$0	\$18.65	\$96.85		
<b>SUM OF TOTAL PROGRAM LAND VALUES</b>				<b>PRIVATE</b>	<b>\$12,136,409</b>	<b>PARKING</b>	<b>-\$25,865,700</b>
Starting Annual Ground Lease at 6% of Value					\$728,185		
Annual Debt Service on Parking Costs [5]						-\$1,682,601	
Years of Ground Lease Payment until OCTA Parking Costs are Repaid [6]							44
NPV of OCTA Revenues over 50 Years at 5% Discount Rate							-\$7,290,113

[1] For these calculations, the parking costs for housing and commercial spaces are assumed to be provided as structured parking. Site plan shows 791 structured parking spaces and 140 retained surface spaces.  
[2] Based on CoStar market research for smaller units, with 10% premium for new construction. Micro-units get another 10% premium. PSH units are priced at 30% AMI for a 1-person household.  
[3] All building Direct Costs assume prevailing wage requirements and are based on the following sources:  
Residential based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Apartment, 4-7 stories, plus a 10% premium per sq. ft. for micro units.  
Office based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles.  
Retail based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Store, Retail, less an assumed savings of \$25 because the proposed retail is in the ground floor of residential and garage buildings.  
Structured parking based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Garage, Parking.  
[4] Based on recent property sale transactions in the area and LPS professional judgment.  
[5] Assumes OCTA issues debt for full structured parking cost at 5% interest with 30-year amortization.  
[6] Assumes ground lease payments escalate 2% annually while debt service payment remain constant.  
Source: IBI Group; CoStar; Saylor's Current Construction Costs 2018; EPS.

OCTA Fullerton Joint Development  
Land Use Prototypes and Residual Land Value Summary

HORSESHOE PLAN

Item	LAND USE						
	Apartments	Micro Units	Permanent Supportive Housing	Office	Retail	Private Structured Parking	OCTA Structured Parking
<b>Development Assumptions</b>							
Number of Residential Units	50	70	26				
Avg. Net Unit Size (sq. ft.)	592	304	383				
Rentable Sq. Ft.	29,597	21,250	9,945	53,496	32,365		
Building Efficiency Ratio	85%	85%	85%	90%	100%		
Gross Building Area	34,820	25,000	11,700	59,440	32,365		
Parking Spaces per Unit/per 1,000 SF nonresidential	0.00	0.00	0.00	0.00	0.00		
Total Parking Spaces	0	0	0	0	0	421	129
Net New Parking Spaces [1]	0	0	0	0	0	421	129
<b>Operating Assumptions</b>							
Rent per Sq. Ft. per Month [2]	\$3.05	\$3.50	\$1.27	\$2.25	\$2.00		
Vacancy Rate	5%	5%	5%	5%	5%		
Operating Expenses	30%	30%	100%	20%	4%		
<b>Cost Assumptions</b>							
<b>Hard Costs</b>							
Basic Site Work per gross Sq. Ft.	\$5	\$5	\$5	\$5	\$5		
Building Direct Cost per gross Sq. Ft. [3]	\$222	\$244	\$222	\$169	\$144		
Structured Parking per Space [3]	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Soft Costs (% of Hard Costs)	30%	30%	30%	20%	20%	20%	20%
Other Costs							
Development Contingency (% of Hard & Soft Costs)	5%	5%	5%	5%	5%	5%	5%
Developer Fee (% of Hard and Soft Costs)	4%	4%	4%	4%	4%	4%	4%
<b>Revenues</b>							
Annual Net Operating Income	\$720,361	\$593,513	\$0	\$1,097,738	\$708,405		
Desired Yield on Cost [4]	5.50%	5.50%	5.50%	7.50%	7.50%		
Net Building Value (Supportable Development Costs)	\$13,097,480	\$10,791,136	\$0	\$14,636,506	\$9,445,402		
Net Building Value per Unit/Building SF	\$261,950	\$154,159	\$0	\$246.24	\$291.84	N/A	N/A
<b>Costs</b>							
Hard Costs (including Parking)	\$7,900,701	\$6,227,284	\$2,654,745	\$10,342,560	\$4,824,807	\$10,525,000	\$3,225,000
Soft Costs	\$2,370,210	\$1,868,185	\$796,423	\$2,068,512	\$964,961	\$2,105,000	\$645,000
Other Costs	\$924,382	\$728,592	\$310,605	\$1,116,998	\$521,072	\$1,136,700	\$348,300
Total Development Costs (TDC)	\$11,195,294	\$8,824,062	\$3,761,773	\$13,528,068	\$6,310,848	\$13,766,700	\$4,218,300
TDC per Residential Unit/Commercial SF/Stall	\$223,906	\$126,058	\$144,684	\$227.59	\$194.99	\$32,700	\$32,700
<b>Land Value</b>							
Supportable Residual Land Value	\$1,902,186	\$1,967,075	\$0	\$1,108,437	\$3,134,554	\$13,766,700	-\$4,218,300
Land Value per Unit or Bldg SF	\$36,044	\$28,101	\$0	\$18.65	\$96.85		
<b>SUM OF TOTAL PROGRAM LAND VALUES</b>							
Starting Annual Ground Lease at 6% of Value				PRIVATE	\$8,112,252	PARKING	-\$17,985,000
Annual Debt Service on Parking Costs [5]					\$486,735		
Years of Ground Lease Payment until OCTA Parking Costs are Repaid [6]							46
NPV of OCTA Revenues over 50 Years at 5% Discount Rate							-\$5,568,655

[1] For these calculations, the parking costs for housing and commercial spaces are assumed to be provided as structured parking. Site plan shows 550 structured parking spaces and 281 retained surface spaces.

[2] Based on local market research for smaller units, with 10% premium for new construction. Micro-units get another 10% premium. PSH units are priced at 30% AMI for a 1-person household.

[3] All building Direct Costs assume prevailing wage requirements and are based on the following sources:

Residential based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Apartment, 4-7 stories, plus a 10% premium per sq. ft. for micro units.

Office based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles.

Retail based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for store, retail, less an assumed savings of \$25 because the proposed retail is in the ground floor of residential and garage buildings.

Structured parking based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Garage, Parking

[4] Based on recent property sale transactions in the area and LPA's professional judgment.

[5] Assumes OCTA issues debt for full structured parking cost at 5% interest with 30-year amortization.

[6] Assumes ground lease payments escalate 2% annually while debt service payment remain constant.

Source: IBI Group; CoStar; Saylor's Current Construction Costs 2018; EPS.

OCTA Fullerton Joint Development  
Land Use Prototypes and Residual Land Value Summary

DEVELOPER'S OPTION 1 PLAN

Item	LAND USE			
	Apartments	Commercial	Private Structured Parking	OCTA Structured Parking
<b>Development Assumptions</b>				
Number of Residential Units	424			
Avg. Net Unit Size (sq. ft.)	528			
Rentable Sq. Ft.	223,720	24,100		
Building Efficiency Ratio	85%	100%		
Gross Building Area	263,200	24,100		
Parking Spaces per Unit/per 1,000 SF nonresidential	0.00	0.00		
Total Parking Spaces	0	0	506	88
Net New Parking Spaces [1]	0	0	506	88
<b>Operating Assumptions</b>				
Rent per Sq. Ft. per Month [2]	\$3.05	\$2.00		
Vacancy Rate	5%	5%		
Operating Expenses	30%	4%		
<b>Cost Assumptions</b>				
<b>Hard Costs</b>				
Basic Site Work per gross Sq. Ft.	\$5	\$5		
Building Direct Cost per gross Sq. Ft. [3]	\$222	\$144		
Structured Parking per Space [3]	\$25,000	\$25,000	\$25,000	\$25,000
Soft Costs (% of Hard Costs)	30%	20%	20%	20%
Other Costs				
Development Contingency (% of Hard & Soft Costs)	5%	5%	5%	5%
Developer Fee (% of Hard and Soft Costs)	4%	4%	4%	4%
<b>Revenues</b>				
Annual Net Operating Income	\$5,445,121	\$527,501		
Desired Yield on Cost [4]	5.50%	7.50%		
Net Building Value (Supportable Development Costs)	\$99,002,201	\$7,033,344		
Net Building Value per Unit/Building SF	\$233,496	\$291.84	N/A	N/A
<b>Costs</b>				
Hard Costs (including Parking)	\$59,720,406	\$3,592,704	\$12,650,000	\$2,200,000
Soft Costs	\$17,916,122	\$718,541	\$2,530,000	\$440,000
Other Costs	\$6,987,288	\$388,012	\$1,366,200	\$237,600
Total Development Costs (TDC)	\$84,623,816	\$4,699,256	\$16,546,200	\$2,877,600
TDC per Residential Unit/Commercial SF/Stall	\$199,584	\$194.99	\$32,700	\$32,700
<b>Land Value</b>				
Supportable Residual Land Value	\$14,378,386	\$2,334,088	-\$16,546,200	-\$2,877,600
Land Value per Unit or Bldg SF	\$33,911	\$96.85		
<b>SUM OF TOTAL PROGRAM LAND VALUES</b>				
Starting Annual Ground Lease at 6% of Value		\$1,002,748		
Annual Debt Service on Parking Costs [5]				-\$1,263,546
Years of Ground Lease Payment until OCTA Parking Costs are Repaid [6]				24
NPV of OCTA Revenues over 50 Years at 5% Discount Rate				\$6,155,760

[1] For these calculations, the parking costs for housing and commercial spaces are assumed to be provided as structured parking. Site plan shows 594 structured parking spaces and 325 retained surface spaces.



OCTA Fullerton Joint Development  
Land Use Prototypes and Residual Land Value Summary

DEVELOPER'S OPTION 2 PLAN

Item	LAND USE			
	Apartments	Commercial	Private Structured Parking	OCTA Structured Parking
<b>Development Assumptions</b>				
Number of Residential Units	466			
Avg. Net Unit Size (sq. ft.)	534			
Rentable Sq. Ft.	248,829	19,310		
Building Efficiency Ratio	85%	100%		
Gross Building Area	292,740	19,310		
Parking Spaces per Unit/per 1,000 SF nonresidential	0.00	0.00		
Total Parking Spaces	0	0	533	266
Net New Parking Spaces [1]	0	0	533	266
<b>Operating Assumptions</b>				
Rent per Sq. Ft. per Month [2]	\$3.05	\$2.00		
Vacancy Rate	5%	5%		
Operating Expenses	30%	4%		
<b>Cost Assumptions</b>				
<b>Hard Costs</b>				
Basic Site Work per gross Sq. Ft.	\$5	\$5		
Building Direct Cost per gross Sq. Ft. [3]	\$222	\$144		
Structured Parking per Space [3]	\$25,000	\$25,000	\$25,000	\$25,000
Soft Costs (% of Hard Costs)	30%	20%	20%	20%
<b>Other Costs</b>				
Development Contingency (% of Hard & Soft Costs)	5%	5%	5%	5%
Developer Fee (% of Hard and Soft Costs)	4%	4%	4%	4%
<b>Revenues</b>				
Annual Net Operating Income	\$6,056,249	\$422,657		
Desired Yield on Cost [4]	5.50%	7.50%		
Net Building Value (Supportable Development Costs)	\$110,113,619	\$5,635,430		
Net Building Value per Unit/Building SF	\$236,295	\$291.84	N/A	N/A
<b>Costs</b>				
Hard Costs (including Parking)	\$66,423,069	\$2,878,635	\$13,325,000	\$6,650,000
Soft Costs	\$19,926,921	\$575,727	\$2,665,000	\$1,330,000
Other Costs	\$7,771,499	\$310,893	\$1,439,100	\$718,200
Total Development Costs (TDC)	\$94,121,489	\$3,765,255	\$17,429,100	\$8,698,200
TDC per Residential Unit/Commercial SF/Stall	\$201,977	\$194.99	\$32,700	\$32,700
<b>Land Value</b>				
Supportable Residual Land Value	\$15,992,130	\$1,870,176	-\$17,429,100	-\$8,698,200
Land Value per Unit or Bldg SF	\$34,318	\$96.85		
<b>SUM OF TOTAL PROGRAM LAND VALUES</b>				
Starting Annual Ground Lease at 6% of Value	PRIVATE	\$17,862,306	PARKING	-\$26,127,300
Annual Debt Service on Parking Costs [5]		\$1,071,738		
Years of Ground Lease Payment until OCTA Parking Costs are Repaid [6]				-1,699,618
NPV of OCTA Revenues over 50 Years at 5% Discount Rate				\$1,212,155

[1] For these calculations, the parking costs for housing and commercial spaces are assumed to be provided as structured parking. Site plan shows 799 structured parking spaces and 160 retained surface spaces.

[2] Based on CoStar market research for smaller units, with 10% premium for new construction.

[3] All Building Direct Costs assume prevailing wage requirements and are based on the following sources:

Residential based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Apartment, 4-7 stories.  
Retail based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Store, Retail, less an assumed savings of \$25 because the proposed retail is in the ground floor of residential and garage buildings.

Structured parking based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Garage, Parking

[4] Based on recent property sale transactions in the area and EPS professional judgment.

[5] Assumes OCTA issues debt for full structured parking cost at 5% interest with 30-year amortization.

[6] Assumes ground lease payments escalate 2% annually while debt service payment remain constant.

Source: IBI Group, CoStar, Saylor's Current Construction Costs 2018; EPS.

OCTA Fullerton Joint Development  
Land Use Prototypes and Residual Land Value Summary

PHASED PLAN

Item	LAND USE				
	Apartments	Office	Retail	Private Structured Parking	OCTA Structured Parking
<b>Development Assumptions</b>					
Number of Residential Units	82				
Avg. Net Unit Size (sq. ft.)	522				
Rentable Sq. Ft.	42,840	27,900	10,800		
Building Efficiency Ratio	85%	90%	100%		
Gross Building Area	50,400	31,000	10,800		
Parking Spaces per Unit/per 1,000 SF nonresidential	0.00	0.00	0.00		
Total Parking Spaces	0	0	0	0	0
Net New Parking Spaces [1]	0	0	0	0	0
<b>Operating Assumptions</b>					
Rent per Sq. Ft. per Month [2]	\$3.05	\$2.25	\$2.00		
Vacancy Rate	5%	5%	5%		
Operating Expenses	30%	20%	4%		
<b>Cost Assumptions</b>					
<b>Hard Costs</b>					
Basic Site Work per gross Sq. Ft.	\$5	\$5	\$5		
Building Direct Cost per gross Sq. Ft. [3]	\$222	\$169	\$144		
Structured Parking per Space [3]	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Soft Costs (% of Hard Costs)	30%	20%	20%	20%	20%
<b>Other Costs</b>					
Development Contingency (% of Hard & Soft Costs)	5%	5%	5%	5%	5%
Developer Fee (% of Hard and Soft Costs)	4%	4%	4%	4%	4%
<b>Revenues</b>					
Annual Net Operating Income	\$1,042,683	\$572,508	\$236,390		
Desired Yield on Cost [4]	5.50%	7.50%	7.50%		
Net Building Value (Supportable Development Costs)	\$18,957,868	\$7,833,440	\$3,151,872		
Net Building Value per Unit/Building SF	\$231,194	\$246.24	\$291.84	N/A	N/A
<b>Costs</b>					
Hard Costs (including Parking)	\$11,435,822	\$5,394,000	\$1,610,008	\$0	\$0
Soft Costs	\$3,430,747	\$1,078,800	\$322,002	\$0	\$0
Other Costs	\$1,337,991	\$582,552	\$173,881	\$0	\$0
Total Development Costs (TDC)	\$16,204,560	\$7,055,352	\$2,105,891	\$0	\$0
TDC per Residential Unit/Commercial SF/Stall	\$197,617	\$227.59	\$194.99		
<b>Land Value</b>					
Supportable Residual Land Value	\$2,753,308	\$578,088	\$1,045,981	\$0	\$0
Land Value per Unit or Bldg SF	\$33,577	\$18.65	\$96.85		
<b>SUM OF TOTAL PROGRAM LAND VALUES</b>					
Starting Annual Ground Lease at 6% of Value		PRIVATE	\$4,377,377	PARKING	\$0
Annual Debt Service on Parking Costs [5]			\$262,643		
Years of Ground Lease Payment until OCTA Parking Costs are Repaid [6]					\$0
NPV of OCTA Revenues over 50 Years at 5% Discount Rate					\$6,699,869

[1] For these calculations, the housing, office, and retail developments are assumed to utilize existing spaces.

[2] Based on CoStar market research for smaller units, with 10% premium for new construction.

[3] All Building Direct Costs assume prevailing wage requirements and are based on the following sources:

Residential based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Apartment, 4-7 stories.  
Office based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles.

Retail based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Store, Retail, less an assumed savings of \$25 because the proposed retail is in the ground floor of residential and garage buildings.

Structured parking based on Saylor's Current Construction Costs 2018 in Zone 4 and Los Angeles for Garage, Parking

[4] Based on recent property sale transactions in the area and EPS professional judgment.



